SZÁZADVÉG
Gazdaságkutató Zrt.

SZÉCHENYI 2020

# Ex-ante assessment

## Phase 1

### TO1, TO2, TO3, TO4, TO8

HUNGARIAN GOVERNMENT

European Union
European Structural and Investment Funds

INVESTING IN YOUR FUTURE

**Contents**

# List of abbreviations

# Introduction

Pursuant to Article 37 of the Regulation (EU) 1303/2013 of the European Parliament and of the Council, an ex-ante assessment shall be performed prior to forming the financial instruments to identify in advance the market imperfections or the sub-optimal investment situations, the appropriate investment needs, the possibilities to involve the private sector and the added value represented by the financial instruments in question. The detailed aspects of the ex-ante assessment are regulated – pursuant to Article 37 (2) of Common Provisions Regulation – by the General Guidelines No. 1 prepared by PWC.[1] When preparing the study we also took into consideration the guideline prepared by the European Commission – but available as a draft only at the time of closing the study – that serves as a certain kind of FAQ, answering the most important questions.[2]

Századvég Economic Research Co. contributes to the preparation of the ex-ante assessment compiled in accordance with the above guide by preparing a study on the utilisation of financial instruments included in the Economic Development and Innovation Operational Programme (EDIOP) and in the Competitive Central Hungary Operational Programme (CCHOP). This study – apart from identifying the market issues – makes proposals on financial instruments, and describes their scopes of utilisation, as well as the institutional model that could be followed.

The study focuses on the financial instruments planned in relation to thematic objectives 1, 2, 3, 4, and 8, and presents findings in connection with the sub-markets that can be described along EDIOP and CCHOP measures. In the study we quantified the market gap, as well as the market issues, for which the financial instruments will have to respond.

Hungary submitted the operational programmes to the European Commission, at the time of preparing the study, the documents were still in the approval phase.

[1] Ex-ante assessment methodology for financial instruments in the 2014-2020 programming period. European Commission-EIB Version 1.0 March 2014

[2] Ex ante assessment guidance, EGESIF_14_0039-00 FI

# List of abbreviations

| | |
|---|---|
| ADSCR | Annual Debt Service Coverage Ratio |
| BERD | Business Enterprise Research and Development |
| CPR | Common Provision Regulation |
| ENPV | Economic Net Present Value |
| ERP | Enterprise Resource Planning |
| ESCO | Energy Service Company |
| EVCA | European Private Equity and Venture Capital Association |
| FNPV | Financial Net Present Value |
| GAP | Market gap |
| EDIOP | Economic Development and Innovation Operational Programme |
| HSPS | Household Small Power Stations |
| LEA | Local Enterprise Agencies |
| ICT | Information and Communication Technologies |
| Jeremie | Joint European Resources for Micro to medium Enterprises |
| R&D | Research & Development |
| MOS | Mandatory Off-take Scheme |
| EEEOP | Environment and Energy Efficiency Operational Programme |
| KFI | Research & development, innovation |
| SME | Small and Medium-sized Enterprises |
| HSB | Housing Savings Bank |
| MAVIR | Hungarian Independent Transmission Operator Company Ltd. |
| MEKH | Hungarian Energy and Public Utility Regulatory Authority |
| RSS | Renewable Support Scheme |
| MFB | Hungarian Development Bank |
| CBH | Central Bank of Hungary |

| | |
|---|---|
| NHP | Growth Loan Programme |
| NIS | National Innovation Strategy |
| CCHOP | Competitive Central Hungary Operational Programme |
| GA | Grant assistance |
| GIP | Green Investment Programme |

# Executive summary

**General findings**

1. Priority 8 of EDIOP plans to use financial instruments in connection with five thematic objectives (TO1 – technology development and innovation, TO2 –enhancing access to, use and quality of ICT, TO3 – enhancing the competitiveness of SMEs , TO4 – supporting the shift towards the low-carbon economy in all sectors, TO8 – promoting sustainable and quality employment and supporting labour mobility). From these, in the cases of three thematic objectives (TO1, TO3, TO4) measures are present also in CCHOP.
2. In the calculation we examined the problems of market financing on the sub-markets related to the planned financial instruments of EDIOP and CCHOP: RDI investments of enterprises (TO1); IT developments of SMEs (TO2); Broadband network development (TO2); Development of ICT enterprises (TO2); Capacity expansion developments of SMEs (TO3); Development of business infrastructure (TO3); Energy efficiency investments in the (TO4); Investments to increase renewable energy utilisation (TO4); Underprivileged people becoming entrepreneurs (TO8); Encouraging the investments of social enterprises (TO8).
3. GAP was calculated in accordance with the guidance recommended by the Commission. There are two approaches the guidance deems to be acceptable: identification of investment needs that cannot be financed from the market (this method requires the aggregation of rejected external financing needs), and the quantification of investment surplus necessary for achieving the policy objective (sub-optimal investment situation).
4. On the sub-markets determined under the thematic objectives TO3 and TO2 we used as a starting point the investment need not financed from the market, while in the case of areas TO1, TO4 and TO8 we determined the GAP based on the sub-optimal investment situation. The principles of this methodology are presented in the following table:

| GAP calculation method | |
|---|---|
| **RDI (TO1)** | |
| RDI investments of enterprises | Lag from the expected BERD index (for seven years, calculating with the difference from the trend without support) |
| **ICT investments (TO2)** | |
| IT developments of SMEs | It is an objective of the National Infocommunication Strategy to increase the use of enterprise process management systems (ERP). Enterprise level investment need required to achieve the EU average. |
| Improvement of broadband infrastructure | Investment cost required to reach the 100 percent coverage (30 Mbps) determined in the National Infocommunication Strategy (calculating with a specific cost per household of HUF 50,000) |
| Development of ICT companies | The total GAP calculated for SMEs (see TO3) multiplied by the investment ratio of ICT enterprises (approx. 5 percent of investments, based on the data from past years) |
| **SME competitiveness (TO3)** | |
| SMEs investments of SMEs, estate development | Rejected applications (1): the ratio of rejected applications of SMEs having investment plans (except in the area of agriculture) multiplied by the average project size based on the size of the enterprise and the number of projects in seven years. Calculation of suppressed demand (2): the ratio of enterprises that have an investment plan, but realising it from own sources, after being discouraged by the loan application (based on the Access to Finance survey)The total GAP calculated for the SMEs is the sum of (1) and (2). We have proportionated the GAP by the investment objectives of enterprises (73 percent of the investment plans is aimed at production expansion, technology development). |
| **Low CO2 (TO4)** | |
| Energy efficiency and renewable energy investments | Investment need required to achieve the target figures determined in the Energy Efficiency Directive and the Building Energetics Strategy (for residential use and for enterprises) Investment need determined on the basis of target figures based on the Renewable Action Plan (for residential use and for enterprises) |
| **Promotion of employment (TO8)** | |
| Promoting the establishment of entrepreneurship (micro financing) | Based on a Commission study on micro financing[3] (Active population X people living under poverty threshold X entrepreneurial willingness X effective entrepreneurial willingness (coefficient)X average loan size) |

[3] Study on imperfections in the area of microfinance and options how to address them through an EU financial instrument. EC. 2014.

| | |
|---|---|
| Social enterprises | Estimated investment required in the OP from social enterprises for job creation. Taking into consideration that nowadays such organisations cannot obtain market-based loan at all. Thus, the investment situation is sub-optimal, the policy is aimed at ensuring the creation of more jobs by providing assistance for the sector. |

5. The GAP, the extent of investments not realised due to market failures is based on the above calculations.

| | Market gap, HUF billion | | Budget of planned financial instruments (HUF billion)[4] | |
|---|---|---|---|---|
| | Convergence region | Central Hung | EDIOP | CCHOP |
| **TO1 - RDI investments of enterprises** | 260 | 181 | 202.3 | 7.3 |
| **TO2 - ICT investments** | 113 | 35 | 95.5 | 0 |
| IT development of SMEs | 22 | 12 | - | - |
| Improvement of broadband network | 79 | 0 | - | - |
| Development of ICT companies | 12 | 20 | - | - |
| **TO3 - SMEs investments of SMEs, estate development** | 277 | 192 | 224.8 | 7.3 |
| **TO4 – Energy efficiency and renewable energy investments** | - | - | 175.9 | 17.6 |
| **Energy efficiency (from which building energetics)** | 4703 [1491] | | - | - |
| Renewable energy sources | 1127 | | - | - |
| **TO8 - Promotion of employment (start-up enterprises, social enterprises)** | 39.5 | 25.5 | 31.2 | 0 |
| Promoting the establishment of entrepreneurship (micro financing) | 36 | 24 | - | - |

[4] Together with government contribution, calculated with technical rate of HUF 310.1/1 EUR.

| | | | | |
|---|---|---|---|---|
| Social enterprises | 3.5 | 1.5 | - | - |

*Note: In the case of thematic No. 4 no regional GAP can be determined, since the objective is determined on a national level. The GAPs calculated for the two types of measures cannot be added, because they overlap to some extent (e.g. energy efficiency can be improved with renewable energy sources as well).*

6. External sources are not available for the target groups, or are accessible only to a limited extent. Apart from the detailed findings on each thematic objective, that the following can be established in terms of each financing type:
   - in the case of bank loans, relevant surveys show that the lack of collateral or guarantee is increasingly characteristic, while the interest rates are very favourable;
   - on the capital investment market seed capital is missing, capital investors prefer the less risky enterprises, being in later life stages;
   - there are regulatory and institutional limits on the market of guarantee instruments, this type of financial instruments is less known by enterprises.
7. General aspects to be considered before selecting from the financial instruments:
   - Using grant assistance, the payback period of the project can be shortened, thus it is easier to obtain additional sources from the market.
   - Guarantees should be used primarily in areas where – based on former experience – a higher rate of loan default can be expected.
   - Soft loans can be used if the expected financial return of the project is low, or if it could improve the debt service coverage ratio of the project.
   - Capital investment should be used in the case of high level expected return and high risk level (but in an area being a priority from a development policy point of view).
8. From the rules on state aid, on the level of financial intermediary, the most important requirement seems to be the private equity contribution to be made, being a clear requirement based on the new periodical regulation. Based on the refinancing experience of the 2007-2013 period, a market contribution of around 10 percent in the case of loan funds can be considered high for certain market players (financial enterprises, Local Enterprise Agencies) that have not been active in mediation so far.
9. Use of off-the-shelf schemes – beside private investor contributions – is limited because it can be combined with grant assistance only to the extent of 5 percent. Nevertheless, we recommend for consideration the individual (not combined) use of these products because of their short implementation time. From the parameters set out in a legal regulation, the requirement of at least 25 percent contribution from the financial intermediary is narrowing the manoeuvrability.
10. We believe that the institutional structure should be established by taking into consideration the 2014-2020 regulatory limits (institutional models) and former experience, and based on the fund of funds model.

11. We propose to continue to have two evaluation and two contracting process connections behind the one-stop shop system (assistance contract for grant assistance with the Managing Authority, the loan contract is assessed by the financial intermediary).
12. The most important requirements for the financial product can be summarised as follows:

    - Universal products: The financial products (loan, capital, and guarantee) have to be constructed with parameters necessary to ensure that they align with several of the measures planned under the different thematic objectives. This way the emergence of a colourful product portfolio – that would be difficult to handle from an administrative aspect as well – can be prevented.
    - Incentive products: In this environment of low interest rate, loan product constructions that encourage financial intermediaries to take higher risks (i.e. the priority emoluments after private capital, the remuneration should cover the higher risks so that the interest rate cost for the final beneficiary remains "competitive" in the low interest rate environment) are necessary.
    - Products reflecting policy requirements: In the case of combined products, the policy requirement should be mirrored in the grant assistance. The financial intermediary assesses the return of the project and the creditworthiness of the project owner in the first place.

13. In the case of loan type products, we deem it appropriate to include a return requirement after the contribution into the client's interest rate. This way the scheme can be flexibly aligned to the changes of cost of funds. Should the private capital contribution be higher than the minimum set forth in the rules on state aid, reaching as much as 20 percent, the interest rate could still be kept under 2.5 percent, while the risk of the financial intermediaries is also covered through the fee and the return requirement.
14. In the case of capital investment, a fund manager structure aligned to the corporate life-cycles should be created: large number of seed capital funds, early growth funds and 2-3 growth funds. Within the seed capital funds, more emphasis has to be laid on supporting ICT and RDI projects.
15. It is recommended also in the case of guarantee products to make available an "off-the-shelf" product in an off-the-shelf scheme, providing help to a wide range of enterprises in accessing market loan. Since there is no requirement for private capital contribution on the intermediary level, the product can be launched rapidly.

**RDI (TO1)**

16. The objective of the measures appearing in Priority 2 of EDIOP with grant assistance, in Priority 8 of EDIOP with repayable assistance source, and in Priority 2 of CCHOP for the enterprises of the Central Hungary region is to increase R&D spending and to encourage innovation, from prototype manufacture to market entry.
17. Based on the summary of Innovation Union Scoreboard, Hungary ranks among moderate innovators. According to the survey, Hungarian enterprises significantly lag behind in the area of skills and innovation. Corporate R&D expenses at present reach 0.8 percent of GDP, while the objective is to reach 1.2 percent by 2020. When calculating the GAP we assumed a trend without funding, and then calculated the market gap based on that. The resulting market gap is HUF 441 billion.
18. Determining factors of market failure are summarised in the following table.

| ***Suboptimal investment*** | ***Market issues*** |
|---|---|
| ***To increase the BERD/GDP index to 1.2% by 2020, from the current 0.8%*** | *- information asymmetry: the financing party has little information about the project, the results of the project can be predicted with a high level of uncertainty only;*<br>*- the outcome of the project is hard to forecast, its risk is higher than that of a technology development;*<br>*- SMEs are tend to be risk-avoiding, smaller enterprises should risk their own money, they are more reluctant to initiate an R&D spending;*<br>*- lacking assets: financing parties do not accept intangible assets or knowledge capital as coverage;*<br>*- the revenue of RDI projects highly fluctuates, the debt service coverage ratio forecast includes a high level of uncertainty* |

**19.** Based on their innovation performance, enterprises can be classified into three categories: (1) large companies competitive on the international market and creating a demand for the innovation activities of SMEs; (2) innovative medium-sized enterprises already on the international market (from 4,000 medium-sized enterprises 5-10 percent belongs to this group); (3) micro and small-size enterprises that are responsive to and can be "persuaded" to perform innovative activities. In the case of enterprises belonging to the first category, only repayable assistance can be applied, and in the other categories, constructions combined with an ever increasing ratio of grant assistance should be offered.

**20.** When developing products being remote from the market, a higher amount of grant assistance is needed, while when supporting innovative investments being close to the market, a decreasing amount of grant assistance is required. In the case of product

developments closer to the market, individual beneficiaries need a loan, and in the case of enterprises with high growth potential capital investments are needed.

**21.** In the case of support provided to medium-sized and large companies which spend on R&D, and internationally competitive large companies that create a demand for innovation activities of SMEs, it is recommended to use mainly growth venture capital, loan and guarantee products. When supporting innovative medium-sized enterprises that are already present on the international market, and when supporting micro and small-sized enterprises that are responsive to and can be "persuaded" to perform innovative activities, it is recommended to use seed and early growth venture capital, as well as combined loan products (preferably completed by a guarantee).

**ICT development (TO2)**

22. Priority 8 of EDIOP includes the encouragement of ICT enterprise development, supporting IT development of Hungarian SMEs and broadband infrastructure investment.
23. IT development of SMEs (the ratio of enterprises having their own homepages or company management systems is under the EU average) and network infrastructure (accessibility of broadband network offering a speed of 30 Mbps) are both significantly lagging behind the requirements set for 2020 by the National Infocommunication Strategy (NIS). In these areas, the level of investments is sub-optimal, i.e. it is lagging behind the policy objective, while it is clear that market-based developments have been stuck during the past years. Further strengthening the SMEs being already competitive on the international market is a priority policy objective, and in order to achieve this, the external financing need of enterprises will have to be fulfilled through the supported instruments.
24. It should be emphasized that ICT investments are basically determined by the interdependence of three factors (digital economy – infrastructure – competence). The typical reason for the GAP is that these conditions are not met concurrently, development is not carried out in parallel. In order to improve the broadband infrastructure, it is crucial to have consumers at the end-point in the right time, for which - apart from the solvent demand - competence development is also required. However, the interested parties deem competence-development to be justified – and enterprises deem it to be recoverable – if there already is a functional infrastructure. The market of enterprises active in the digital economy cannot expand either, if there is no appropriate infrastructure and competence on the user side.
25. GAP experienced on the sub-markets examined within the thematic objective:
    a. SMEs IT development: according to Eurostat surveys, penetration of ERP (Enterprise Resource Planning) systems is 13 percent in Hungary, significantly lagging behind the average of the European Union, which is 26 percent. The enterprise management system, calculating with an average investment cost of HUF 10 million and 28,800 enterprises employing more than 10 people, is missing the EU average by 13 percentage point, thus it requires a surplus investment of

HUF 37.4 billion in this area.

b. Infrastructure development: Download speeds above 30 Mbps is available for only 60 percent of households, while the strategic goal is to reach a coverage of 100 percent. There is a considerable financial and regulatory gap in this area: due to the small number of end-points that can be installed with a proper business return (low density of resident population, small number of enterprises) the financial profit of the investments cannot be detected (negative FNPV), while its social benefit (ENPV) is positive. On the regulatory side, infrastructure investments by service providers are made more difficult by the so-called tax on public works. Calculating with a network development cost of HUF 50,000 per households – based on market information – for 40 percent of the households, there is a GAP of at least HUF 79.2 billion.

c. ICT sector: according to the data in 2012, 33,118 enterprises operate in the infocommunication sector (information, communications), which amounts to 5.3 percent of enterprises. Their investments, based on the data from the past few years, accounted for 4-5 percent of total investments. Their share from the Jeremie loans is also around 4-5 percent. In this area, the GAP is determined by taking 5 percent of the market gap determined for SME investments calculated for TO3 (~ HUF 600 billion): HUF 35 billion.

26. In relation to the measures planned along the thematic goal, the main market issues are summarised in the following table.

| ***Measure*** | ***Suboptimal investment*** | ***Market issues*** |
|---|---|---|
| ***Development of ICT companies*** | *The suboptimal investment level cannot be given a proper interpretation (the number of vacant ICT jobs is decreasing, the export of the sector is increasing, the volume of venture capital investments in the sector is on the increase)* | *- information asymmetry*<br>*- financing parties are risk-avoiding*<br>*- missing assets: intangible assets and knowledge capital are not accepted by the financing parties as coverage*<br>*- shortage of experts*<br>*- digital ecosystem (without competence and infrastructure, there is no digital economy)*<br>*- lack of seed capital* |
| ***SMEs ICT development*** | *The use of enterprise management system, webpage, web shop should be near the EU level (NIS)* | *- digital ecosystem (without competence development the advantages of the developments are not recognized)* |

| *Measure* | *Suboptimal investment* | *Market issues* |
|---|---|---|
| ***Development of broadband network*** | *The availability of the internet service with a speed of at least 30 Mbps for the population should be increased from the present 59.7% to 100% by 2020* | *- the development of the 30 Mbps broadband infrastructure will not be financially viable in every region (the number of potential end-points is low and is not expected to further increase)*<br>*- information asymmetry*<br>*- digital ecosystem (the development of competence, digital economy and infrastructure should be well coordinated)* |

27. It is recommended to support the ICT firms through capital investments and loan products combined with non repayable sources, and to increase the level of SMEs with individually available subsidised loans combined with grant assistance.
28. Development of new generation regional networks can be financed primarily from combined loan products, taking into consideration that due to the expectation of 100 percent coverage in certain areas the investments will presumably not be returned, not even on the long term. However, the network development has an indirect economic and social benefit in such cases as well. For achieving the expected results, the operational programme provides an option to use loan and to a smaller extent capital investment and/or guarantee products in the 2014-2020 period.

**SME competitiveness (TO3)**

29. Priority 8 of EDIOP (in connection with Priority 1 of EDIOP), and Priority 1 of CCHOP plan to improve the competitiveness of SMEs through technology development and business infrastructure development, by using financial instruments.
30. For the development investments of SMEs, we have determined the market gap based on the rejected financing applications per the enterprises planning an investment. (The interviewed loan institutions found the ratio of 16.9 % very low for micro enterprises. In the model we have increased this parameter to 50%, taking into consideration also the opinions mentioned above. We wish to further refine this index value during work still ahead of us; therefore, at the present stage we can provide an approximate value for the GAP analysis.) To this end, we have added the suppressed demand, determined on the basis of the ratio of "discouraged" loan applicants as calculated by the
    Access to Finance: for the calculation we used the average project number for 2007-2013 and the average loan size data of the Growth Loan Programme of the Central Bank of Hungary. The GAP thus obtained considers the total investments of SMEs, since only a part of SME developments can be connected to developments related to TO3

(production expansion, technology development), therefore, we used 73 percent of the resulting value (Hungarian Development Bank indicator). The GAP obtained this way is estimated at least HUF 500 billion (see the detailed calculation in the annex).

31. The market failures experienced on sub-markets are summarised in the following table.

| ***Measure*** | ***Suboptimal investment*** | ***Market issues*** |
|---|---|---|
| ***Business infrastructure*** | *The suboptimal situation cannot be given a proper interpretation (the competitiveness of SMEs is lagging behind the EU average)* | *- reduced amount of project loans after the economic crisis*<br>*- coordination difficulties – establishing cooperation means a lot of costs and risks for the participants, while the actual cooperation and its success is questionable* |
| ***Capacity expansion*** | | *- information asymmetry*<br>*- risk-avoiding financing parties*<br>*- "a jump into the dark" – entering a new market or changing the operational method of an enterprise require such amount of resources and implies such a high level of risks which a company is reluctant to undertake, even in situations that are justified to be promising.* |

32. Creation of modern business infrastructure should be encouraged by individual subsidised loans on the one hand. However, the operational plan also enables the combination of investments with grant assistance.
33. Capacity expansion investments of SMEs can be encouraged by subsidised loans combined with grant assistance. It is recommended to introduce easy accessible loans for micro, small- and medium-sized enterprises, or guarantee products automatically related to them, as well as combined products ensuring one-stop-shop, meaning simple and fast access to repayable and grant assistance. Positioning venture capital investment products requires an approach aligned with the corporate life-cycle.

**Investments in the field of energetics (TO4)**

34. Priority 8 of EDIOP – in connection with Priority 5 of EEEOP – plans to have measures (also) in the following areas: in order to improve energy efficiency and energy savings and to increase the use of renewable energy: residential (building energetics), enterprises (building energetics, economic and production processes, green electricity produced for the grid), district heating providers and companies producing heat for district heating (district heating development). Priority 5 of CCHOP provides financial instruments for enterprises and for the population to implement energetics investments in the Central Hungarian region.

35. Based on the Energy Efficiency Directive, the Renewable Action Plan and the Building Energetics Strategy (documents not yet fully adopted and closed) there is a significant GAP. We have determined the market gap based on the suboptimal situation, i.e. have quantified it according to the expectations set forth in the objectives. In the area of energy efficiency, a gap of HUF 4,703 billion can be quantified, from which HUF 1,438 billion is connected to building energetics (population and enterprises). As regards the use of renewable energy sources, an investment of HUF 1,127 billion is required to reach the target figure.
36. The market issues of the sub-markets examined are grouped in the following table.

| **Measures** | **Suboptimal investment** | **Market issues** |
|---|---|---|
| ***Energetics projects of residential buildings*** | Achieving the national energy efficiency objectives | - Investments do not realize the return period of 7-8 years in all cases. (The return period of complex energy efficiency investments sometimes takes up to 15 years.) In order to ensure that the investment falls into this category, grant assistance is needed.<br>- Own contribution is missing, but the financing parties require a minimum own contribution of 10-20 percent.<br>- The results of energy efficiency projects cannot be measured with exactitude in all cases (the results also depend on changing consumer habits, weather e.g.)<br>- The energy efficiency part and renovation part of the investments cannot be properly separated in all cases.<br>- The professional aspect is not always present in the preparative stages of investments (the logical order of investments is not always followed) |
| ***Energetics projects of enterprises*** | | - In the case of building energetics and renewable energy utilisation investments, the return period of the projects lasts too long. The return period needs to be reduced to less than 7-8 years, and this could be achieved by offering grant assistance.<br>- Banks are not willing to finance small- and medium-sized enterprises, or investments below the value of HUF 500 million. Enterprises are not creditworthy. |

| Measures | Suboptimal investment | Market issues |
|---|---|---|
| ***Investments related to renewable energy*** | Investments required to achieve the goals set forth in the Renewable Action Plan | - Insufficient rate of return: long return period, low cash-flow compared to the debt servicing.<br>- The risks of the Mandatory Off-take Scheme, the lengthy introduction period of the Renewable Support Scheme<br>- The preparatory and implementation period of certain investments are long due to the licensing procedure (e.g. in case of geothermal projects), however, solar panels, for example, can be installed quickly.<br>- There is insufficient experience in connection with the technology planned to be used, also obtaining the tools and equipment might be difficult. Expert competence is missing throughout the implementation process.<br>- It is not lucrative for the financing party to deal with low-value projects (usually under HUF 200-300 million)<br>- The required own contribution is minimum 10-20 percent, but typically 30 percent, which presents a problem for the investor. |
| ***District heating market*** | | - Investment costs cannot be validated in the administrative prices.<br>- Long implementation and preparatory periods<br>- The smaller district heating providers are lacking resources, for them ensuring own contribution poses a problem. |

37. In the case of energy efficiency investments, apart from involving ESCOs, subsidised loan and guarantee products also have to be offered. Residential building energetics investments can be made only in the form of combined products (grant assistance and subsidised loan or guarantee combined).
38. It is a serious problem that banks do not tend to support SMEs and projects under HUF 500 million, because of higher specific costs and risks. Consequently, assistance should be focused primarily on smaller enterprises. Investments related to renewable energy also need to be backed by subsidised loan and guarantee products.
39. District heating investments usually can be implemented only from grant assistance, taking into consideration the limits on the administrative price. By combining grant assistance with financial instruments even more investments could be implemented.

**Employment (TO8)**

40. Priority 8 of EDIOP, in connection with thematic objective No. 8 (TO8) plans to encourage underprivileged employees to become entrepreneurs and to support social enterprises.

41. SMEs employ more than seventy percent of the total number of employees (in Hungary it is 72 percent, the EU average is 67 percent). However, the survival rate and lifetime of these enterprises – compared to larger enterprises – are lower. Consequently, there are two possible strategic solutions: to increase the lifetime of enterprises, and/or make it easier for new entrants to start an enterprise, so that more people can become self-employed.
42. The market gap can be approximated with an average project size of HUF 1-5 million per unemployed or inactive population. According to a study prepared on behalf of the European Commission[5] using the same approach, the demand for micro-loans in this target group in Hungary is around EUR 232.8 million, while the supply is only EUR 17.7 million. This means that in this area there is a GAP exceeding EUR 200 million (around HUF 60 billion).[6]
43. Social enterprises, located "halfway" between the business and the non-profit sector, cannot usually access market resources at all[7], and due to their legal form (non-profit organisations) they were excluded from Jeremie loans as well during the past period.[8] Calculating with a twofold number of social enterprises (200 by 2020[9]) a market gap of around HUF 5 billion can be measured in this area.
44. The main factors of market failure:

| ***Measure*** | ***Suboptimal investment*** | ***Market failure*** |
|---|---|---|
| ***Promoting the establishment of entrepreneurship*** | *Less detailed, measure-related investment need (contribution to the increase of the employment rate)* | *- "a jump into the dark" – entering a new market or changing the operational method of an enterprise require such amount of resources and implies such a high level of risks which a company is reluctant to undertake, even in situations that are justified to be promising*<br>*- information asymmetry: the financing party knows little about the enterprise, the loan history is missing* |
| ***Social enterprises*** | | *- information asymmetry*<br>*- leverage effects – benefits or costs of a development influence not only the party implementing it (the labour market position of the employees is improving)* |

[5] Study on imperfections in the area of microfinance and options how to address them through an EU financial instrument. 2014. January

[6] The study calculated the GAP by multiplying the number of people living under the poverty threshold by the ratio of people showing willingness to become entrepreneurs (Eurobarometer data), and multiplied this by 4 percent, being a number for approximating the proportion of people that are actually capable of becoming entrepreneurs. The result referred to was obtained by multiplying this with the average project size.

[7] The ecosystem of social enterprises (http://www.nesst.org/wp-content/uploads/2014/05/A-t%C3%A1rsadalmi-v%C3%A1llalkoz%C3%A1sok-%C3%B6kosziszt%C3%A9m%C3%A1ja.pdf)

[8] Situation of social enterprises in Hungary, 2011 (http://www.eukn.org/dsresource?objectid=263416)

[9] EDIOP forecasts the creation of 4,000 new jobs within the frames of social enterprises. Calculating with an average number of 20 employees, 200 enterprises need to be created by 2020.

45. Instruments to assist beginner or start-up enterprises may be micro-loans and/or venture capital investments. Due to the high-risk characterising start-up enterprises, a combination with grant assistance is also required. Supporting social enterprises is usually far from market financing, thus, at the beginning of the period, it is recommended to assist the enterprises through grant assistance.

# II. Market inadequacies

# I. Policy intent

In this study we are reviewing the market of financial instruments that are – based on the policy intent – planned to be offered within the frames of EDIOP (convergence regions) and CCHOP (Central Hungarian Region, competitiveness region) in connection with the measures detailed in the following table.

*Table 1 – Based on the policy intent, the total budget of financial instruments to be made available in EDIOP and CCHOP (HUF billion, from the total the CCHOP sources are indicated in brackets)*[10]

| Thematic objective | Budget of financial instruments | Name of planned measure |
|---|---|---|
| **TO1** | Promotion of the intensity of corporate R&D+I activities | 209.6 (7.3) |
| **TO2** | Improving productialization potential of ICT companies | 95.5 (0) |
| | Encouraging the market expansion of internationally competitive Hungarian ICT SMEs | |
| | Improving the efficiency and informatization level of SMEs | |
| | Increasing the ratio of the enterprises' use of electronic services | |
| | Development of new generation (NGA) and regional networks | |
| **TO3** | Creation of a modern business infrastructure | 232.1 (7.3) |
| | Capacity enhancement | |
| **TO4** | Supporting energy efficiency and renewable energy usage of enterprises | 193.5 (17.6) |
| | Supporting energy efficiency and renewable energy usage in the housing sector | |
| **TO8** | Improving the employment of job seekers, especially in the case of those with low schooling | 31.2 (0) |
| | Encouraging and supporting social enterprises | |
| | Intern programme and supporting young people in becoming entrepreneurs | |

[10] Calculated with a technical rate of HUF 310.1 /EUR 1.

# II. Market inadequacies

In this chapter we will present the financing situation of enterprises – and related to the thematic objective No. 4 – that of the population. First, we will examine the money and capital market trends, earlier levels enterprise ability to involve external sources, the most important limitations, and the expected trends. We are reviewing the loan and capital market, as well as the guarantee products available on the market. In the second part of the chapter, we will examine the special characteristics of the financing environment in connection with the thematic objectives and sub-markets, and will identify the market issues. We will examine separately the infrastructure and capacity expansion investments of SMEs, the ICT developments, the R&D+I investments, the investments related to the improvement of energy efficiency and renewable energy sources, as well as the investment specifically aimed at promoting employment. The sub-markets will be interpreted as defined in the previous chapter, i.e. in accordance with the measures determined for the planned financial instruments of the operational programmes. Finally, we will determine the GAP as a figure.

## 2.1. Financing environment of enterprises

The external funding need of Hungarian enterprises is low. According to a 2014 study by Access to Finances, it is Hungary where the ratio of enterprises considering classic external funding instruments[11] relevant sources is the lowest (EU average: 86%, Hungary: 74%).[12] Loans are used by enterprises primarily for operational needs. Within external resources, the proportion of those utilising bank overdraft, working capital loans and leasing is significant.[13] In the case of investments, the external funding need is even less, since the demand for related bank loans is exceptionally low (EU average: 57%, Hungary: 31% - only Slovakia has a lower rate, 29%).

[11] According to the survey this includes overdraft, leasing and factoring instruments, working capital loans, bank loans, other loans, grant assistance, soft loans and bond issues.
[12] There is no data available in this area with a regional breakdown. Although, based on the data of the questionnaire survey made for the 2013 SME yearbook, cross-tables of such type can be compiled, those cannot be deemed to be representative in this "depth" any more (due to the small number of items). Nevertheless, we would like to note that there are no significant differences in the regional breakdown, based on the relevant data.
[13] The enterprises could indicate more than one instrument in the survey.

*Table 2 – Financing structure of enterprises*

| | EU-28 | Hungary |
|---|---|---|
| **Grant assistance and soft loan** | 32% | 26% |
| **Overdraft** | 53% | 45% |
| **Bank loans** | 57% | 31% |
| **Current asset loan** | 33% | 18% |
| **Other loans** | 19% | 15% |
| **Corporate bonds** | 4% | 3% |
| **Capital investment** | 16% | 2% |
| **Leasing** | 47% | 41% |
| **Factoring** | 11% | 8% |
| **Internal sources or selling of assets** | 25% | 26% |
| **Other sources (e.g. owner's loan)** | 11% | 14% |

*Source: Access to Finance, 2014*
*Note: Percentage values show what proportion of the enterprises answered "yes" to the question whether they deem the financial instrument in question to be a relevant instrument in the case of their enterprises.*

Based on enterprise size, there are obviously significant differences as regards the external sources utilised. It can be assumed based on corporate tax return data available. Based on the 2014 data, on average 34.2 percent of enterprises has long-term investment loans, while this figure was under 25 percent in the case of SMEs.

*Table 3 – Proportion of enterprises having long term investment loans, 2013*

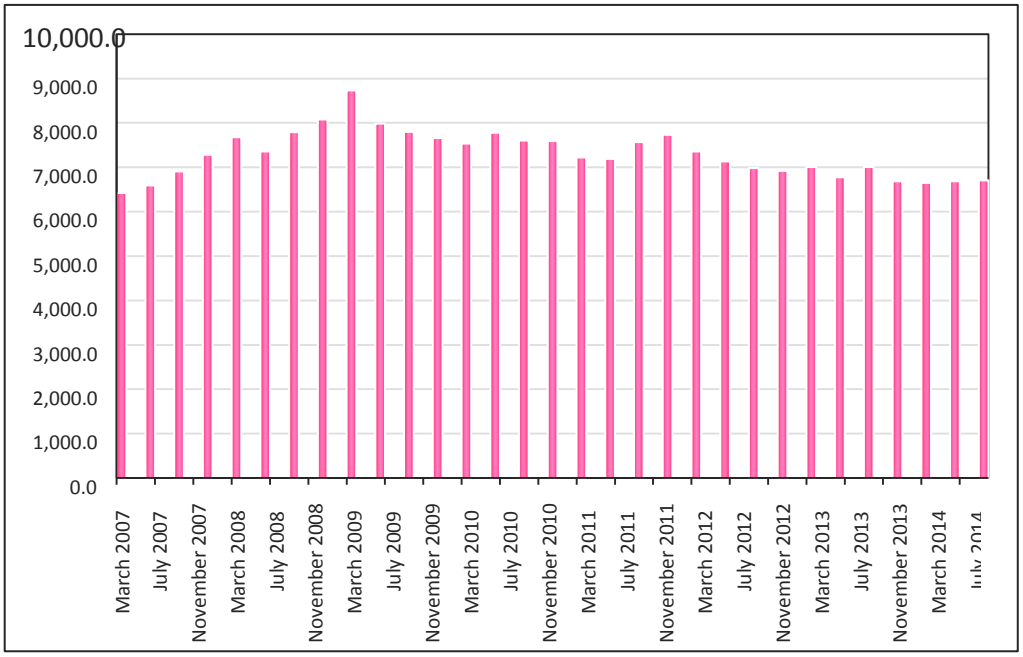
| | Proportion of enterprises having loans within the size category | Distribution of the loans |
|---|---|---|
| **0-1 employee** | 18.1 | 29.6 |
| **2-9 employees** | 28.7 | 12.4 |
| **10-49 employees** | 46.3 | 23.5 |
| **Micro average/Total** | **22.3** | **65.5** |
| **50-249 employees** | 57.0 | 8.4 |
| **SME average/Total** | **24.1** | **73.9** |
| **more than 250 employees** | 51.8 | 26.1 |
| **Average/Total** | **34.2** | **100.0** |

*Source: SME Yearbook, 2013*

Examination of earlier data reveals that the low level of willingness of Hungarian enterprises to involve external sources has not changed significantly during the past decade, therefore, it cannot be deemed solely a consequence of the financial crisis. In line with an Eurobarometer[14] survey of 2005, 70 percent of Hungarian enterprises planned to use some kind of external source (in a wider sense) to cover operational and investment costs (compared to the current 74 percent), and with that figure, we were in the penultimate position among the ten newly accessed countries (the last one was Lithuania with 66 percent).

Besides the low level of demand, subsequent to the financial crisis of 2008, supply became less intensive as well. In the SME sector, which was initially excessively low, in an international comparison, a decrease of 15 percent was recorded, while in the case of large companies, loan activity dropped by 30 percent (loan amount of non-financial enterprises was close to HUF 9,000 billion at the end of 2008, and this amount was reduced to around HUF 7,000 billion by 2011). Schemes launched from Community and state funds could offset the decrease in corporate loans, but the risk taking willingness of banks decreased permanently.

FIGURE 1 – TOTAL LOANS OF ENTERPRISES (HUF BILLION)




*Source: Central Bank of Hungary*
*Note: The figure includes the data on non-financial enterprises.*

The monetary relaxing visible in the United States, also in Europe and in Hungary from 2012, the interest rate cut, and the Growth Loan Programme of the Central Bank of Hungary have effectively improved the situation. As a result, the decrease of enterprise loans ceased, and actually, it started to increase slightly. According to the expectations of international forecasting institutes and market analysts, this beneficial interest rate environment may last

[14] http://ec.europa.eu/DocsRoom/documents/3272/attachments/1/translations/en/renditions/native

even until the end of 2015 (IMF).

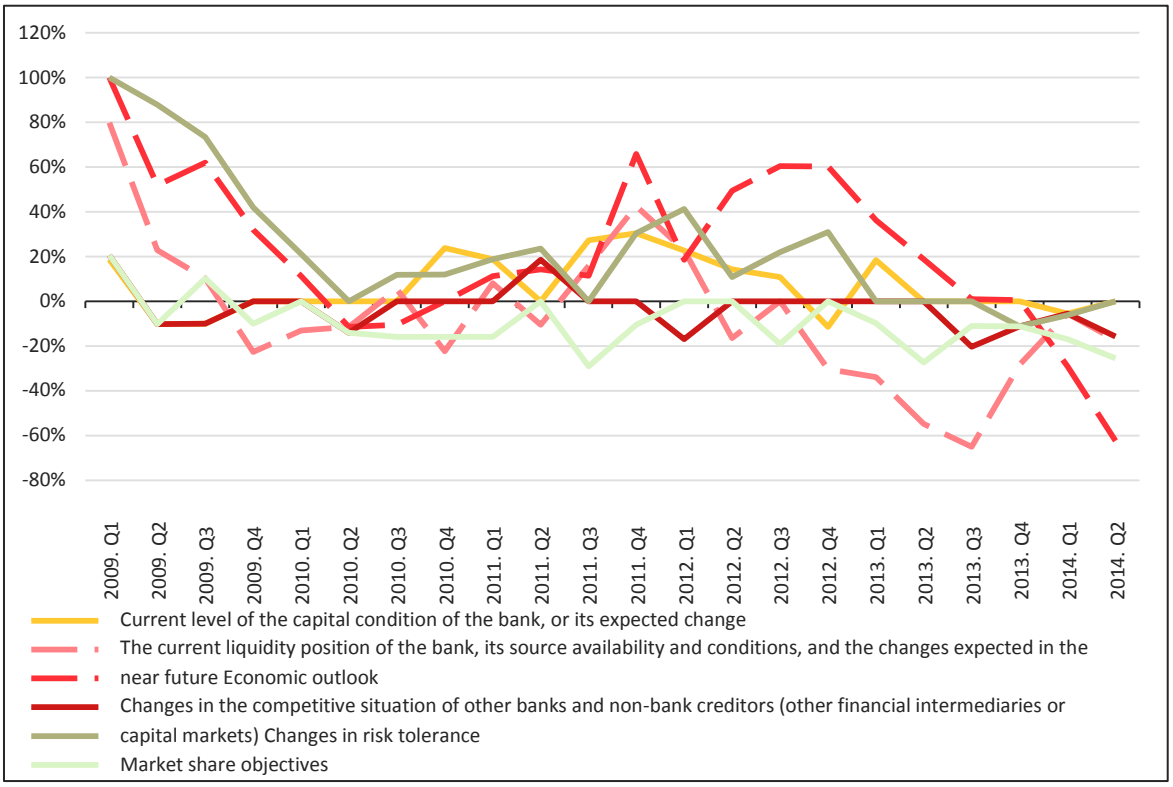
### 2.1.1. Loans: problems caused by low interest rate and lack of coverage

Within the category of external funding, apart from market loans, the soft loan constructions financed from Community and Hungarian funds effectively improved the loan supply.

According to 2014 data of the Access to Finance study[15] prepared by the European Commission, the loan demand of European enterprises is mostly hindered by the high interest rate on loans and the partial or complete unavailability of the required coverage. The Hungarian situation is similar, however, the lack of the required guarantee is becoming an increasingly serious problem in access to loans, with a percentage being the highest in the European Union (14%). In the 2014 survey, enterprises reported it to be a problem of the same importance as that of the high interest rates.

Based on a survey on loans conducted by the Central Bank of Hungary, determining factors of loan supply changed favourably during the period following the economic crisis, and this enabled the loan conditions to be relaxed.

FIGURE 2 – DETERMINANT CONDITIONS OF THE LOAN SUPPLY OF COMMERCIAL BANKS AND THEIR CHANGES




*Source: survey on the Central Bank of Hungary on the loans, August, 2014*

*Note: The difference of the proportion of banks indicating contribution to aggravation or relaxing, weighted by market share. Positive data indicate that the given factor contributes to the aggravation, while negative data indicate that the given factor contributes to the relaxation of the criteria.*

[15] http://ec.europa.eu/enterprise/policies/finance/data/index_en.html

Apart from market loans, the soft loan programmes provided a significant facilitation in enterprise finance. In 2014, 40 percent of SME loans was some kind of soft loan, the majority being part of the loan programme of the Central Bank of Hungary (75%).[16] The second largest outplacement was made by EximBank which provides usually large amount (average value HUF 350 million) loans for medium-sized enterprises to facilitate foreign market expansion. The proportion of the Jeremie programme within the total SME loans does not reach 5 percent (while considering the number of transactions it is near 10 percent – because of the high proportion of low-amount micro-loans).

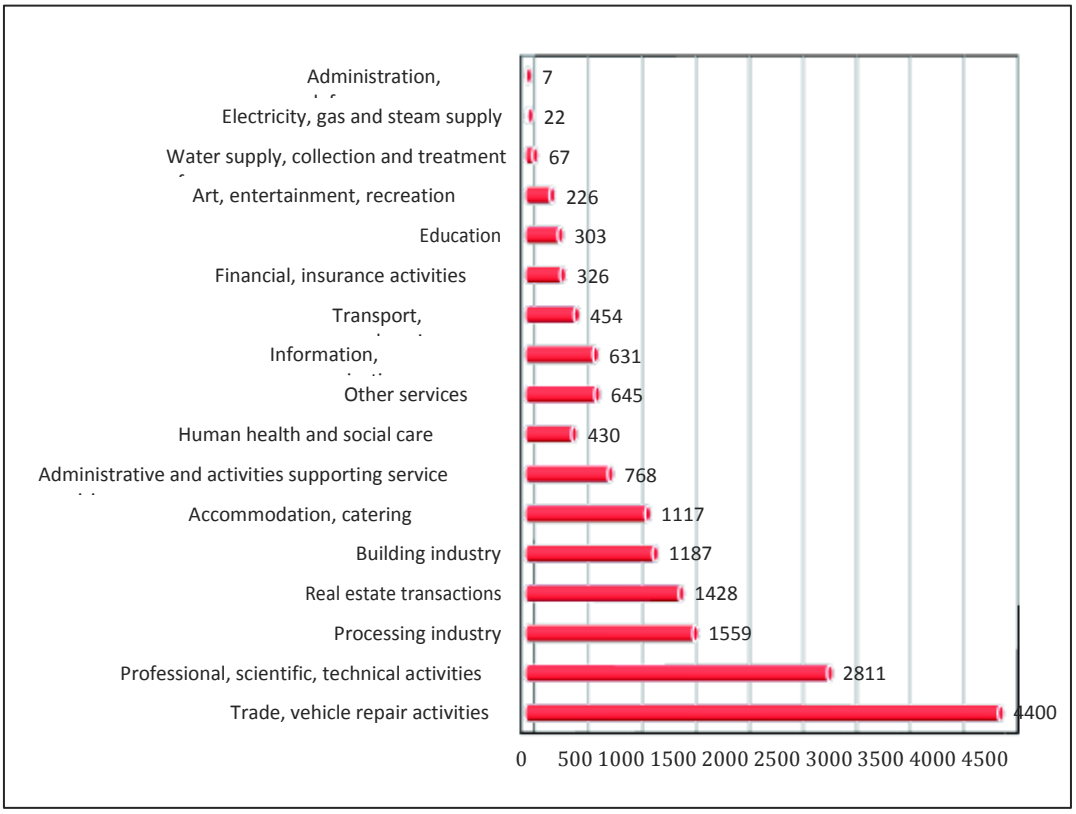
Jeremie-type loans[17], based on August 2014 data, could increase the loan market by actually using HUF 163 billion from the funds of the 2007-2013 period, and as much as 18,000 transactions are related to the financial instruments utilised in the previous period. Central Hungarian enterprises utilised nearly 20 percent of the budget for loans (in the case of the New Széchenyi Loan the share of this region is 25 percent). However, it has to be noted that at the beginning of the period the enterprises of the central region showed much more interest in the funds. The average loan size in the case of working capital loans is HUF 20 million, in the case of investment loans HUF 24 million, while in the case of micro-loans it is around HUF 4-5 million. As a result of soft loans, enterprises can obtain external funds with terms longer and interest rates lower than those of market loans. Initially, the funds were available with a refinancing rate of 75 percent in the case of commercial banks mediating the loan, and 100 percent in the case of financial enterprises. Loan outplacement accelerated after 2011, as a result of the loan amount upper limit increase, increasing the refinancing rate and introducing a combined micro-loan programme. By using the product combined with grant assistance, the demand for the financial instrument could be increased effectively. More than half (52.4%) of the loan and guarantee type transactions (17,744) was in connection with the combined product. On the basis of the contractual value, this proportion is 37.7%. The share of the Central Hungarian region was 16.2 percent. However, it is important to take into consideration that a correction guide issued by the European Commission voiced several comments in connection with the combined products. These comments should be taken into consideration in the next period (the detailed analyses can be found in Chapter 3). Based on experience, commercial banks participating in the financial mediation were more risk-avoiding, while financial enterprises and local enterprise agencies played a more active role in fund outplacement (75%). As a result of the differing project evaluation methodology, commercial banks' portfolio is deemed less problematic, while in the portfolio of financial enterprises and the Local Enterprise Agencies

[16] http://www.mnb.hu/Root/Dokumentumtar/MNB/Kiadvanyok/mnbhu_egyebkiadvanyok_hu/NovekedesiHitelprogramAzelso18honap.pdf

[17] New Hungary Micro Loan, New Széchenyi Loan (including the absorption budget), New Hungary SME Loan Programme, Working capital loan, Combined Micro-loan

the proportion of problematic projects with some kind of delay is much higher.[18] The different activities of the institutions participating in the financial intermediary process can be explained also by the different risk management models of commercial banks. In the first quarter of 2013, KPMG prepared an overall assessment about the financial instruments used in the 2007-2013 period.[19] The report called the attention also to the deficiencies and different interests of the financial intermediary system. The risk management model of commercial banks was difficult to align with the approach required in the Jeremie scheme, the banks were not interested in using this model.

FIGURE 3 – SECTORAL DISTRIBUTION OF JEREMIE LOANS, 2013 (HUF BILLION)




*Source: MV Zrt.*

Central Bank of Hungary launched the Growth Loan Programme in 2013 to boost economic growth. The scheme has two main objectives: one of them is to replace the foreign currency loans with low interest rate HUF loans, and the other is to provide low interest rate loans for small and medium-sized enterprises. The Central Bank of Hungary increased the original budget of HUF 500 billion to HUF 750 billion immediately after the launch (to replace HUF loans of HUF 425 billion and foreign currency loans of HUF 325 billion), then performed a

[18] Based on the study prepared by Századvég Economic Research Co. for MV Zrt (The effects of doubtful debts on the financial intermediaries of the loan programmes of Jeremie funds).

[19] Assessment of the financial instruments of the Economic Development Operational Programme KPMG. 2013. April http://www.nfu.hu/download/48260/P%C3%A9nz%C3%BCgyi_eszk%C3%B6z%C3%B6k_%C3%89rt%C3%A9kel%C3%A9si_jelent%C3%A9s.pdf

further budget increase. At present, the programme has a budget of HUF 2,500 billion. Intermediary loan institutions concluded contracts to the amount of HUF 701 billion (11,928 enterprises) in the first phase, and to the amount of HUF 452 billion (10,911 enterprises) in the second phase (until 31 October, 2014). The share of Central Hungarian enterprises in the Growth Loan Programme is less than in the entire loan portfolio (41 percent in the first round, and 24 percent in the second round, while it is 56 percent in the entire portfolio)[20].

Based on experience gained so far, it can be established that with the interest rate maximised at an extremely low level, commercial banks participating in the programme preferred either enterprises with less risk or their former clients. The latter can be assumed also from the high initial level of loan replacements. While 90 percent of the SME loan base is under HUF 10 million, the loan programme of the Central Bank of Hungary aimed at projects with higher costs, usually around HUF 50 million, as early as in the first round. The average loan size was only slightly reduced in the second phase, in light of the November data, it was between HUF 23 million and 60 million (depending on the loan type). At the same time, the programme is a significant step forward in financing agricultural enterprises, since formerly this sector could not have been supported within the frames of the Jeremie programme. Based on 2014 November data, the better part (31%) of the loans was utilised by agricultural enterprises. The second largest loan-utilising sector was the trade sector (23%). The processing industry ranked third with a share of 17 percent.

[20] Growth Loan Programme. The first 18 months. Central Bank of Hungary, 2014 (http://www.mnb.hu/Root/Dokumentumtar/MNB/Kiadvanyok/mnbhu_egyebkiadvanyok_hu/NovekedesiHitelprogramAzelso18honap.pdf)

*Table 4 – Comparison of soft loans*

| | Growth Loan Programme | Jeremie loans |
|---|---|---|
| **Intermediaries** | Instrument available through commercial banks. | Beside a small proportion of commercial banks, was mostly provided by financial enterprises and LEDs |
| **Risk-taking willingness** | With the interest rate maximized at a level of 2.5 percent the banks are looking for stable, less risky investments | Financial enterprises and LEDs are characterised by a higher risk-taking willingness, thus it was more likely that smaller and start-up enterprises were also supported. The interest rate limit is higher, a higher risk can be built into the product |
| **Coverage requirement** | There is a strong requirement for coverage, the instrument is difficult to obtain (also a Jeremie guarantee was used) | An instrument more easily accessible for enterprises, there is a smaller coverage requirement, and by undertaking to pay a higher interest rate the coverage requirement can be reduced. |
| **Forms of use** | Can be used for replacing loans (this was the dominant use at the beginning of the period)<br>Agricultural enterprises account for one-third of the clients As a result of the programme having been expanded also on financial leasing (purchase of vehicles and machines) the proportion of micro-enterprises increased significantly (from 25% to 34%) 70 percent equipment purchase, 30 percent real estate development | Rules on state aid exclude the possibility of loan replacement<br>Agricultural enterprises cannot be supported based on the ERDF regulation |
| **Interest rate** | The lowest interest rate available at present | A higher transactional interest rate calculated on the basis of the risk premium |

Leasing can also be classified as a popular financing instrument. 2013 SME Yearbook data confirms that 10.2 percent of Hungarian SMEs responded that they had already used leasing services. The advantage of financial leasing is that it is accessible in a smaller amount, and also for small enterprises, due to the strong asset-coverage behind the transaction. Enterprises usually use this instrument to finance vehicle purchases. Since in 2014 the Growth Loan Programme loans were extended also for leasing and factoring companies, usually this is the channel (i.e. combined with a loan refinanced by the Central Bank of Hungary) through which micro-enterprises can obtain inexpensive leasing products. According to the data of the Central Bank of Hungary, 60 percent of the financial leasing implemented within the Growth Loan Programme is connected to micro-enterprises. Thus,

leasing instruments are accessible for SMEs in an inexpensive form.

### 2.1.2. Guarantee: small number of investment loans, decreasing guarantee level

In Hungary, at present Garantiqa Creditguarantee Co. Ltd., Rural Credit Guarantee Foundation, the guarantee programmes of the Hungarian Development Bank Zrt., START Equity Guarantee Zrt. and the Guarantee Cooperative Union are providing guarantee products for the SME sector[21]. To promote the export transactions of Hungarian enterprises, the state-owned Eximbank Zrt. acting as a specialised loan institution provides financing, guarantee and risk-sharing products. The largest actor on the market, Garantiqa Zrt.[22], during the 2011-2013 period, concluded – with state contracting process – around 30,000 several guarantee contracts annually.

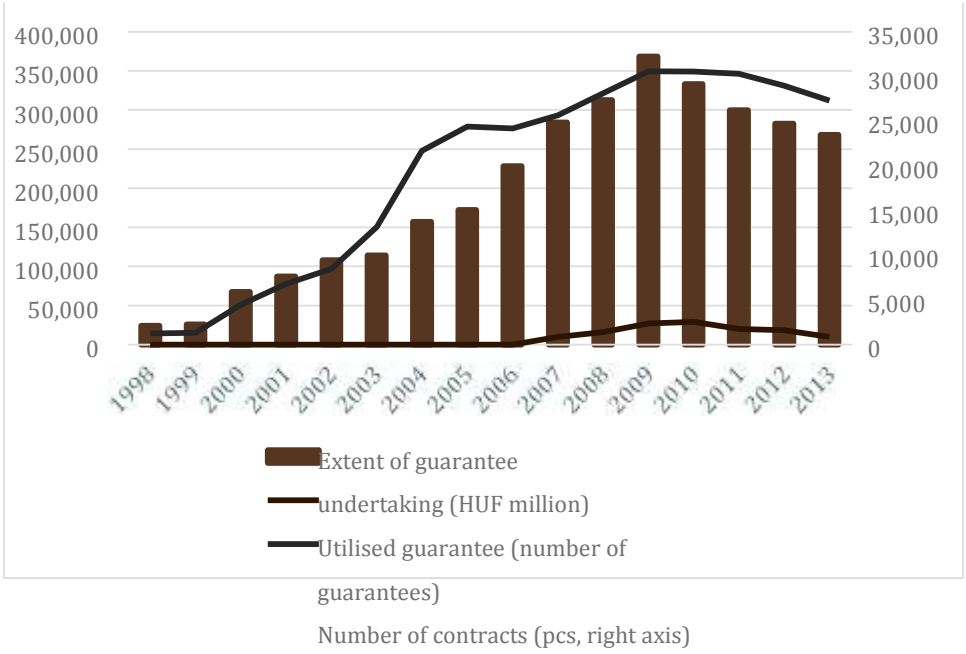
Less than expected was utilised from Jeremie guarantee products for the 2007-2013 period, despite the fact that the parameters of the guarantee products showed less change in the programming period, compared to the loan products. At present, several guarantee with a hundred percent state counter-guarantee is provided by Garantiqa Hitelgarancia Zrt. and the Rural Credit Guarantee Foundation. Outplacement ratio – just as in the case of loans – was the highest in the Central Hungarian region (nearly 40 percent). The guarantees provided by Garantiqa Hitelgarancia Zrt. with state counter-guarantee are connected to loans on the average HUF 7.3 million in the case of micro-enterprises, on the average HUF 20.7 million in the case of small enterprises, while in the case of medium-sized enterprises on the average of HUF 102.3 million.[23] Guarantee products are the most popular among micro-enterprises, characteristically connected to loans with a term of less than one year (Széchenyi Card). Rejection ratio at the company in 2014 was only 2.3 percent.

[21] Until January 2014 also MV Zrt. had been providing direct guarantee.

[22] Based on the 2013 data guaranteed loans amounted to HUF 333 billion at Garantiqua, to HUF 137 billion at Rural Loan Guarantee Foundation, while at the other players this figure was around HUF 10-20 billion. The Garantiqua has a market share of 75 percent, thus by presenting the data of the company we can have a realistic picture about the market.

[23] SME Yearbook, 2013

FIGURE 4 – Credit Guarantee ZRT. SEVERAL GUARANTEE BASE (NOT ONLY THE GUARANTEES WITH STATE COUNTER-GUARANTEES)



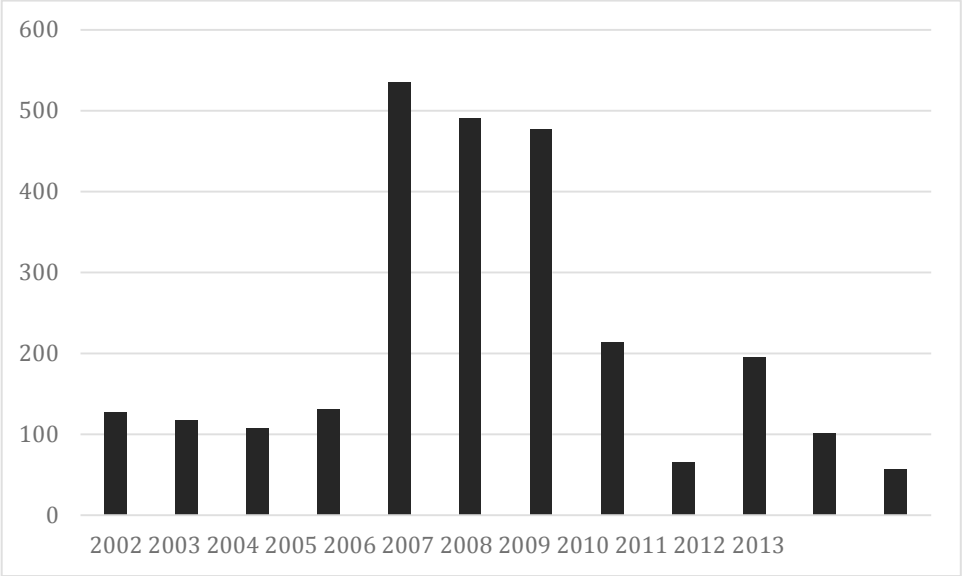

*Source: SME Yearbook, 2013*

Guarantee product launch was hindered by the low loan demand of SMEs and the difficult regulatory rules. Guarantee products can be used with investment loans aimed at the expansion of business activities, however, the demand for investment loans significantly decreased (and as we presented in earlier chapters the ratio of such loans is low among SMEs anyway). Based on market indications, the Growth Loan Programme of the Central Bank of Hungary managed to increase the demand slightly, since several transactions had a connected guarantee product. Based on August 2014 data, in the case of loans awarded within the frame of second New Hungary Programme, there is a guarantee product in the background in 12.6 percent of the cases. This, however, does not significantly differ from the percentage peculiar to all SME loans (13%).

### 2.1.3. Capital investments: seed capital is missing

By the end of the first decade of the second millennium, Eastern Europe became a preferred destination of venture capital investments. In Hungary, in the middle of the decade, capital investments jumped from EUR 100 million to over EUR 500 million from 2005 to 2006, then during the economic crisis, a considerable correction took place.

FIGURE 5 – TOTAL OF VENTURE CAPITAL AND PRIVATE EQUITY INVESTMENTS IN HUNGARY (MILLION EUR)




*Source: HVCA, EVCA databases*

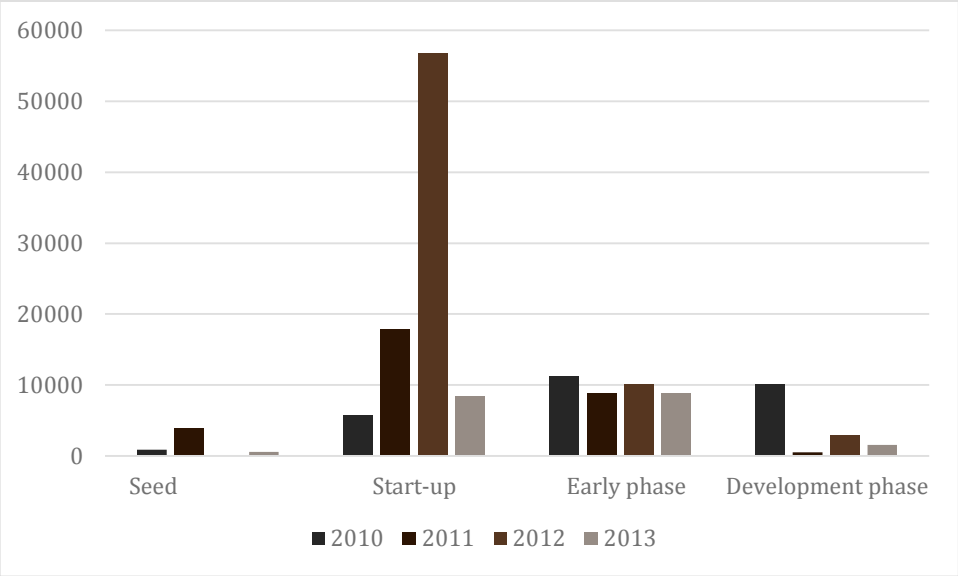
While in 2007 only 12.7 percent of private capital investments was venture capital investment (usually focusing on the start-up phases of the enterprises), by 2013 this increased to 84.1 percent, according to the data of the European Private Equity and Venture Capital Association (EVCA). This is clearly due to the Jeremie programme. The largest proportion of venture capital investments is related to the capital programme launched within the frames of the Jeremie programme. At present, 26 fund managers manage a total fund of HUF 123 billion (together with private equity). This is completed by the financial budget of HUF 14 billion of the Széchenyi Capital Fund launched from RDOP funds.

Programmes announced in other phases first focused on the micro, small and medium-sized enterprises having a growth potential and being less than 5 years old, the annual sales of which did not exceeded HUF 1.5 billion, and that were not deemed to be "in a difficult financial situation". The amount of the investment was maximum EUR 1.5 million per projects which could be repeated in maximum 3 consecutive years. In the second Jeremie round, the Joint Seed Capital Fund Sub-Programme is targeted at micro or small enterprises in the start-up phase (i.e. having been founded 3 years earlier at the most) whose annual sales do not exceed HUF 200 million. Investment size cannot exceed the one-time amount of EUR 150,000 that can be completed with a subsidised loan of the same amount. The other pillar of the programme, the Joint Development Fund Sub-Programme finances micro, small and medium-sized enterprises that have passed the business angels phase, being younger than 5 years old, having a sales of maximum HUF 5 billion, and being in the growth phase. Investment amount was maximum EUR 1.5 million per year, but later it was raised to EUR 2.5 million, thus the target group was extended to the larger companies as well. Fund managers selected within the frames of the tender of the third and fourth round can provide funds

for companies that have been founded within 5 years, and have maximum sales of HUF 5 billion. The investment amount cannot exceed EUR 2.5 million per year.

The investments – as a result of the above presented targeting system (announcements having been optimised for the development or the start-up phase) – characteristically found the enterprises being in the start-up (47.7%) and development (31.8%) phase, while the seed capital played a less significant role (4.5%).

FIGURE 6 – CAPITAL INVESTMENTS BY LIFETIME PHASES 2010-2013 (MILLION EUR)




*Source: EVCA*

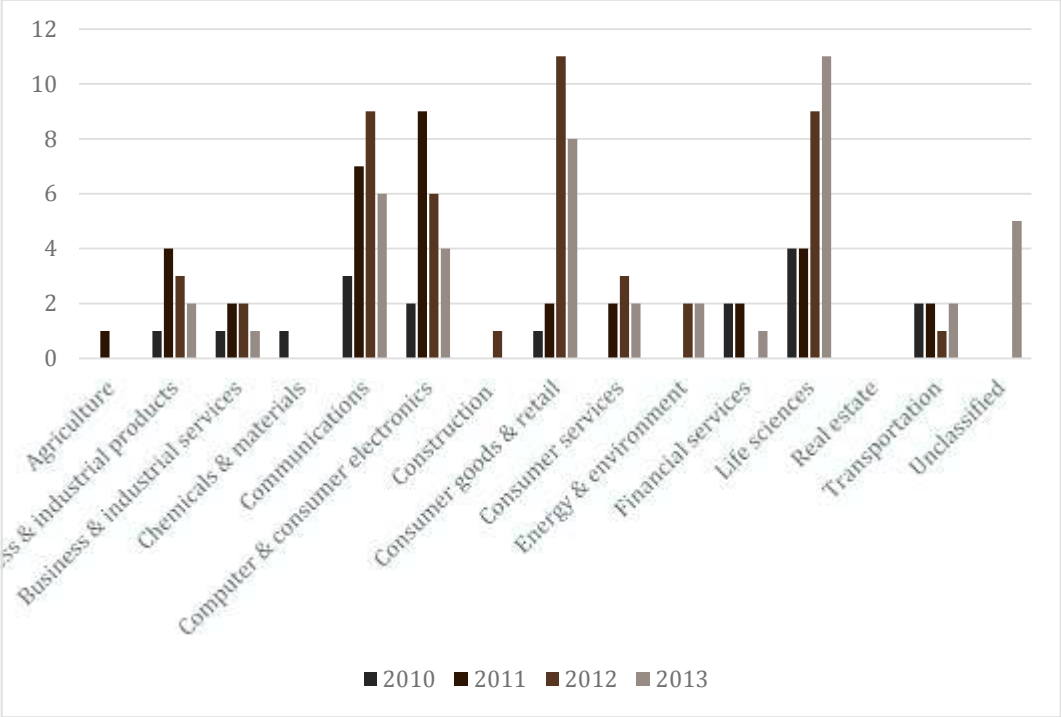
It can be seen from the figure that capital investments are not balanced among the different phases. Based on the observations made by the market players, one of the obstacles to impede the intensification of successful capital outplacements is that the assistance programmes are not aligned to each other. Behind the seed capital investments, significant inhibiting factors were the small number of fund managers (4), the upper limit (EUR 150,000) for the maximum amount of investments, however, the requirement of 30 percent of private capital investment was also limiting the risk-taking willingness of the fund managers. The initial investment limit (EUR 1,5 million) determined for the development funds seemed to be too low, according to the fund managers. The investment options of above HUF 750-800 million could not be utilised in this scheme.

Based on the relevant literature[24], the seed capital, emerging after the contribution of founders, owners, friends and business angels is the first opportunity in the initial phase of an enterprise to use external funds. Venture capital investments (that can be divided into different segments) can follow that, during the start-up and early development phase. In the late development phase it is easier for enterprises to access open market funds, in order to enter the

[24] Szerb, 2006

stock market. Experience gained from the Hungarian venture capital programme confirmed that these steps are not built on each other (there is no sufficient number of seed programmes that could make the enterprises suitable for a start-up capital investment, and the enterprises successfully making it through the start-up phase miss the further capital programmes).

FIGURE 7 – PRIVATE CAPITAL INVESTMENTS BY SECTORS (BY THE NUMBER OF COMPANIES)




*Source: EVCA*

Based on past years' experience, typical investment areas are life sciences, biotechnology, retail and consumer products market, and infocommunication.

Based on the August 2014 data of MV Zrt., outplacement amounted to about 38 percent of the budget (this figure was 61 percent in the Central Hungarian region), however, it has to be taken into consideration that nearly two-thirds of the total budget was only announced in 2013 and in 2014, while in this area 5-year contracts are characteristic. Currently, there is a capital stock of HUF 35 billion on the market waiting to be outplaced, while fund managers have to find companies worth of the investment by the end of 2015. One has to take it into consideration that fund managers – based on earlier experience – can examine approximately 100 projects a year, and from these only 5 or 10 at the maximum can be selected. Even if calculating with the highest investment amounts (EUR 2.5 million, approx. HUF 750 million in the case of development funds, EUR 150,000, approx. HUF 45 million in the case of seed capital) fund managers will have to be very active in project selection in 2015. This means that it should be carefully considered whether to start a new capital investment programme or not. If a capital investment programme is launched, it is worth encouraging seed investments, based on the above description of the current situation.

At the end of the capital investment there is some kind of exit strategy. Within the frames of that, the fund manager sells its share. So far only two successful exits are connected to Jeremie capital investment programmes[25]. In the new period, with the emergence of new fund managers, the chance for successful exits will increase as well, since there will be new investment opportunities in the chains that are missing at the moment (e.g. from the early phase to the development phase).

The 2007-2013 period was characterised by the risk-avoiding conduct of private investors, while in the 2014-2020 development period it is an objective to ensure that the funds are willing to undertake the largest possible amount of risk, by taking into consideration the regulatory framework (e.g. requirements on private equity).

The number of business angels helping the start-up of enterprises in the very early development phases in Hungary – based on market estimates – is around 80-100. In this financing form financially strong entrepreneurs or natural persons support the start-up of a company with a few million HUF (usually with an amount under HUF 30 million). In the decisions of business angels profit and return are primary aspects, however, their decisions can be largely influenced by subjective aspect as well (professional challenge, hobbies, or helping to create products that are useful for the society).[26]

## 2.2. Financing situation of the population

In programmes aimed at the population – except awareness campaigns – it is building energetics investments that are financed within the frames of the operational programmes (EDIOP, CCHOP, EEEOP). Building energetics investments include the energetics restoration of the building envelope (heat insulations, opening element replacements), replacement of the heat generator, modernisation of the heating system, and the utilisation of renewable energy sources.

Central Statistical Office data indicates that in 2013 the loan institutions outplaced loans in the total amount of HUF 17.4 billion for the modernisation and expansion of apartments, accounting for 10.4 percent of the total housing loans. However, there is no statistical data about the proportion of loans that also included an element reducing the energy consumption. Such proportion can only be assumed.

[25] Sale of the Mediamass IKnife project managed in the fund of Euroventures, and sale of the Cryo Management Ltd. managed by the PortfoLion fund.

[26] Zsolt Makra – Andreász Kosztopulosz: Üzleti angyal befektetések Magyarországon: elméleti alapvetés és empirikus eredmények nemzetközi összehasonlításban (Business Angel Investments in Hungary: Theoretical Principles and Empirical Results is International Comparison). 2006. Vállalkozás és innováció (Entrepreneurship and Innovation) Year 1, Issue 1

*Table 5 – Available funds for residential investments*

| Available financing funds |
|---|
| Assistance from the Green Investment Programme (40-60% grant assistance, bonus system, periodical programme announced with a budget usually low for the needs) |
| Housing savings banks, state-subsidised constructions (the state increases the amount paid in by 30 percent each year, max. HUF 72,000, individual contracts) |
| Energy service providers' ESCO (-like) programmes for condominiums |
| Erste-Elmű Home loan (with a mortgage the interest rate is 6%, without one it is 14-15%, 2-30 |
| years, HUF 1-50 million) market-based bank loans |
| Housing bank loan interest subsidy (max. HUF 10 million, interest subsidy: 50-70% of the government bond yield 50-70%, interest is approx. 6-7%, minimum: 6%) |

The proportion of loans with interest subsidy is around 25-35 percent within the entire pool of housing loans (depending on whether the amount of the loan, or the number of loan contracts is taken into consideration). However, the interest subsidy set in accordance with the market yield of the state bond (50, 60 or 70 percent) is planned to be extended as of 2015, and this advantage can be used for not only 5, but also for 10 years.[27] Since the minimum amount of interest rate is set at 6 percent, in the present environment characterised by low interest rates, there are market loans that offer financing with a significantly lower interest rate level (Central Bank of Hungary statistical data indicates that the average interest rate of housing loans is around 6 percent at present).

Subsequent to government measures taken to replace foreign currency loans by HUF loans, the proportion of foreign currency loans within the total loan base is still high (29 percent) in the first half of 2014 (based on the loan amount this figure is 51 percent). Replacement of foreign currency loans with HUF loans will result in difficulties in financing of households with existing loans. Based on interviews made with commercial banks, an increase in the own contribution requirement can be expected.

Within the market-based investments the individual, detached house investments should be separated from the renovation of condominiums. Based on the interviews with commercial banks, it can be seen that financing individual investments has a much higher specific cost, thus, on the market, the financing of large residential buildings is more characteristic. Apart from monitoring related to individual investments, the high risk premium makes financing significantly more expensive.

[27] Pursuant to Government Decree No. 12/2011 after having paid the interest after the loan taken from loan institutions to modernise, renovate the parts of the houses owned by housing associations and the jointly owned parts of condominiums, the interest rate subsidy of 70 percent in the first 5 years, and of 35 percent in the second 5 years could have been utilised so far as well.

*Table 6 – Characteristic differences in the financing of condominiums and individual homes*[28]

| Condominiums, housing associations | Individual apartments, detached houses |
|---|---|
| Lower rate of default<br>Lower risk, since the residential community has a joint liability<br>Less expensive, simpler monitoring<br>Lower own contribution requirement<br>In building society constructions the limit of the condominium (joint) building society contract is not sufficient in all cases, in such cases the administrative costs are increased by the costs of concluding individual contracts as well (regulatory limit) | High risk premium<br>Higher risk of non-payment<br>During loan rating, when evaluating the coverage, income and own contribution have a larger importance.<br>Several building society contracts can be concluded |

Commercial banks usually require an own contribution of 30 percent in the case of detached houses, and in the case of a condominium even a lower amount of own contribution is sufficient. In the case of condominiums, the building society scheme is functioning well, however, the financing is made more difficult by the fact that the budget available for the condominium is maximised, thus separate individual contracts need to be concluded with the residents so that the investment costs could be financed through the scheme to the greatest extent possible. However, decision-making is slower in the case of condominium contracts. Significant regional differences are present. According to the survey of Energiaklub (Energy Club),[29] it is the Central Hungarian region where "own labour" implementation is less typical. While in the central region 27 percent of the renovation works was performed by involving own labour as well, in other regions this proportion was between 35 and 50 percent. This means, that the assistance content should be increased significantly to ensure that an invoice-backed investment project be competitive compared to the works performed by self-recruited brigades of family members and friends. This would be important also because the renovations performed in such way are many times of a non-satisfactory quality, the investment depth is not optimal, and thus the real energy savings are small. The picture is further nuanced by the fact that the households of Central Hungary provide the least own contribution for the investments: 66 percent, while in the other regions it is 75-85 percent (expect the South Transdanubian region, where it is 63%). These proportions, however, can be explained by the fact that there are more condominiums in the Central Hungarian region, where – even regardless the income situation – the required own contribution can be lower. Since it is characteristic that

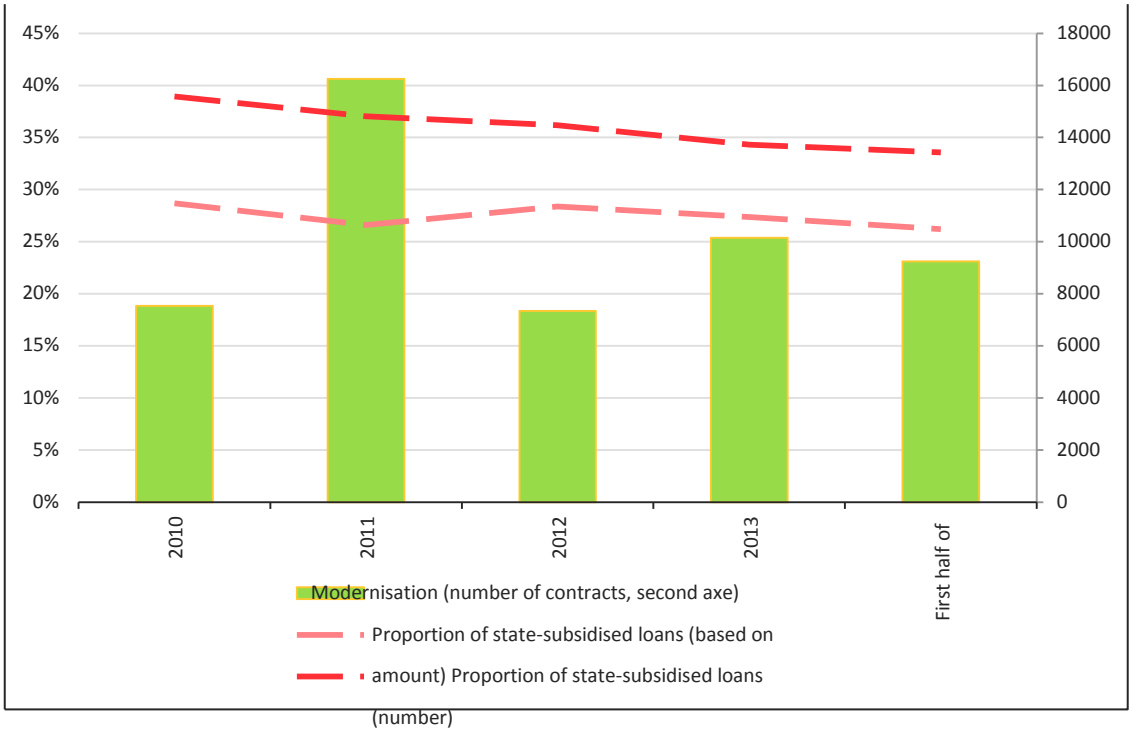
[28] The building listed as monuments form a separate category as well. However, these type of buildings require a completely individual approach. Our study is not focused on such buildings.
[29] http://energiaklub.hu/sites/default/files/lakossag_energiahatekonysagi_barometer_2014_energiaklub.pdf

local governments complete the incentives provided by state programmes with further assistance, thus reducing the amount of required own contribution.

Within bank financing, schemes offered by building societies play a significant role. Approximately 30 percent of housing loans are made up of projects realised in such schemes. Estimates confirm that 7-8,000 families have building society contracts. The savings and loans completed with state aid can be utilised for constructing homes, purchasing new or used apartments, or for restoring homes. The banks holding the accounts of building societies do not have information as regards to what proportion of state-subsidised savings and loans are spent on investments aimed at improving energy efficiency. The interviews, however, reveal that they would be capable of measuring this level, should the state required it. The ESCO type schemes[30] for residential use are available only for condominiums. Due to the economy of scale reasons for the ESCOs, it is not worth to offer this option to detached houses as well. The number of implemented ESCO investments among condominiums (including the buildings of housing estates) is not high, there are rather a few sample projects only. In the ESCO constructions it is usually only the heat production unit that is replaced, and in a few cases the heating system is modernised as well, but there is no precedent for modernising the building scheme. The interviews made with ESCO companies reveal that due to the long return periods, they do not plan to finance building scheme modernisation now, nor in the future. This means that the depth of investments implemented within the frames of ESCO financing is not optimal, there is an unexploited energy savings potential, compared to the level of cost-optimal building restoration. If ESCO financing were aligned with assistance programmes, it could create – with the concerted influence of market capital and assistance funds – an opportunity to implement cost-effective investments of optimal depth in the condominium segments, where the usually market-financed heat centre investments and the related building physical (opening element replacements) investment requiring a high level of grant assistance to ensure their return could be both implemented. We count on the ESCO companies in the programme basically as participants, not beneficiaries.

[30] The main point of the scheme is that the ESCO company partly takes over the costs of the energy efficiency investment and guarantees the energy savings for the owner of the building. Subsequent to the investment the "opex invoices" sent to the owner of the building remain of the same amount or slightly decrease, but they are composed of two parts: the actual energy costs being significantly lower and the "down payment" due to the ESCO company. Within the scheme the ESCO company usually takes over the operation of the equipment (e.g. boiler) as well.

FIGURE 8 – DISTRIBUTION OF SUBSIDISED HOUSING LOANS AND THE NUMBER OF LOAN CONTRACTS AIMED AT MODERNISATION




*Source: CSO*

## 2.3. GAP on the examined sub-markets

A failure of the financing market happens when enterprises with a viable project (i.e. project ensuring positive net present value) or an investment plan have only partial access to investment funds and/or the financing product being the most appropriate for them, or cannot have access to them at all. The primary objective of financial instrument utilisation is to ensure that the investments which could not be implemented due to market failure could be realised nevertheless. Thus the analysis is not aimed at examining that within a given thematic objective which area does not have as yet the appropriate intervention to achieve the development policy goals, but to examine, along the measures set by people responsible for the policy, where the member state wishes to use financial instruments, whether in the given sub-market the market is financing the investments or not, and if not, why not. Such market failures shall be managed by the financial instruments.

Later, schemes have to be elaborated that partially or as a whole cover the required investment level, i.e. provide appropriate conditions for implementing more or higher-level investments than previously.

The types and forms of appearance of market failures are summarised in a clear, understandable way by the Strategy chapter of EDIOP:

- "Community involvement" - the given factors (e.g. natural resources, cultural resources) are owned by the community, and the availability of these factors is largely influenced by public activities (e.g. education, infrastructure)
- "Information uncertainties" – the availability of the factor is limited by the fact that the involved parties do not know each other.
- "Leverage effects" – benefits or costs of a development influence not only the party implementing it.
- "Coordination difficulties" – establishing cooperation means a lot of costs and risks for the participants, while the actual cooperation and its success is questionable.
- "Missing hero problem" – the costs of organisation and the benefits of cooperation are usually not distributed evenly. However, it cannot be guaranteed in advance that the costs and benefits will be offset.
- "Jump into the dark" – entering a new market or changing the operational method of an enterprise requires such amount of resources and implies such a high level of risks which a company is reluctant to undertake, even in situations that are justified to be promising.
- "Missing support" – it often happens that an enterprise would launch a promising development, however, it cannot obtain the necessary resources (e.g. due to lack of coverage).
- "It is harder for the smaller ones" – smaller companies are in double disadvantage in several areas. On the one hand the bureaucratic and regulatory burdens mean a lot more costs for them proportionality, on the other hand it often happens that larger market players take advantage of their vulnerability resulting from their size. Therefore, entering a new area is costlier and riskier, thus less attractive for them.
- "Disadvantage of late-comers" – the new entrant is usually disadvantaged on a market. Firstly, it does not know the risks and customs of the area that can be learned by experience, and secondly, it often happens that older players of the market take concerted steps to discourage, exclude new competitors.

However, the various sub-markets have different market failures, and the above list can be completed by market issues specific to the given area that should be examined and quantified separately. The GAP was determined in accordance with the guide recommended by the Commission[31]. There are two approaches the guidance considers acceptable: identification of investment needs that cannot be financed from the market (this method requires the aggregation of rejected external financing needs), and the quantification of investment surplus necessary for achieving the policy objective (sub-optimal investment situation). On the sub-markets determined under the thematic objectives TO3 (SME competitiveness) and partially TO2 (investments of ICT companies) we used as a starting

[31] Ex-ante assessment methodology for financial instruments in the 2014-2020 programming period. General Methodology. Volume I. 2014.

point the investment need not financed from the market, while in the case of the areas TO1 (R&D expenditures required from enterprises), TO2 (required improvement of broadband infrastructure, lagging in the area of SMEs' informatisation) and TO8 (required increase in employment) we have determined the GAP based in the sub-optimal investment situation.

In the calculation we have examined the problems of market financing on the sub-markets related to the planned financial instruments[32] of EDIOP and CCHOP:

- RDI investments of enterprises (TO1) – EDIOP and CCHOP;
- IT developments of SMEs (TO2) – EDIOP;
- Improvement of broadband infrastructure (TO2) – EDIOP;
- Development of ICT enterprises (TO2) – EDIOP;
- Capacity expansion investments of SMEs (TO3) – EDIOP and CCHOP;
- Development of business infrastructure (TO3) – EDIOP and CCHOP;
- Investments related to energy efficiency and renewable energy (TO4) – EDIOP and CCHOP
- Underprivileged people becoming entrepreneurs (TO8) – EDIOP;
- Encouraging the investments of social enterprises (TO8) – EDIOP.

It should be emphasized that the market gap determined in the ex ante assessment should be covered not only with the help of the financial instruments planned within the frames of the operational programmes. A GAP exceeding the funds allocated for the financial instruments means that the member state has to involve further private resources or domestic budgetary funds to achieve the objectives set. This statement is especially valid in the area of RDI and that of the energetics – not presented in detail in this study –, where it is clear that the significant funds will have to be mobilized to bridge the gap between the undertakings made as a member state and the current investment level.

In the following we will present the characteristic market problems and quantify the GAP by sub-areas.

### 2.3.1. Promotion of the intensity of corporate R&D+I activities

Innovation is the transformation of an idea into a new or modernised product launched on the market, or into a new or improved operation used in the industry or trade, or a new approach to a social service.[33] The innovation activity spreads from the design, through the launch of the manufacturing of a new product, to the use of a new technology. Research and development is one of the innovative activities.

Based on the summary of Innovation Union Scoreboard, Hungary belongs to moderate innovators (members of this category are Portugal, Lithuania, Hungary, Slovakia, Greece, Italy, Malta, Poland, Croatia, the Czech Republic, Spain). From the 25 sub-dimensions

[32] For the financial instruments related to TO4 a separate ex ante assessment will be prepared.
[33] OECD Frascati manual, after Schumpeter

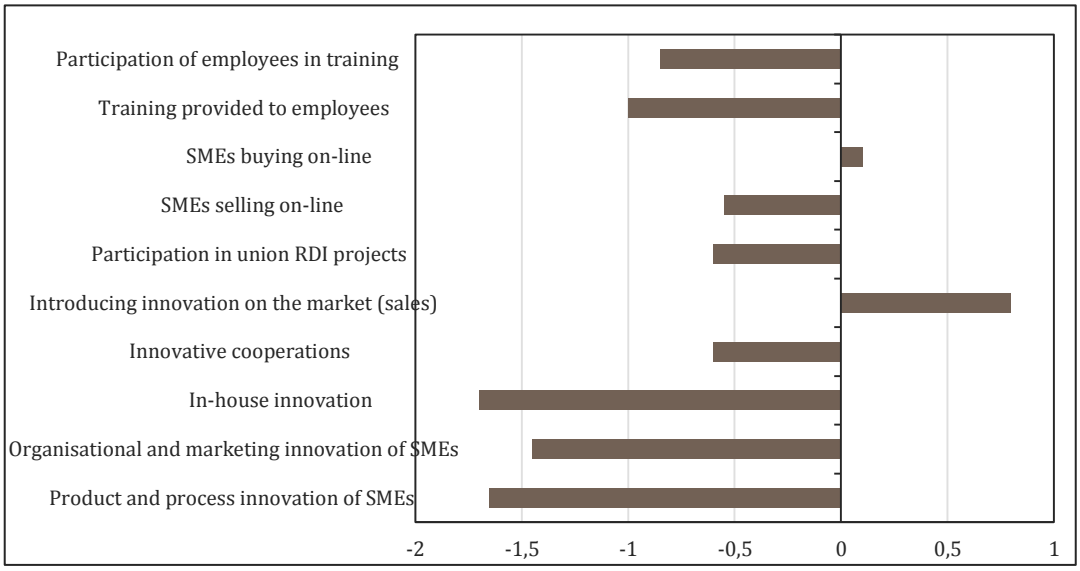
(indicators) measured in the survey only five are above the EU average in Hungary (revenue from intellectual property arriving from abroad, number of international scientific publications, export income from medium-level and cutting edge manufacturing, proportion of people participating in secondary education, and the number of companies having a high growth potential). From the above, further improvements in the area of export income and the number of companies with high growth potential are determined as goals in the operational programme. The largest lag behind the EU average can be seen in the areas of PhD students arriving from outside the Community (11% of the average), international design (18% of the average) and SMEs with in-house innovation activities (36% of the average).

However, there are significant regional disparities within Hungary. While on the national level Hungary belongs to the moderate innovators, three regions from the seven are classified among the lagging regions, and four regions among the moderate innovators[34]. Within the latter it is clearly the Central Hungarian region that is the most developed, is categorised as a leading innovator in the case of two indicators from the eleven indicators examined (proportion of people with tertiary education and the proportion of employment in the manufacturing sectors requiring a high level of technology and in the knowledge-intense service provision sectors). 65 percent of corporate R&D expenditure can be connected to enterprises of the Central Hungarian region.[35]

According to SME studies of the European Commission, Hungarian enterprises are significantly lagging behind also in the area of skills and innovation[36]. In the case of this dimension – according to a relevant survey –, from the ten indicators examined, only two showed a positive difference compared to the EU benchmark (proportion of SMEs buying on-line, and selling innovation on the market or within the company), while the proportion of enterprises planning, implementing innovation, selling on-line, providing training to employees is significantly lower than the EU average.

[34] European Union Regional Innovation Scoreboard 2014
[35] Regional disparities in research and development (http://www.ksh.hu/docs/hun/xftp/idoszaki/regiok/gyorkutfejlreg.pdf)
[36] SBA Fact Sheet

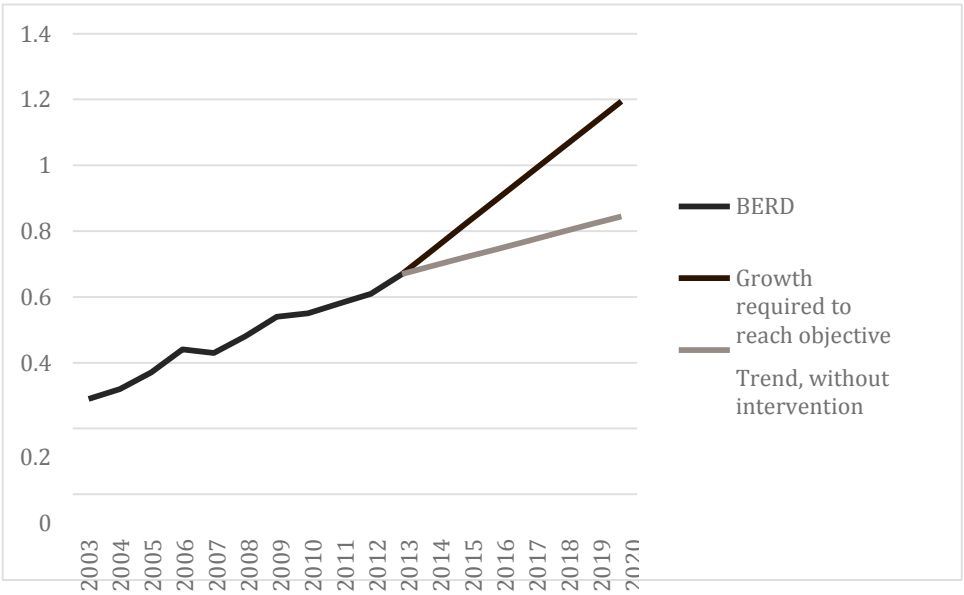
FIGURE 9 – SKILL AND INNOVATION (DEVIATION FROM THE EU AVERAGE, STANDARD DEVIATION)




*Source: SBA Fact Sheet 2013*

The figure clearly shows that several factors hinder the growth of investments in this area. These factors present themselves usually not at the time of making the financing decision, but as early as the making of the investment decision, thus the investment plans are not even created. Thus, the investment level is suboptimal, therefore the GAP should be determined on the basis of the difference between the current and the required investment level. Calculating with the continuing of the trend that has been present since 2003, by the 2020 the corporate R&D expenditure would near 1 percent of GDP. However, to reach the objective of 1.2 percent, further investments are required.

FIGURE 10 – R&D EXPENDITURES IN PROPORTION TO GDP (PERCENTAGE)




*Source: Central Statistical Office, own calculation*

Based on the model shown in the figure above, the GAP in the areas of corporate RDI investments is nearly HUF 500 billion.

RDI investments are characteristic of a small circle of enterprises. Based on the corporate report prepared for the SME Yearbook of 2013,[37] it is typically exporting and medium-sized enterprises that innovate and initiate R&D investments. Enterprises – on the basis of activities of professional organisations – can be classified into three categories: large companies being competitive on the international market and creating a demand for the innovation activities of SMEs; innovative medium-sized enterprises already on the international market (from the 4,000 medium-sized enterprises 5-10 percent belongs to this group); micro and small-sized enterprises that are responsive to and can be "persuaded" to perform innovative activities. Financing innovative SMEs is made more difficult primarily by the fact that it is not the growth potential of an already operational company that needs to be assessed, but a promise.

In the Horizon 2020 document and also in the Hungarian RDI Strategy[38] it is presented as an important aspect that the entire innovation chain – from research to trade utilisation – should be supported. However, the different sections of the innovation chain should be supported by different instruments. Supporting activities that are more remote from the market involve higher risk, thus the contribution of market players to financing is less probable. In this phase there is a higher demand for grant assistance. In the case of development being closer to the market, capital investment and loan type products can be more emphasized.

RDI investment typically constitute a high risk, the assets of the project typically do not provide sufficient coverage for financing, and knowledge capital and intangible assets cannot be accepted for financing parties as coverage.

[37] The publication has been prepared on behalf of MNE by Századvég Economic Research Co., the publication is being published.

[38] Investment into the future. National Research and Development and Innovation Strategy (2013-2020)

*Table 7 – Market failure and suboptimal investment by planned thematic measures*

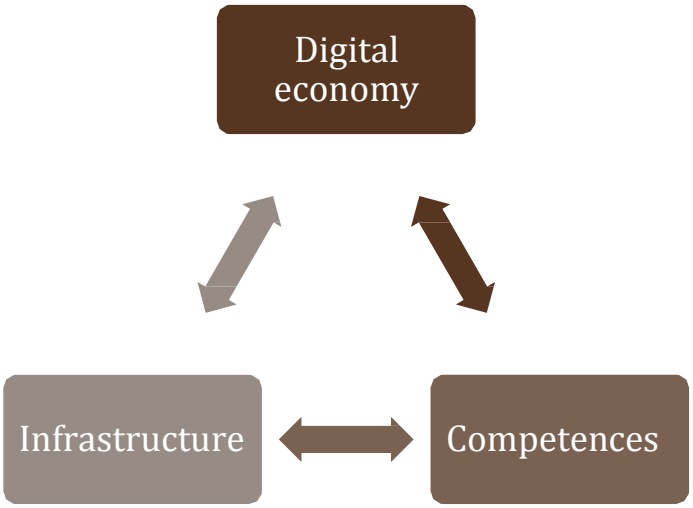
| ***Thematic objective*** | ***Measure*** | ***Suboptimal investment*** | ***Market failure*** |
|---|---|---|---|
| ***RDI*** | *Promotion of corporate RDI* | *BERD/GDP index should increase to 1.2% by 2020 from the current 0.8%* | *- information asymmetry: the financing party has little information about the project*<br>*- it is difficult to forecast the results of the project, its risks are higher than those of a technology development*<br>*- SMEs are tend to be risk-avoiding, smaller enterprises should risk their own money, they are more reluctant to initiate an investment*<br>*- the missing assets, intangible assets and knowledge capital are not accepted by the financing parties as a coverage*<br>*- low-level and volatile sales* |

### 2.3.2. ICT development

A significant GAP is present in each of the areas wished to be supported with financial instruments. IT developments of SMEs and the network infrastructure are both significantly lagging behind the requirement set for 2020 by the National Infocommunication Strategy (NIS). In accordance with the objectives determined in the NIS, the current investment level is suboptimal. Further strengthening of the SMEs already competitive on the international market is a priority policy objective, and in order to achieve this the external financing need of the enterprises will have to be fulfilled by the means of supported instruments.

The overall strategic objective of the NIS is to ensure the balanced development of the digital ecosystem. The ecosystem consists of the digital infrastructure (infocommunication networks), the digital competence (e.g. digital literacy), the digital economy (e.g. electronic services) and the digital state (electronic background of public services and administration).

ICT investments are basically determined by the interdependence of three factors. The typical reason for the GAP is that these conditions are not met concurrently, the developments are not parallel.




In order to improve the broadband infrastructure it is crucial to have consumers at the end-point in the right time, for which apart from the solvent demand, a competence development is also required. However, parties interested deem competence-development to be justified – and the enterprises deem it to be recoverable – if an infrastructure is already established. The market of enterprises active in the digital economy cannot expand either if there are no appropriate infrastructure and appropriate competence on the user side. Due to the above detailed nature of the market, the market gap is determined not on the basis of the data of loan applications being planned at the moment and rejected because of the financial limit, since the investment ideas typically do not even make it to that level because of the limits mentioned above. Consequently, in the area of low informatisation of SMEs and the in the area of infrastructure development, the market gap is approximated on the basis of the lag from the optimal or required level.

A further market gap in this area – visible after the investment decision is made – is that ICT investments are typically connected to software items and intangible assets. When making the financing decision it is a disadvantage if the coverage is some kind of a human resource or software not yet present on the market. The NIS, under the pillar of digital competences sets the objective to dynamically increase the proportion of micro and small enterprises using the Internet. It is a strategic objective to ensure that by 2020 90 percent of the micro and small enterprises have Internet access, and 80 percent have visibility on the Internet. The digital economy pillar includes the promotion of internal IT developments and electronic service development of SMEs. The objective is to further extend the use of IT systems within the company, to ensure that more and more enterprises use some kind of on-line solution for sales support, to ensure that the employees' on-line competence is improved, and the utilisation of cloud-based corporate services become more widespread. At the same time, at present barely 50 percent of SMEs have their own webpage, and less than 9 percent use enterprise management systems, according to the 2013 SME Yearbook. Among the enterprises having more than 10 employees this proportion is higher. According to the surveys of Eurostat, the penetration of ERP (Enterprise Resource Planning) systems

is 13 percent in Hungary, significantly lagging behind the average of the European Union, where this figure is 26 percent. Calculating with average investment costs of HUF 10 million in the company management system and with 28,800 enterprises employing more than 10 people, this lag of 13 percentage point requires a surplus investment of HUF 37.4 billion in this area.

Download speeds above 30 Mbps are available for only 60 percent of the households, while the strategic goal determined in the NIS is to reach a coverage of 100 percent by 2020.[39] There is a considerable financial and regulatory gap in this area. On the regulatory side, infrastructure investments by service providers are hindered by the so-called public works tax, according to which a tax of HUF 125 must be paid after each meter of a line. This influences the rate of return of the projects. Another GAP results from the fact that those so-called "white spots" are hard to access in a financially returnable manner. On the basis of market information, the number of end-points that can be installed with a proper business return (low density of resident population, small number of enterprises, the financial profit of the investments cannot be detected (negative FNPV), while its social benefit (ENPV) is positive, as included in the NIS[40]. It should be noted that – based on preliminary studies – project owners wish to finance the investment without a prospective business return primarily from grant assistance. The sections where financial instruments cannot be used, and the ones where they can probably be used could be distinguished from each other when sections with and without a business return have been mapped in detail. (For network development, the block exemption regulation ensures a separate exemption, with a high-level aid intensity, based on competition). In the case of devices ensuring network connection and being close to the subscriber, involving SMEs and further expansion of the use of financial instruments (grant assistance scheme combined with a soft loan or guarantee) may be envisaged.

Calculating with a network development cost of HUF 50,000 per households – based on market information – for 40 percent of the households, there is a GAP of at least HUF 79.2 billion. However, it should be taken into consideration that according to expert estimates the costs per household could further increase when moving toward a lower population density, and could reach HUF 100,000. In such case the resulting GAP is higher.

The objective determined in the NIS is to promote the successful activities of ICT companies on foreign markets. In accordance with that the third intervention area targeted in connection with thematic objective No. 2 is increasing the level of investments of ICT enterprises.

[39] NIS deems development is necessary in each network segment, not only in the area of 30 Mbps Internet services (development of the optical backbone network, scheme of a National Telecommunication Backbone Network, increasing mobile broadband coverage).

[40] MND is being active to identify – on the basis of the methodology set forth in the Green Paper (Green Paper on the development directions of the infocommunication sector between 2014 and 2020) – in an exact manner the sections with and without a prospective business return.

In line with 2012 data, 33,118 enterprises operate in the infocommunication sector (Information, communications), this being 5.3 percent of the enterprises. Based on the gross added value, the large enterprises are dominant (60%) within the sector. In the case of these enterprises, capital investment is a determinant financing instrument. Between 2010 and 2013, 25.2 percent of the total private equity investments (36 investments) aimed at the high-tech sector in Hungary, according to the data of EVCA (European Private Equity and Venture Capital Association) (the European Union average is the twice as much). The share of the ICT sector in the Jeremie loan programmes remained under 5 percent.

Market gaps in this sub-market are typically present among start-up enterprises. Because of the low risk-taking willingness, the enterprises starting their activities have difficulties to obtain funds in the initial phases. Typically, interventions of the seed capital type, or an even earlier intervention, encouraging the activities of business angels are needed. In this field, however, rules of state aid yield only a limited level of manoeuvrability. With the minimum level of required own capital contribution (typically 30%, in exceptional cases 10%) there is not much chance to find a fund manager. However, with the high rate of default of start-up enterprises (70-80 percent in the first year) and with the risk-avoiding conduct of the investors a contribution of that extent is hard to imagine.

The GAP in this area is determined by taking 5 percent (being the proportion of the relevant projects within the Jeremie loan) of the market gap due to the rejected loan applications and suppressed demand of enterprises (a value calculated with the method presented in the next chapter, HUF 644 billion), and this, as a magnitude can be related to the ICT project based on the proportions presented above (HUF 32 billion).

*Table 8 – Market failure and suboptimal investment by planned thematic measures*

| ***Thematic objective*** | ***Measure*** | ***Suboptimal investment*** | ***Market failure*** |
|---|---|---|---|
| ***ICT*** | *Development of ICT companies* | *The suboptimal investment level cannot be given an proper interpretation (the number of vacant IT jobs is decreasing, the export of the sector is increasing, the volume of venture capital investments in the sector)* | *- information asymmetry*<br>*- the financing parties are risk-avoiding*<br>*- the missing assets, intangible assets and knowledge capital are not accepted by the financing parties as a coverage*<br>*- shortage of experts*<br>*- digital ecosystem (without competence and infrastructure there is no digital economy)*<br>*- lack of seed capital* |
| | *SME IT development* | *The use of enterprise management system, webpage, web shop should be near the EU level* | *- digital ecosystem (without competence development the advantages of the developments are not recognized)* |
| | *Expansion of broadband network* | *The availability of the internet service with a speed of at least 30 Mbps for the population should be increased from the present 59.7% to 100% by 2020* | *- infrastructure development will not be paid back in every region (the number of potential end-points is low and is not expected to further increase)*<br>*- information asymmetry*<br>*- digital ecosystem (the development of competence, digital economy and infrastructure should be well coordinated)* |

### 2.3.3. SME competitiveness

The economic performance of Hungarian SMEs has fallen considerably after the crisis. The recovery – just as in the majority of the European countries – was slow, and the pre-crisis level could not have been reached yet. The proportion of loss-making enterprises significantly increased in each size category. The proportion of investing enterprises within the SMEs fell back from 41.6 percent in 2008 to 38.4 percent in just one year, and has not reached again 40 percent, not even on the basis of 2012 data. While in 2008 67 percent of investments was performed by SMEs (within this the investments of enterprises having less than 50 employees accounted for 51.4 percent of the investments),

by 2012 this proportion decreased below 60 percent (in the case of enterprises with less than 50 employees to 42.4 percent).

*Table 9 – Proportion of loss-making enterprises with double-entry bookkeeping (%)*

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| **0-1 employees** | 29 | 26.7 | 25.6 | 26.2 | 26.4 |
| **2-9 employees** | 48.7 | 45.6 | 44.4 | 44.9 | 45.6 |
| **10-49 employees** | 69.4 | 67.6 | 66.6 | 67.4 | 68.5 |
| **Micro total** | **40.9** | **37.8** | **36.5** | **36.7** | **37.1** |
| **50-249 employees** | 80 | 79.5 | 78.7 | 78.5 | 80.3 |
| **SME total** | **41.6** | **38.4** | **37.1** | **37.3** | **37.6** |
| **more than 250 employees** | 86.4 | 82.8 | 85 | 85.5 | 88.7 |
| **Total** | **41.7** | **38.5** | **37.2** | **37.4** | **37.8** |

*Source: SME Yearbook, 2013*

Apart from the limited demand, the deteriorating financing environment was also unfavourable for the enterprises. Balance sheet alignment of commercial banks, the necessity to streamline the portfolios, and the increased risk-avoiding all contributed to the reduction of loan supply.

For the calculation of GAP we used enterprises that have investment plans.[41] The proportion of enterprises maintaining an investment plan is available from the relevant economic activity surveys[42]. We have incorporated into the model the values of HDB indicators by enterprise size (see the detailed figures in Annex I).

One of the elements of the market gap among enterprises planning an investment was calculated on the basis of enterprises using external funds. Hungarian SMEs – in an international comparison – are less dependent on external funds (fewer enterprises decide to apply for loans). Based on the data of the SME Yearbook of 2013, nearly 60 percent of SMEs would rather use internal resources for the investments. Based on corporate income tax return data, 34 percent of the enterprises have long-term liabilities. However, this proportion is different by enterprise sizes (18% in the case of micro-enterprises, 57% in the case of large companies).

We have multiplied the number of enterprises planning investment and external funds for the investment by the proportion of rejected loan applications. We have determined the proportion of rejected loan applications on the basis of the Access to Finance study (calculating with the proportion of partly or entirely rejected loan applications). Since in the referred study the data is broken down by company size only for the EU average, we used the same proportion also for Hungary (i.e. the average rejection ratio of 27 percent was

[41] As regards the number of enterprises we used the operating enterprises, excluding agricultural enterprises, not being a target group of the developments (data of the SBA FAct Sheet 2014).
[42] The question is typically the following: "Do you plan to start an investment in the next 6/12 months?".

broken down between micro, small and medium-sized enterprises in accordance with the breakdown of the EU average).[43]

However, a part of the rejected applications is not due to market failures (higher risks of start-up or smaller enterprises, lack of loan history, lack of appropriate references etc.), but to other, perhaps technical reasons (e.g. administrative problems, unrealistic investment idea etc.). This is confirmed by the interviews as well. Therefore, we found it necessary to include a correction factor into the model at this point. We have determined its extent based on expert estimates, and depending on the size of the enterprise it can be around 10-15%.

When calculating the market gap, we have to take into consideration the enterprises that had been planning investments, but they were discouraged prior to submitting the bank loan applications. The relevant question of the Access to Finance study provides a good estimate for the percentage, according to which 1-6 percent of the companies are discouraged from bank financing due to the fear of a possible rejection.

These two enterprise figures (number of rejected loan applications and number of discouraged enterprises) are then multiplied by the average project sizes of the New Hungary Programme, and by the average project number per enterprises in a seven-year period, based on the experience of the 2007-2013 development period.

Based on the suppressed demand and the rejected applications, there is a GAP of HUF 644 million for the enterprises. Since in the calculation we used all investments of the enterprises, the GAP quantifies not only the market gap related to the relevant thematic objective (capacity enhancement of SMEs, improving competitiveness), but also includes the investments of other areas (RDI, ICT, start-up enterprise, etc.).

Based on the surveys of the Hungarian Development Bank indicator of the past year, approximately 73 percent of enterprise investment objectives aimed at technology modernisation and production expansion. From the objectives detailed in the survey these are the ones most aligned with the sub-market examined here, thus we assume that 73 percent of the GAP calculated above is related to this area (HUF 470 billion).

[43] It has to be noted that the proportion of 41.5 percent thus resulting for micro-enterprises is still underestimated, according to bank market players. This, on the other hand, means that the calculated GAP would be even higher.

*Table 10 – Market failure and suboptimal investment by planned thematic measures*

| ***Thematic objective*** | ***Measure*** | ***Suboptimal investment*** | ***Market failure*** |
|---|---|---|---|
| ***SME*** | *Business infrastructure* | *The suboptimal situation cannot be given an proper interpretation (the competitiveness of SMEs is lagging behind the EU average)* | *- reduced amount of project loans after the economic crisis*<br>*- coordination difficulties – establishing cooperation means a lot of costs and risks for the participants, while the actual cooperation and its success is questionable* |
| | *Capacity expansion* | | *- information asymmetry*<br>*- risk-avoiding financing parties*<br>*- "a jump into the dark" – entering a new market or changing the operational method of an enterprise require such amount of resources and implies such a high level of risks that a company is reluctant to undertake, even in situations that are justified to be promising.* |

## 2.3.4. Investments in the field of energetics

**Residential**

During the renovation of buildings (including the modernisation of building structures and the use of renewable energy) is characteristic in general that when a renovation of the optimal depth is performed, the return period of the investment is too long (above 10 years), and often the own contribution is missing as well. Experience shows that with such return periods residential user would not initiate building energetics renovations without assistance. This return period should be reduced at least to an amount around 7-8 years with the help of grant assistance, to ensure investment implementation. The return period can be reduced using grant assistance. However, for target group market actors, usually the provision of own contribution above the grant assistance also represents a problem.

In line with a residential survey by Energiaklub (Energy Club), performed in 2014[44], only one-fifth of the respondents were considering some kind of renovation with an energetics objective. However, according to the survey, only a few percent of the Hungarian housing facilities can be regarded modern from an energetics viewpoint. The assistance fund was used by 7 percent of the population, which means that former assistance budgets were able to cover only a very small part of potential investments. 15 percent of people investing obtained some kind of bank loan for the implementation. Based on the interviews with

[44] http://energiaklub.hu/sites/default/files/lakossag_energiahatekonysagi_barometer_2014_energiaklub.pdf

commercial banks, it can be established that a part of these loans was connected to grant assistance, which means that the figures of 7 and 15 percent cannot be simply added, the proportion of people investing is less than the sum of the two proportions. Respondents undertaking to apply for a loan as well, said that a monthly down payment of HUF 13,000 on the average would be appropriate. Based on the average of the responses, an average annual interest rate of 6.7 percent, and a period of 6 years were the parameters for the scheme. In order to ensure a higher level involvement of the population, the planned financial instruments should be determined by taking into consideration these parameters. The most favourable programmes at present (housing bank loan with interest subsidy) provide financing instruments with an interest rate of 6 percent.

The Green Investment System (GIP) has been announcing applications from the funds received from selling $CO_2$ quota since 2008. Former programmes provided assistance for the insulation of residential buildings, opening element replacement, boiler replacement, use of renewable technologies, replacement of household appliances, and replacement of lighting fixtures, through grant assistance, with an aim to curb $CO_2$ emission. A temporary programme was announced with a budget of a few billion HUF. The available budget is usually depleted soon after the announcement.[45] From this, it can be assumed that the needs are significantly higher than the budget, and the available sources should be outplaced with a lower assistance intensity as well. The last scheme was announced in 2014 with a budget of HUF 2.1 billion within the frames of the GIP programme, for grant assistance, supporting boiler replacement and the replacement of opening elements.

Based on the interviews with market players, it is a concordant opinion that in the case of assistance provided for the population, at least 30 percent of grant assistance should be calculated with. The assistance rate should be set in such a way that the return period is 7-8 years at the most. In order to resolve the problems related to the provision of own contribution, soft loans and depending on the funds, guarantee products need to be combined with the grant assistance, by taking into consideration the limits applicable to the combinations of grant assistance and repayable assistance.

[45] For example, the boiler replacement programme announced in October 2014 and planned to stay open until 15 January 2015, had to be suspended in all regions as soon as at the end of November due to the depletion of the funds.

*Table 11 – Market failure and suboptimal investment by planned thematic measures*

| ***Market issues in financing residential building energetics projects*** |
|---|
| - Financing of individual houses is not really worthwhile for commercial banks due to the high monitoring and administrative costs. Financing condominiums, housing associations is more favourable due to the lower risk margin. |
| - In the case of individual houses, the role played by coverage is becoming less important, when assessing the loan the own contribution undertaken, the income status and the rate of indebtedness are more important. Therefore, many people are not creditworthy. |
| - Investments do not reach the return periods of 7-8 years in all cases. (The return period of complex energy efficiency investments sometimes reach 15 years.) In order to ensure that the investment fall into this category, grant assistance is needed. |
| - Own contribution is missing, but the financing parties require a minimum own contribution of 10-20 percent. In the case of detached houses, the own contribution requirement is higher (can be as much as 30 percent), and in the case of condominiums it is lower. |
| - The results of energy efficiency projects cannot be precisely measured and forecast in all cases (the results also depend on changing consumer habits, weather) With an ESCO-type financing scheme, this could mean a serious risk. |
| - The energy efficiency part and renovation part of the investments cannot be properly separated in all cases. This further deteriorates the return of investments. |
| - The professional aspect is not always present in the preparative stages of investments (the logical order of investments is not always followed) |

**Renewable energy investments producing electricity for the grid**

Hungary encourages the increase of renewable electricity production through the Mandatory Off-take Scheme (MOS). Electricity produced from a renewable energy source or from waste have to be taken over by MAVIR from the producers, in the determined quantity, and for a determined period of time, at the price exceeding the market price. The amount of electricity that can be taken off and the period of off-taking are determined by the Hungarian Energy and Public Utility Regulatory Authority (MEKH) in its decree. This ensures that the investment receives assistance until the investment is returned, at the latest. Off-take price of electricity depends on the type of technology, the existing capacity of the power station, and the year when the production was started. If the power station eligible for compulsory off-take receives any other assistance, the off-take time should be deducted proportionality. Framework conditions of the utilisation of the MOS system are included in Act LXXXVI of 2007, and the detailed rules are set forth in Gov. Decree No. 389/2007 (XII. 23.) and MND Decree No. 63/2013 (X. 29.). Elaboration of the RSS (Renewable Support Scheme) system replacing the MOS system has been going on since 2011, the legal regulation necessary for it to become effective has not been adopted ever since, which effects the definition of the financial instruments that could be used. However,

electricity sales price typically ensures a long return period, which makes the financing of the projects difficult.

Market players have been waiting for years for the RSS system to replace the MOS system, providing favourable, perhaps significantly higher prices than the MOS prices for electricity producers. However, RSS has not been introduced yet, against all expectations, and there is no information available as regards to a possible future date of introduction. The uncertainties related to the conversion between the MOS and RSS systems (for example, what compulsory off-take prices and other conditions will be ensured by the RSS system, how can the producers selling in the MOS system participate – can they participate at all – in the RSS system) have extremely negative effect on the approach of financing parties: they deem the uncertain regulatory environment as a particularly high risk.

Furthermore, the fact that the conditions of price support systems are expected to become stricter results in further uncertainties. On 9 April, 2014, the European Commission adopted its new Guidelines on State aid for environmental protection and energy 2014-2020, C(2014) 2322. The new guidelines (New Guidelines on State Aid) became effective on 1 July, 2014. From the above date, the newly announced or already announced but not yet assessed state aid notifications will be assessed by the European Commission based on the New Guidelines on State Aid.

Thus the income of the renewable projects producing electricity for the grid – either they are fixed by legal regulations or market-based contracts – shall be deemed limited from above. Project owners have some manoeuvrability in optimising operating costs, but the extent of operating cost is independent from financing as well, and such cost cannot be significantly changed after the conclusion of the appropriate operational, maintenance, purchasing, and raw material supply contracts are concluded. The annual result of the renewable projects producing for the grid shall be deemed as fixed, as regard the magnitude. Consequently, these investments are mostly implemented within the frames of *project financing.* The institutions providing financing on a market-base make their decisions based on cash-flow and the ratio of cash-flow to the debt servicing. ADSCR (annual debt service coverage ratio) is an important indicator, showing the ratio of the cash flow before the debt service and dividend payment in the year in question to the debt service in the given year. The ADSCR indicator shall be at least 1 so that the debt service could be covered from the annual cash flow. The minimum required value of ADSCR may vary depending on the loan institution and the project, usually the required value is at least 1.2 for each year, but there are loan institutions typically requiring an ADSCR value of 2. Usually, it is the requirement concerning the ADSCR indicator that the projects utilising renewable energy are able to meet

the least. Loan institutions say that without grant assistance, the projects simply cannot meet the requirements set by the creditors.

Subsequent to the economic crisis, the financing approach has changed significantly: the risk-taking willingness has decreased, requirements for the projects have been increased (for example a higher own contribution rate, guarantees, profitability). Since the projects aimed at utilising renewable energy sources cannot be standardised easily, the financing party examines each project in detail before making available financial funds for the project owner. However, a detailed examination requires time and costs from the financing party (even though they make the investor pay a significant part of the costs), therefore, below a given size limit, it is not worth to undertake the extra expenditure. This size limit varies by financing party, but in the case of projects utilising renewable energy sources, it is in the commitment zone of HUF 200-300 million (certain loan institution indicated HUF 100 million to be the lower limit, only the Hungarian Development Bank – having slightly different criteria from those of the commercial banks – set a minimum of HUF 50 million).

Based on market experience, investors of the projects aimed at utilising renewable energy sources typically have a low level of own financial resources. While the banks would like to see an own contribution equivalent to the 30% of the total project costs (this may be reduced, when the appropriate guarantees are available), many project owners have difficulties to provide an own contribution of 10-20%. What is more, the lack of own funds is present not only in the initial phase of the projects, the majority of project owners have to face liquidity problems during the implementation of the project, and this has in many cases resulted in suspending the implementation of the project well on its way, even for several years.

It is the general experience of both the financing parties and the EEOP application system that the preparation level of the submitted projects is of a low quality, and the applicants typically emphasise the technical, technological parts, not paying due attention to the financial and financing plan.

Within the frames of the JEREMIE programme, beneficiaries financed hardly any projects aimed at energetics. The Growth Loan Programme (NHP) provides funds with favourable conditions, however, there have not been many energetics projects financed, nor within the frames of this programme (the main reasons being: NHP financing is open only for SMEs, due to the low loan spread high customer risks cannot be taken, NHP does not undertake to finance newly established project companies). Project owners have difficulties to meet the own contribution and guarantee requirements of creditors (usually 30% of the project value is expected as own contribution), and/or the profitability needs (10-50%) of capital investors.

The gap between the financing need and demand is basically due to the lack of own funds of project owners, and partly to the resulting insufficient preparation of the projects, and the low profitability levels related to the projects (and this typically cannot be offset by guarantees either). Financing is made more difficult by the (proportionally) high examination (energy audit) costs related to the screening of the projects.

*Table 12 – Market issues with projects producing for the market*

| ***Market problems in connection with the financing of renewable projects generating energy for the grid*** |
|---|
| - Insufficient rate of return: long return period, low cash-flow compared to the debt servicing. |
| - The risks of the Mandatory Off-take Scheme, the lengthy introduction period of the Renewable Support Scheme |
| - Projects are not sufficiently prepared. |
| - The preparation and implementation period of certain investments is long due to the authorisation procedure, while other, such as solar panels can be installed on a short notice. |
| - There is insufficient experience in connection with the technology planned to be used, obtaining the tools and equipment might be difficult. Expert competence is missing during the implementation of the project. |
| - It is not lucrative for the financing party to deal with low-value projects (usually under HUF 200-300 million) |
| - The required own contribution is minimum 10-20 percent, but characteristically 30 percent, which present a problem for the investor. |

**District heat production and distribution companies**

For district heat production companies, the following can also be considered: replacement or modification of heat-producing machinery, use of renewable resources, modernisation of the heat source, replacement of the transmission network, and connecting new consumers to the district heating grid. When it comes to the use of renewable energy, most often the use of solid biomass and the use of geothermal energy can be considered. Even in this sector, return on investment is most often too slow for the market to provide the necessary funding. Because of current regulations, investments aimed to develop district heating can only be implemented if consumer prices do not increase in connection with those developments. Grant assistance, combined with a financial instrument is thus needed to decrease the payback time.

A Government Decree is in effect in connection with the district heating supply. Legislation regulates the sales prices of district heat producers, the specific support received by district heat suppliers, the maximum amount of earnings before tax that district heat producers and suppliers are entitled to (as a multiple of the gross asset book value considered for pricing and the statutory gain factor), and the methodology to be used for price preparation ([46]) According to the participants of the district heating market, the regulation of prices – especially for funders outside the industry – is not transparent enough and does not

[46] 50/2011 MND Decree

guarantee return on investment. The most serious hurdle faced by the investments is the risks that come with the regulation of prices.

Modernisation of district heating systems (whether we are talking about the modernisation of grid lines, machinery used to produce district heating and heat sources, or connecting new consumers to the district heating grid) is a long process that requires heavy investment and complex preparations. Construction is often performed in urban areas, where strict regulations apply. The project (including the preparations and the scheme work) usually takes years to implement fully. When it comes to large pipelines, the scheme itself can take up to 3-5 years, while the district heating service also needs to be maintained.

While energy efficiency investments aimed to decrease reliance on district heating contribute to the modernisation of district heating systems, they also endanger the competitiveness of district heating: the inevitably high fixed costs involved in the operation of district heating systems rise even higher if consumption declines, which, after a while, renders district heating unviable, as the operating costs of the system (including the cost of heat production) can only be reduced on a limited scale. Because of this, connecting new consumers to the grid must also take priority in the modernisation of district heating system, when this can be done in a rational and economical way.

In many cases, district heating providers (first and foremost those operating outside of Budapest) suffer from a resource gap and lack the required own contribution to realise investments. The Hungarian Association of District Heating Providers (Magyar Távhőszolgáltatók Szakmai Szövetsége) assembled a list (totalling at almost 600 billion HUF) of planned, valid and advisable projects relating to the modernisation of district heating as well as the use of renewable energy sources. However because of the lack of available own contribution and within the legal framework outlined above, only a fraction of these will be realized.

Participants of the district heating market possess the required technical and technological know-how to prepare and implement projects, projects are thus usually well-prepared.

*Table 13 – Market problems in connection with the financing of district heating systems*

| ***Market problems in connection with the funding of the modernisation and renewability improvements of district heating systems*** |
|---|
| - Because of the inherently uncertain nature of price regulation and the relevant local and Union legislation funders deem the funding of such projects too risky. |
| - It takes too long to recoup investments. |
| - The smaller district heating providers struggle with a resource gap, procuring own resources is problematic. |
| - When it comes to geothermal projects, companies do not get funding during the geological survey and well-drilling phases because of the high level of risk. |

**Energy efficiency and renewable energy investments of companies**

When it comes to companies, the main possibilities are the energy modernisation of buildings and production processes, including the use of renewable resources.

In this case, the statements made in connection with the populace are also valid for the investments relating to the modernisation of building energy consumption and the use household-sized small powers stations running on renewable energy sources. The most important factor here is that the usually long payback time must be reduced with grant assistance to at least 7-8 years, but in most cases to below 5 years (maximum 15 years where larger investments are concerned).

In this sector, the income generation possibilities of companies are less predictable, lending risks are less connected to the actual project, and more to the general income generation possibilities of the company. Due to this, project funding is rare in this sector, while the funding of companies is more common.

When it comes to the funding of companies, during the loan evaluation process the technical contents of the projects are also important, as in the case of projects involved in grants, this aspect is used to measure the risks associated with the granting of aid. While the technical contents are an important factor, the company's financial situation, indebtedness, income-generating possibilities and market prospects for the future are taken into even greater consideration during the loan evaluation process.

Modernisation of technological solutions is mostly confined to large enterprises engaged in production. It is characteristic for large enterprises and (to some degree) for SMEs to fund a part of their investments relating to the energy modernisation of technological processes themselves. The modernisation of technological processes, the replacement of machinery is most often not just an investment made for the purpose of obtaining better energy efficiency, but also serves some other purpose (for example: capacity expansion, more strict quality standards, need to decrease costs associated with maintenance etc.).

Financial institutions usually support large enterprises and projects with an investment value that exceeds HUF 500 million. ESCO companies are also highly active in the corporate sector, implementing significant energy efficiency investments on a market basis. Because of this, when planning schemes, it must be taken into account that plans available for companies must not support investments which could be implemented on a market basis (usually those aimed at increasing the energy efficiency of technological processes) and must not drive out ESCO companies from the market. In the case of investments where significant own resources are needed to supplement the grant funds, opportunities for ESCO companies to take part must be created. This is not only significant because of

the involvement of market capital: the participation of ESCO companies can also contribute towards a better quality of investments and ability to accomplish OP-level indicators.

*Table 14 – Market failure and suboptimal investments per thematic actions planned*

| ***Market problems in connection with the funding of energy projects of companies*** |
|---|
| - When it comes to investments relating to building energetics and the use of renewable energy, the payback time of projects is too long. This must be reduced below 7-8 years with grant assistance. |
| - Financial institutions are averse to funding medium and small enterprises and investments below HUF 500 million. Companies are not creditworthy. Willingness to fund can be increased with repayable assistance. |

GAP is quantified based on strategic aims related to energy efficiency, building efficiency and the use of renewable resources. When calculating, we assumed that the current level of investments is suboptimal. Details of the calculation are included in Annex 1.

### 2.3.5. Stimulating employment

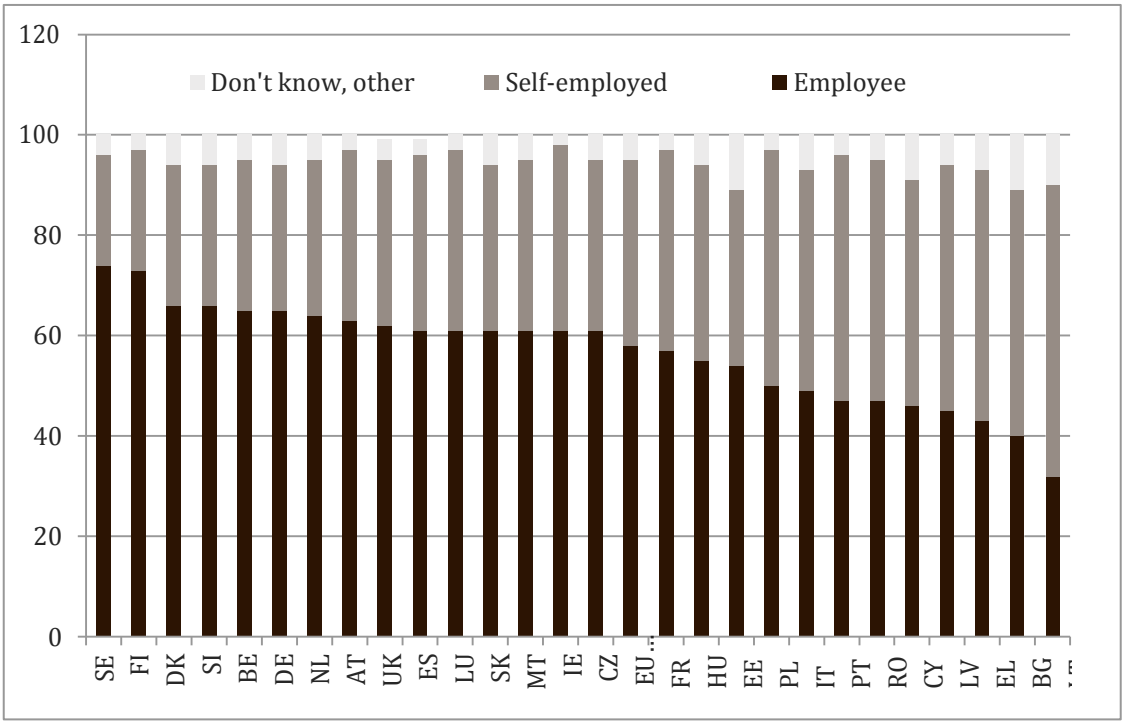
SMEs employ more than 70 percent of the total number of people employed (this rate is 72 percent in Hungary, while the EU average is 67 percent). Due to the high amount of large enterprises at present, in the Central Hungarian region this rate is lower than the country average (68.2 percent). Therefore, a well-grounded development policy is projected to stimulate investments in the SME sector, as even a small amount of improvement can lead to a large increase in employment. Other actions formulated in line with other thematic objectives (first and foremost TO3) and aimed at increasing competitiveness are usually in collision with employment policy expectations (mostly technical development). However, based on actions formulated in line with thematic objective 8, employment can be increased by stimulating people who have a hard time finding employment to become entrepreneurs.

Becoming self-employed or an entrepreneur is a goal supported by the European Union. One of the aims of the Entrepreneurship 2020 Action Plan[47] is to support more Europeans to become entrepreneurs. *'To bring Europe back to growth and higher levels of employment, Europe needs more entrepreneurs'* – this is how the most important aim of the programme is stated on the third page of the document.

However, there is a rather large deviation within the community. Hungary is among the best performers in the lowest third of the ranking. According to Eurostat, 11 percent of the total ~~number of persons employed~~ is self-employed, while the average of the 28 member states is just below 15 percent. Some improvement is foreseeable in the future, as according to a 2012 Eurobarometer survey, a relatively high rate of the participants (39%) wishes to become self-employed. This rate is among the first third of those surveyed in the European countries.

[47] This Action Plan is presented in detail in the 2013/1 report on small enterprises.

*Figure 11 – What type of work would you do if you could choose anything… (percentage of respondents)*




*Source: Eurobarometer 2012, results of a survey conducted in June 2012*

Currently, there is grant assistance available for those wishing to become entrepreneurs. Commercial banks are usually unwilling to provide small amounts of loan to start-ups, because of the associated high risks. The one-year survival rate of start-ups consisting of 1-2 persons is 30 percent according to CSO data, which in itself is quite dissuasive when it comes to a funding decision. According to Eurostat data comparing the two-year survival rate, Hungary (with 56.7%) is one of the worst environments for start-ups (regardless of size). This rate is only worse in Portugal (with 47.2%). According to CSO data, this rate is slightly higher in Central Hungary (59.5%), but it must be noted that there are no significant regional differences in this matter.

The market gap can be closed with an average project size of 1-5 million HUF, aimed at the most unemployed or inactive part of the populace aspiring to become entrepreneurs. The market gap is defined similarly in the study commissioned by the European Commission (Study on imperfections in the area of microfinance and options how to address them

through an EU financial instrument – 2014, January). In Hungary, the demand for microloans in this target group is around EUR 232.8 million, while the supply only amounts to EUR 17.7 million. There exists a GAP of more than EUR 200 million in this area in Hungary (this translates to around HUF 60 billion).[48]

Another target group mentioned in the thematic objective is the pool of social enterprises. These enterprises, midway between the corporate and the non-profit sector, usually do not receive any market resources at all[49], and because of their legal status (non-profit company) they could not even apply for Jeremie loans in the past.[50] Based on the referenced survey, one could not talk about a massive presence of social enterprises in Hungary, however the study managed to contact 104 such enterprises (600 companies took part in the survey Europe-wide). Companies wish to use outside sources first and foremost as bridging and liquidity-facilitating loans (43%) and to expand their activities (59%). When counting with an average project size of 25 million HUF and a twofold increase in the number of social enterprises (200[51] such enterprises in 2020), a market gap of 5 billion HUF can be calculated.

*Table 15 – Market failure and suboptimal investment by planned thematic measures*

| ***Thematic objective*** | ***Measure*** | ***Suboptimal investment*** | ***Market failure*** |
|---|---|---|---|
| ***Employment*** | *Stimulating new entrepreneurs* | *Less detailed, measure-linked investment needs (contributing t o the increase the level of employment)* | *- A leap in the dark – entering a new market or converting to a new way of running the company is a task that comes with such resource requirements and risks that are hard to take up, even by a company in reasonably enticing situation.*<br>*- asymmetry of information: the funder does not have enough information about the company, lack of loan history* |

[48] The study counted GAP by multiplying the number of people living below the poverty gap with the number of people who are willing to become entrepreneurs (Eurobarometer data) and multiplying that number with 4 percent (to obtain a number that reflects those who are virtually able to start a company). The result referred to was obtained by multiplying this with the average project size.

[49] A társadalmi vállalkozások ökoszisztémája (An ecosystem of social enterprises) (http://www.nesst.org/wp-content/uploads/2014/05/A-t%C3%A1rsadalmi-v%C3%A1llalkoz%C3%A1sok-%C3%B6koszisztt%C3%A9m%C3%A1ja.pdf)

[50] A társadalmi vállalkozások helyzete Magyarországon, 2011 (The situation regarding social enterprises in Hungary, 2011) (http://www.eukn.org/dsresource?objectid=263416)

[51] EDIOP forecasts the creation of 4,000 new jobs within the frames of social enterprises. This means that 200 new companies should be created by 2020 (20 employees per company on average).

| | | | |
|---|---|---|---|
| | *Social enterprises* | | *- information asymmetry*<br>*- ripple effects – profits associated with a development not only impact the company/person implementing them (employees attain a better position in the job market)* |

## 2.4. GAP overview by submarket

Because of the different development level of Hungarian regions, funds must be made available with different sets of conditions and with a different framework in the region of Central Hungary and the convergence regions. Financial instruments are present in EDIOP and CCHOP accessible for central region organisations. Therefore, it is advisable to separate the GAPs defined above relating to Central Hungary and the convergence regions (except for the subareas relating to the 4 thematic objectives[52]). Calculations for the subareas are based on the following assumptions:

- RD investments of companies (TO1): 65 percent of R+D spending can be connected to companies operating in the region of Central Hungary. However, the objective is to increase R+D spending by companies on average. Therefore, GAP was identified based on the number of companies (in this way, the share of Central Hungary is 41 percent).
- IT investments (TO2):
    - The improvement of broadband infrastructure: there is no such development need in Central Hungary, therefore, the GAP can entirely be tied to the convergence regions.
    - IT development for companies: 41 percent of companies are based in the region of Central Hungary (data from 2012), market gap was proportioned with this number.
    - Development of IT companies: 63 percent of all companies operating in the info-communication sector has its registered offices in the region of Central Hungary (data from 2012).
- Increasing the competitiveness of SMEs (TO3): 41 percent of companies are based in the region of Central Hungary (data from 2012), market gap was proportioned with this number.
- Promotion of employment (TO8):
    - Start-ups: the actual proportion of start-ups was 40 percent in Central Hungary (2012).
    - In the case of social enterprises, the estimation was based on the number of

[52] However, the market gap relating to energy efficiency and renewables investments cannot be separated in this way. As the relevant professional strategies define their objectives on a national level, we do not consider the definition of region-specific investment needs justified.

non-profits (and with associations, as this is the most common organisational structure) operating in Central Hungary (30 percent in 2012).

The market gaps by investment objectives defined above in line with the specific thematic objectives are the following.

TABLE 16 – SUMMARY OF GAPS BY THEMATIC OBJECTIVES

| | **Market gap (billion HUF)** | **Share of market gap relating to the region of Central Hungary** |
|---|---|---|
| **RDI investments of enterprises (TO1)** | 441 | 181 |
| **ICT investments (TO2)** | 148 | 35 |
| **Investments relating to the capacity expansion and property development by SMEs (TO3)** | 469 | 192 |
| **Energy efficiency and renewable energy investments (TO4)** | - | - |
| **Energy efficiency (from which building energetics)** | | 4703 (1491) |
| **Renewable energy** | | 1127 |
| **Promotion of employment (TO8)** | 65 | 25 |

If we take a look at the regional breakdown of GAP numbers, we can clearly see that the market gap existing in the region of Central Hungary far exceeds the funds available in the operational programme. This difference is especially high with regard to the 1st and 3rd thematic objective (a GAP of 200 billion HUF vs. allocated funds of 7.3-7.3 billion HUF). Therefore, it is advisable to lever additional (such as funding sources from Brussels, national IT grants) resources (above those set by the operational programmes) in the region of Central Hungary with the aim of reaching the policy goals and handling the market failures. Rerouting these sources to Central Hungary might be considered beneficiary.

# III. Earmarkable budgetary and private funds

## 3.1. Requirements of raising capital

According to articles 139 and 140 of the Financial Regulation, financial instruments must follow the principle of additionality, e.g. community funds shall not replace private funds, instead, their aim is to reach development policy objectives by levering such market resources that were not present in the specific submarket until that time.

Market or additional budgetary resources may be involved on the level of fund of funds, financial intermediaries and the beneficiaries. The General Block Exemption Regulation sets out some minimal requirements for a few specific claims:

- In the case of aid claimed on the basis of regional investment (article 14) own resources without any form of public support must reach 25 percent. (*'The aid beneficiary must provide a financial contribution of at least 25 % of the eligible costs, either through its own resources or by external financing, in a form, which is free of any public support.').*
- In the case of aid claimed on the basis of implementing energy efficiency projects in buildings (article 39) the requirement for 30% private capital can be applied both at the level of the project and the fund (*'The energy efficiency aid shall leverage additional investment from private investors reaching at minimum 30 % of the total financing provided to an energy efficiency project. When the aid is provided by an energy efficiency fund, the leverage of private investment can be done at the level of the energy efficiency fund and/or at the level of the energy efficiency projects, so as to achieve an aggregate minimum 30 % of the total financing provided to an energy efficiency project.')*
- When it comes to risk financing provided to SMEs, the required contribution at the level of financial intermediaries or eligible companies is 10% (for companies that 'are yet to conclude their first commercial sales in the market'), 40% (for companies that have operated for 7 years at most) or 60% (where the investment exceeds 50% of the average revenues of the company for the last 5 years or the company is older than 7 years).
- When it comes to risk financing of SMEs (article 21) replacement capital must be supplemented with an own contribution reaching at least 50 percent *('For capital and quasi-capital investments in eligible undertakings, a risk finance measure may provide support for replacement capital only if the latter is combined with new capital representing at least 50 % of each investment round into the eligible undertakings.')*

So-called 'off-the-shelf' plans can also serve as guidelines. These plans provide financial instruments in three areas (loan to SMEs, portfolio guarantees, energy efficiency improvements of homes[53]), according to given parameters. The relevant regulations require at least 15 percent in the case of energy efficiency funds and 25 percent when it comes to SME loan funds, while there is no minimal limit for the brokerage of guarantee products. It must be noted that these products are available with the same conditions for all Member States, meaning that these parameters were possibly drawn up with a community 'average' in mind.

To sum up, plans conforming to the parameters below are exempted from the notification requirement.

*Table 17 –Summary regarding the required private capital*

| Required private capital |
| --- |
| Investments relating to energy efficiency projects in buildings (30%: combined on the level of the beneficiary and the intermediary)<br>Loan fund created for the purpose of building energetics modernisation of homes (at least 15% on the level of the intermediary, off-the-shelf)<br>Aiding projects implemented by companies (increasing the energy efficiency of production processes, renewable energy investments, except for energy efficiency projects involving buildings):<br>- aid claimed on the basis of regional investment, at least 25% own resources on the level of the company;<br>- risk financing (through financial intermediaries): 10-40-60% according to the type of the relevant company (as start-ups are a minority of the target group, 40-60% is more likely) |

Plans to be implemented that do not fall under the conditions of the Block Exemption Regulation have a notification requirement. Articles 80-81 of the guidelines on the promotion of risk finance investments[54] set out the conditions according to which the Commission may (after consultation) deviate from the minimal private capital requirements of the Block Exemption Regulation:

- if the financial market of SMEs is underdeveloped compared to other Member States (no stable presence of venture capital organisations or business angels),
- in the case of measures specifically drawn up to target SMEs that have not yet concluded their first commercial sales or are in the process of being audited (this rule can be applied to start-ups; according to the Block Exemption Regulation, the percentage of private capital can be decreased to 10 percent).

[53] For further details, see chapter 4.3.3.
[54] Communication from the Commission Guidelines on State aid to promote risk finance investments (2014/C 19/04)

## 3.2. Contribution on the level of financial intermediaries

The following sections will examine the types of private and budgetary contributions that may appear in the various intermediary levels.

In Priority 8 of EDIOP, the level of co-financing (that is, EU-contribution) is 95 percent, which must be supplemented by 5 percent national contribution. According to the indicative supply table, the entirety of this 5 percent is made up of private financing, meaning that no public financing is present in the programme. In CCHOP, the percentage of co-financing is higher, 50 percent, meaning that besides EU-contribution, national public financing and private financing is used.

On the level of fund of funds, it is not easy to lever market investments, as the capital to be invested is very 'far' from the actual project, that is, the private investor is not able to see the product (loan, guarantee, capital), moreover, the market targeted by the investment is exceedingly heterogeneous (energy efficiency, RDI, IT etc.). Intentions regarding further budgetary contribution were not discovered during the course of present study.

The amount of private capital that may be involved can be inferred from experience gained from the Jeremie programme and the interviews concluded with the relevant professionals.

When it comes to loan products[55], the percentage of refinancing was initially 80 percent among financial enterprises and Local Business Centres (LEAs), and 50 percent among loan institutions. Following the recession of 2009, to offset the decrease in corporate lending the refinancing rate grew to 90 and 75 percent respectively. In 2011, the percentage increased to 100 percent for all financial intermediaries. At the end of the period examined, refinancing decreased to 75 percent for loan institutions, while it stayed at 100 percent for the other types of intermediaries. As a side note, financial enterprises engaged in the intermediation of loan products and contacted during a study made in 2013 by KPMG still believe that a 100 percent refinancing rate is necessary in the current situation. Reasons for this are not stated in detail, however, financial intermediaries suffer from a serious lack of funds, and thus can only offer private capital contributions to a limited extent. (Another important finding of the study is that it is not advisable to change the refinancing rate too often, as this causes a considerable loss of time to intermediaries due to the conversion.)

As the 25 percent rate of intermediary-level contribution worked only for commercial banks (and sometimes for limited amounts of time, not even for them), we must conclude that a smaller percentage of private capital can be involved at this level. As the regulations regarding state aid require a rate of at least 10 percent (and with strict limits), we set the rate of private investment at 10 percent. However, on the basis of interviews concluded with financial intermediaries, we can assume that financial intermediaries involved in the retail

[55] Based on the motivation explained in chapters II and III, this study does not contain any propositions regarding the investment of venture capital with regard to thematic objective 4. Because of this, capital that can be involved on the level of fund management companies is not examined here.

financial market are willing to play a more significant role in connection with the financing of energy efficiency projects initiated by the populace.

## 3.3. Resources that may be involved on the level of the project owner

The rate of contribution that can be reasonably expected from the populace (in the case of TO4) is fundamentally defined by the amount of available savings and the income and property status of the households.

According to CBH (Central Bank of Hungary) data, financial situation of households improved last year, however, this can be attributed to the decrease in the amount of loans (first and foremost the decrease in housing loans). On the other hand, not every household has the same level of willingness to make savings**.** According to a study conducted by GFK Hungária in February 2014, only 11 percent of Hungarian households had savings in the bank.[56]

According to household statistics data from 2012, 18 percent of Hungarian households had outstanding housing loans (this percentage may decrease in 2013 due to measures involving foreign currency loans and refinancing). The average monthly instalment was HUF 50,000 (with a standard deviation of HUF 34,000), which on average amounted to one-fourth of all household expenses (households where this rate exceeded 50 percent made up 15 percent of all households with outstanding housing loans).

According to a study commissioned by MND and concluded by Századvég Economic Research Co.[57] of all households, 16 percent had some problems with housing loans.[58] Households considered problematic live mostly in single-family homes and semi-detached houses located outside of Budapest.

When it comes to investments financed on a market basis involving residential buildings, commercial banks require at least 10-20 percent, but usually 30 percent own contribution. The level of savings is low (11%) while the amount of borrowing is high: this means that the final beneficiary is usually able to provide 10 percent own contribution (without counting all forms of aid) at best.

It is important to note that by examining the number of homes reached (100,000 according to calculations presented in chapter 3.1.2.) and their distribution by types of housing,

56 http://www.gfk.com/hu/news-and-events/press-room/press-releases/lapok/gfk-szemelyes-penzugyek- teren-a-kelet-kozep-europai-regio-nagyon-megosztott.aspx

57 Sociological study examining the housing stock of Hungarian households for the purpose of establishing the basic principles of aid schemes for the period of 2014-2020. Századvég Gazdaságkutató Zrt.

58 Those households were considered problematic, where the respondents gave negative answer to at least two of the six income-related questions (relating to holidays, whether the family eats meat daily, has he means to operate the heating of the house, able to pay common charges of the house, able to pay for medicine) meaning that they lack the necessary means to pay for those things.

we can conclude that at least 10 percent of households of each type belongs to the uppermost two deciles of wages, meaning that the risk of absorption is low.

Among companies, we do not count with a rate of private capital higher than the 25 percent expected on the basis of regulations regarding state aid on the level of the final beneficiary.

# IV. Framework regarding the choice of financial instruments

## 4.1. Advantages and disadvantages of various financial instruments, expected impact

When making financing decisions, commercial banks primarily consider the debt service ratio of companies, i.e. they examine whether the cash-flow of the company is sufficient to cover the instalments. One of the most important questions is therefore how revenues of the company turn out. Lack of collateral and guarantees is more and more serious an issue, as seen before (see 2.1.1).

General aspects to consider before choosing from the various financial instruments[59]:

- With grant assistance, the payback time of projects can be decreased, granting the project a better chance to obtain additional funds from the market for financing.
- Guarantees are primarily used in areas where (according to previous experience) the rate of failure is significantly high or there is no funding available for the project because of lack of collateral.
- Loans at preferential rates may be used if the project's expected financial return is low or the debt service ratio of the project can be improved with the help of such loans.
- Capital investment is preferable where both the expected return and the associated risks are high (in the case of priority areas of development policies).

[59] Ex-ante assessment methodology for financial instruments in the 2014-2020 programming period. Based on the following: General methodology Table 11.

*Table 18 – Most important characteristics of financial products*

| | Guarantee | Loan | Capital investment |
|---|---|---|---|
| **On the level of the fund** | - high level of leverage<br>- low level of resources committed<br>- risks can be assessed accurately based on the rate of failure | - risks are more predictable, because the quality of the portfolio can be assessed on the basis of parameters set out at the time of borrowing (for example vs. the capital investment) | - provides opportunity of continuous control over the project owner (by way of the property share)<br>- needs constant, high-level professional control<br>- risks can be assessed continuously and the funding decision can be revised |
| **On the level of the beneficiary** | - strengthens the ability to take loans<br>- the costs associated with the loan itself plus the costs of the guarantee must be taken into account | - simple, established process through intermediaries (usually for companies, less often for the populace)<br>- project must pass a risk evaluation process, high-risk projects (that may be important because of policy reasons) may not obtain resources with this scheme | - can only be used by economic operators<br>- a good way to go if the relevant entity does not meet the standards of loan evaluation<br>- the economic operator receives professional support, which may also lead to conflicts with the owner-CEO |

Their common feature is that a higher percentage of private capital can be levered by way of financial instruments, and that they provide opportunities to involve professional skills (first and foremost through financial intermediaries) that improve the competences of the institutions through the mechanism of selecting recoverable projects, making more effective use of resources.

According to an assessment drawn up by the European Court of Auditors in 2012, among the various forms of repayable assistance, guarantee instruments provided the best leverage ratios.[60] According to the referenced study, capital investments provided a ratio between 1.43 and 1.72, the ratio of loan funds was around 1.1–1.33, while guarantee products reached a level of 4.16. This high level of leverage granted by guarantee products is inherent in their nature, as they are usually linked with loan products funded by the market, with a

[60] European Court of Auditors [2012]: 39-41.

maximum rate of 80 percent.

One of the requirements of the Financial Regulation regarding financial instruments is that they must help fund 'viable' projects. These projects must be able to produce revenue, the aid should be recouped partially or in its entirety (depending on whether we are talking about a combined or independently repayable aid). In the case of grant assistance, the primary consideration is how the projects contribute towards the development policy objectives, while the cash flow and expected return of the project must also be taken into account with products combined with financial instruments. With this, new types of competences must be present in the assessment. It is possible to involve the members of the finance market and to encourage their participation (approval of return expectations relating to private capital, loss-sharing) without violating the regulations regarding state aid with the aim of facilitating the presence of this mentality.

## 4.2. Rules concerning State aid

Articles 107 and 108 of the Treaty on the Functioning of the European Union contain the types of aid that are incompatible with the internal market.[61] The conditions set out by Paragraph (1) of Article 107 (aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods and affects trade between the Member States) must occur jointly for the EU rules concerning state aid to be applied, in other cases, the aid is not considered state aid.

The following measures made by Member States are compatible with the internal market:

- measures not considered state aid, and therefore not subject to separate investigation;
- measures compatible with the internal market that have a notification requirement;
- state aid compatible with the internal market and exempted from the notification requirement (de minimis and General Block Exemption Regulation).

Measures to which one of the conditions outlined in Article 107, Paragraph (1) of the TFEU (1) do not apply are not considered state aid (not granted by a Member state, not favouring certain undertakings, does not affect trade between the Member States, does not distort or threaten to distort competition). State expenditure regarding public services are usually not considered state aid[62] as well as aid granted to beneficiaries not considered to be

[61] Articles 87 and 88 of the pre-amendment version of the TFEU.

[62] Four conditions must be met here (the beneficiary company must be granted contractual or legislative authority to perform the service; parameters that serve as a basis for compensation must be set out beforehand in an objective and transparent way; overcompensation is prohibited, i.e. compensation must not exceed the amount needed to cover the partial or entire costs of the service, when taking into account the relevant revenues and a reasonable rate of profit; if the service provider is not chosen by way of public procurement, the amount of compensation must be determined by analysing the costs that a typical, effectively managed company would incur).

undertakings (i.e. to the populace). However, the definition 'undertaking' here does not strictly refer to the corporate form. Market operators regardless of form may be considered to be an undertaking based on their activities. The Commission concludes that aid granted to the populace is only accountable if it is made by way of an intermediary[63], which means that rules regarding state aid must be taken into consideration on the level of the intermediary (except if the intermediary is owned by a municipal authority or the state, aid granted to such institutions is not considered state aid).

Rules regarding state aid must be examined on every level of the aid scheme (fund of funds, financial intermediary, final beneficiary).

### 4.2.1. General requirements of financial instruments

Articles 139 and 140 set out the general principles that financial instruments are required to follow. Financial instruments must at least fulfil the following conditions:

- must target project-related market failures or suboptimal investment situations which are financially viable but not able to raise sufficient funds from the market
- additionality: the financial instrument must not aim to supplant financial instruments of Member States, private financing or other community financial measures;
- must not distort competition in the internal market and must be in line with rules regarding state aid;
- leverage effect: the community contribution provided for the financial instrument must aim to lever such global investment that is going to exceed the community contribution by a pre-defined rate
- harmonisation of interests: during the execution of financial instruments, the Commission assures that the policy objective being implemented in connection with the financial instruments is of common interest, which may be facilitated by joint investment, loss-sharing requirements or financial incentives, while preventing conflicts of interest with other activities of the organisation charged with the implementation;
- financial instruments must be defined on the basis of prior evaluation, including the assessment of the possible re-use of additional resources.

Combining grant assistance with financial instruments is possible on the basis of regulation 1303/2013/EU (CPR). Article 39, section (9) of the CPR states: *'The combination of support provided through grants and financial instruments as referred to in paragraphs 7 and 8 may, subject to applicable Union State aid rules, cover the same expenditure item provided that the sum of all forms of support combined does not exceed the total amount of the expenditure item concerned. Grants shall not be used to reimburse support received from financial instruments. Financial instruments shall not be used to pre-finance grants.'*

[63] Based on the definition found in article 2 of regulation 1303/2013/EU where a beneficiary is defined only as a public or private body (section 10).

Separate rules[64] apply to risk financing investments and guarantees, sureties. Interest rates to be applied to define the grant equivalent of financial instruments are specified by the Communication on reference rates[65].

### 4.2.2. Grant equivalent, aid intensity, notification thresholds

**De minimis**

According to de minimis rules, products announced with the following criteria are deemed compatible with the rules regarding state aid:

- the legislatively determined gross grant equivalent does not exceed EUR 200,000;
- in the case of loan products, this means EUR 1 million with five years of maturity or EUR 500,000 with 10 years of maturity;
- with guarantee products, the loan may only amount to 80 percent of the product;
- with guarantee products, an amortisation rate of 8 percent must also be taken into account (creation of reserve).

**General Block Exemption Regulation**

The General Block Exemption Regulation defines notification thresholds for various categories of aid. If the aid falls within the confines of the defined criteria, there is no notification requirement. We summarized the maximal amount of aid as well as the relevant aid intensity values in the following table.

64 Communication from the Commission Guidelines on State aid to promote risk finance investments (2014/C 19/0)

Commission Notice on the application of Articles 87 and 88 of the EC Treaty to State aid in the form of guarantees

65 Communication from the Commission on the revision of the method for setting the reference and discount rates

(2008/C 14/02)

*Table 19 – Summary data of claims mentioned in the Block Exemption Regulation*[66]

| Claim | Notification threshold (maximal amount | Aid intensity of aid) |
|---|---|---|
| **Regional investment (TO3, TO2, TO1, TO8)** | 'Corrected amount of aid': Under EUR 50 million, excess aid applicable to SMEs without counting intensity (only 50% of expenses above EUR 50 million may be involved; expenses above EUR 100 million may not be involved) | region-specific (0-50%), 10 or 20 percent excess aid to SMEs (see table below) |
| **Investment aid to SMEs (TO3, TO2, TO1, TO8)** | EUR 7.5 million | small enterprise: 20%, medium enterprise: 10% |
| **Advisory services provided to SMEs, participation in trade fairs (TO3, TO2, TO8)** | EUR 2 million | 50% |
| **Risk financing aid (requirements for financial intermediaries) – TO1, TO2, TO3, TO8** | EUR 15 million per final beneficiary | Requirements for independent private investors: 10% (start-up), 40% (younger than 7 years), 60% (7 years or older) |
| **Aid provided to start-ups (incorporated in the last five years) – TO8, TO3, TO2, TO1** | A loan of EUR 1.5 million, with 10 years of maturity<br>A loan of EUR 2.25 million, with 10 years of maturity secured by 80% guarantee<br>gross grant equivalent stays below EUR 0.6 million in the case of interest subsidies, guarantee fee subsidies (grant)<br>(amounts may be doubled for innovative enterprises) | |
| **R-D – TO1** | basic research (EUR 40 million), applied research (EUR 10 million), precompetitive development (EUR 15 million), EUREKA (two times the above amounts), in the form of repayable advance (50% of the amounts above),<br>feasibility study (EUR 7.5 million) | basic research (100%), industrial research (50%),<br>precompetitive development (25%),<br>feasibility study (50%)<br>extra 10 or 20% for applied research and feasibility studies for SMEs |
| **Innovation cluster – TO1** | EUR 7.5 million | 50% |

66 These requirements do not apply to environmental aid, the details of which are included in the next table.

| Title | Notification threshold (maximal amount of aid) | Aid intensity |
|---|---|---|
| **SME innovation promotion – TO1** | EUR 5 million | 50% |
| **Promotion of employment for people with disabilities – TO8** | EUR 10 million | 75% |
| **Employing disadvantaged job seekers – TO8** | EUR 5 million | 50% |
| **Support for broadband infrastructure – TO2** | EUR 71 million | defined after competition process |

Risk financing assistance defined in the fourth line of the table may take the following forms: capital injection, loan or guarantee. Only companies that fulfil the following criteria may be granted aid with this instrument: must not be listed in any stock exchange, must not have operated in any market for longer than 7 years, must not need a risk financing investment exceeding 50 percent of their average annual revenues for the last five years. However, even additional investments are acceptable within certain limits, and some forms of aid granted to companies not fulfilling the above criteria might meet the conditions of the regulations, i.e. exempted from the notification requirement. Risk financing aid granted to a single company must not exceed 15 million EUR.

Rules regarding regional investments are going to change in the new period. In the period of 2014-2020, aid intensity will be 0 percent for the region of Central Hungary, except for 82 municipalities where the maximal allowed aid intensity may reach 20 percent (4 municipalities) or 35 percent (78 municipalities). In other regions, 50 percent (Northern Hungary, Northern Great Plain, Southern Great Plain, Southern Transdanubia), 35 percent (Central Transdanubia) or 25 percent (Western Transdanubia) investment aid may be granted. The rates mentioned above may be raised by 20 percent for small enterprises and 10 percent for medium enterprises.

The required minimum amount of own resources does not change for the period 2014-2020. According to the Block Exemption Regulation, the following applies to aid granted to regional investments: *'The aid beneficiary must provide a financial contribution of at least 25 % of the eligible costs, either through its own resources or by external financing, in a form, which is free of any public support.' (Article 14 (13))*

The Block Exemption Regulation does not preclude the accumulation of different forms of aid. However, in this case, care must be taken to ensure that the aid must be connected to two separate eligible expenses or that the cumulative amount of aid must not exceed the maximal aid intensity set out by the regulation. According to articles 20, 21 and 22 of the General Block Exemption Regulation, 'aid measures exempted under this Regulation with identifiable eligible costs may be cumulated with any other state aid measures that have identifiable eligible costs'. According to the listed articles, exempted aid measures include: risk financing aid, aid provided to start-ups and to alternative trading platforms for SMEs.

For environmental assistance, rules stated in section 7 of the General Block Exemption Regulation apply. The following table summarizes the most important rules regarding the relevant forms of aid.

*Table 20 – Aid titles*

| Aid | Priority rules |
|---|---|
| **Investment aid granted for the purpose of energy efficiency measures;** | May not be used to ensure compliance with standards already adopted by the EU<br>Eligible costs are those that are in connection with the attainment of a higher |
| **Aid granted to energy efficiency projects;** | May not be used to ensure compliance with standards already adopted by the EU May be granted in the form of a loan, through financial intermediaries or funds Maximal nominal value of the loan: EUR 10 million<br>At least 30% of funds must come from private investors (may be involved in the level of the project)<br>Requirements for the financial intermediaries, funds (chosen with open procedures, rules for loss-sharing, private investors to assume roles in the management board, must be managed on a commercial basis) |
| **Investment aid granted for high-efficiency cogeneration;** | Exclusively for newly created capacities<br>Aid intensity: max. 45% (+allowance for SMEs)<br>Treating the waste of other companies is not exempted under this article |
| **Investment aid granted For the use of renewable energy** | Biofuels, except those based on cereals mentioned in Commission Proposal COM(2012) 595<br>Eligible costs are those that are in connection with the attainment of a higher level of environmental protection<br>Aid intensity: 45% (+allowance for SMEs) |
| **Operational aid granted for the purpose of generating electricity from renewable sources** | Member States may specify that the amount of allocated funds must not exceed 80% of the budget for a specific source of energy<br>Aid may be granted in the form of takeover premiums |
| **Operational aid granted to stimulate renewable energy production by small installations** | May be granted only to installations where capacity does not exceed 1 mW (3 mW for wind energy, 5 mW for energy generating unit)<br>Aid cannot be granted for cereals mentioned in Commission Proposal COM(2012) 595 |

| | |
|---|---|
| **Investment aid granted for the purpose of energy efficient district heating and district cooling** | For the purpose of building one or more energy generating unit to be used as an effective district heating or cooling system<br>Aid intensity may not exceed 45% (+allowance for SMEs) Maximum 20 million EUR per company and investment project |

Annex I of the guidance on environmental and energy aid summarizes the amounts of admissible aid intensity.

*Table 21 – Maximum assistance amounts*

| | Small enterprises | Medium enterprises | Large enterprises |
|---|---|---|---|
| **To companies for going beyond EU standards on environmental protection, or, in the absence of EU standards, for investment aid enabling a higher environmental protection** | 60% (70%-eco-innovation, 100% bidding process) | 50% (60%-eco-innovation, bidding process) | 40% (50%-eco-innovation, 100% bidding process) |
| **Investment aid for complying with future EU standards before their final approval** | 20% (more than 3 years)<br>15 % (1-3 years) | 15% (more than 3 years)<br>10 % (1-3 years) | 10% (more than 3 years)<br>5 % (1-3 years) |
| **Aid granted to energy efficiency projects** | 50% (100%-bidding process) | 40% (100%-bidding process) | 30% (100%-bidding process) |
| **Investment aid granted for the purpose of stimulating the use of renewable energy** | 65% (100%-bidding process) | 55% (100%-bidding process) | 45% (100%-bidding process) |
| **Investment aid granted for the purpose of energy efficient district heating and district cooling** | 65% (100%-bidding process) | 55% (100%-bidding process) | 45% (100%-bidding process) |
| **Investment aid granted for the purpose of environmental studies** | 70% | 60% | 50% |

In regions specified in 107(3)(c), the intensity rates mentioned above may be raised by 5 percentage points, while in regions specified in 107(3)(a), the rates may be raised by 15 percentage points.

A new concept is used in connection with the calculation of aid intensity: 'bidding process'. When this procedure is used, aid intensity is allowed to reach 100 percent in certain types of investments (see table above). In this case, the participants of the public procurement process bid for the amount of aid intensity. If no operator is willing to take on the project below 100 percent aid intensity, then 100 percent aid intensity may be granted.

Rules regarding eligible costs are going to change in the new period. When it comes to counting the eligible costs of environmental investments, costs of reference investments (counterfactual costs) must also be taken into account, according to the provisions of paragraphs (71)-(75) of the guidance on environmental and energy aid. Aid may be used to cover the proportion of the investment calculated with this procedure. Detailed instructions regarding the calculation of costs and further negotiations with the Commission are forthcoming.

### 4.2.3. Off-the-shelf constructions

The Commission developed so-called 'off-the-shelf' scheme that contain the parameters of the most popular instruments in a 'package', thus enabling a simpler acceptance process of constructions by the Commission. Detailed guidance on loans granted to SMEs, guarantees granted to SMEs, capital investments available to SMEs, aid granted for projects aimed at supporting sustainable urban development and energy efficiency, financial instruments stimulating the use of renewable energy sources (Renovation Loan) was drawn up for the period of 2014-2020. Rules regarding this were published on 11 September, 2014 (No 964/2014[67]). If the Member State accepts the conditions outlined in the regulation, there is no need for separate consultation with the Commission on whether the scheme conforms to the rules regarding state aid outlined above. The use of off-the-shelf constructions might fasten the implementation of the financial instrument, thus, it is probably worth examining the requirements attached to such constructions (loans for building energy projects are not relevant according to the applicable thematic objectives).

*Table 22 – Characteristics of off-the-shelf constructions*

| | Risk-sharing loan | Portfolio guarantee | Building renovation loan |
|---|---|---|---|
| **Objective of the financial instrument** | Supporting the financing of SMEs, investments for fixed assets and intangible assets, improvements, expansion | Supporting the financing of SMEs | Renovation work on existing residential structures, existing loans may not be refinanced |
| **Eligibility, beneficiaries** | SMEs not belonging to the restricted sectors (companies with overdue or defaulted loans are not eligible) | | Property owners (natural persons or legal entities) or property managers acting on behalf of owners |
| **Required private capital** | 25% on the level of the financial intermediary | No requirement on the level of the fund and the financial intermediary | 15% on the level of the financial intermediary |
| **State aid** | on the basis of de minimis title, by defining gross grant equivalent | on the basis of de minimis title, by defining gross grant equivalent | De minimis in the case of companies, not considered state aid in the case of non-companies |
| **Financial intermediary** | the private capital and the community contribution incur risks and share profits proportionately; excessive remuneration must be avoided; financial benefit is assigned to the final beneficiary; | | |

[67] http://eur-lex.europa.eu/legal-content/HU/TXT/HTML/?uri=CELEX:32014R0964&from=HU

| | | | |
|---|---|---|---|
| **Opportunity for combination with grant assistance** | the proportion of grant assistance must not exceed 5 percent of the resources available under the financial instrument | | |
| **Parameters of the product** | recommended maturity: 4 years (must be paid fully not later than 31 December 2023, shortest amount of time is 12 months, longest 120 months), amount of loan: 1 million EUR (actual limit is set by de minimis rules), interest rates applied to the private contribution must be set based on the market (for the part that amounts to at least 15%) | maximal amount of guarantee is 80%, financial institutions granting the loan are not levied guarantee fees guaranteed loan: max. EUR 1.5 million (actual limit is set by de minimis rules) | 20 year maximum maturity, maximal amount of loans: EUR 75,000, interest rates applied to the private contribution must be set based on the market (for the part that amounts to at least 15%) |

As the opportunity for combination with grant assistance is highly limited in these schemes (5% grant assistance), the financial product containing the above parameters is probably out of reach in the case of use with combined products. The 25 percent contribution required on the level of the financial intermediary may also pose problems (given that following the economic crisis, 100 percent refinancing was necessary for financial enterprises, LEAs, and, temporarily, even for loan institutions in the period of 2007-2013).

However, off-the-shelf products mentioned above are worth considering as separately available products because of their fast implementability. We believe that the 25 percent contribution required from financial intermediaries is feasible in connection with the involvement of commercial banks.

## 4.3. Institutional framework

According to article 38 of regulation 1303/2013/EU, financial instruments may function in line with methods established at EU level, methods supervised directly or indirectly by the Commission, as well as on a national, regional, international or cross-border level, supervised by a managing authority. In this last case and according to paragraph (4), the managing authority can choose from the following models:

- it may invest in the capital of existing or newly created legal entities and these entities also perform management tasks (single-stage procedure);
- it may entrust the following with management tasks (fund of funds):
    - European Investment Bank, or

- an international financial institution, in which a Member State is a shareholder, a financial institution that has registered offices in the territory of a Member State and has an objective of common interest while being monitored by an administrative authority or
- market operator governed by public or private law (fund of funds procedure)

- in the case of loans and guarantees, the Managing Authority may perform the management tasks itself (direct implementation).

*Table 23 – Aspects of the various implementation models*

| | Time and resource limitations | Management control and flexibility | Effective use of resources | Reach |
|---|---|---|---|---|
| **Single-stage procedure** | Only one intermediary is needed, there are no additional intermediaries, fast implementation. | Less operators in the system, opportunity for greater control. | Limited opportunities for the involvement of private capital (no further funds) | It may be harder to find an intermediary that reaches the (heterogeneous) target group and is able to provide a wide range of products. |
| **Fund of funds – European Investment Bank** | Experience and knowledge is readily available, but the local system must be built up, taking up time. | Control is more costly (translation, visits)[68] Development policy objectives of Member States may be limited. | There are opportunities to involve additional private capital through the financial intermediaries. By choosing specialized, | By choosing financial intermediaries, a wide selection of the target group can be reached. The most appropriate intermediary |

[68] The use of EIB was discontinued in Latvia due to high costs

| | | | | |
|---|---|---|---|---|
| **Fund of funds – a financial institution in which a Member State is a shareholder or which has an objective of common interest** | The system is much like the institutional framework used in the 2007-2013 period, thus, it can be developed rapidly | Development policy objectives are under strict control (i.e. through ownership rights)<br>Because of the share of the Member State and/or the objective of common interest, considerations regarding grants are easier to take into account. | resources can be provided to the target group in an especially effective way. | can be selected for the specific product group. |
| **Fund of funds – market operator governed by public or private law** | The market operator may lack experience regarding the relevant aid policies and regulatory area.<br>Choosing one market operator (ensuring that this does not happen in a way that distorts competition) is time-consuming. | Market operators appear on two levels of the institutional model (fund of funds and financial intermediaries), development policy principles can only be achieved in a roundabout way, this may mean that development policy objectives take a backseat to market considerations. | | |
| **Managing Authority direct implementation** | Capacities and competences are limited. Aid can only be granted to the populace through intermediaries. | With grants and repayable assistance products, development policy goals are directly achievable, and not through intermediaries. Financial intermediaries do not need to be consulted in case of a change in conditions | Limited opportunity to involve private capital | Not possible to develop a national branch network.<br>According to the regulation, not eligible to provide capital type products. |

In the period of 2007-2013, an entirely state-owned company, the Hungarian Venture Finance Ltd., a member of the Hungarian Development Bank group managed the fund of funds. Because of the high amount of experience accumulated and institutional relations built up, it is advisable to develop a similar institutional model and to keep the fund of funds within the Hungarian Development Bank group.

As Hungary plans to combine grant assistance and repayable assistance for the purpose of multiple thematic objectives in the period of 2014-2020, the institutional structure also needs to match this aim, which means that it is important that development policy objectives are consistently represented at the level of the fund of funds. This can be achieved if the Managing Authority entrusts the management tasks upon such an international financial organisation, *'in which a Member State is a shareholder, a financial institution that has registered offices in the territory of a Member State and has an objective of common interest while being monitored by an administrative authority'.* From the two choices offered by the legislation, we believe that a financial institution that has registered offices in the territory of a Member State and has an objective of common interest is more relevant.

At the time of the preparation of this study, Government Decree 272/2014. (XI.5.), on the regulation concerning the use of aid stemming from various EU funds for the programming period 2014-2020, already mentioned the fund of funds model, and its Annex 3/C already named Hungarian Development Bank as the Managing Authority for the fund of funds.

Article 44 of Regulation 1303/2013/EU states the purposes that resources stemming from European structural and investment funds may be used until the end of the eligibility period:

- further investments through the same or other financial instruments, in accordance with the specific objectives set out under a priority;
- where applicable, preferential remuneration of private investors, or public investors operating under the market economy principle, who provide counterpart resources to the support from the ESI Funds to the financial instrument or who co-invest at the level of final recipients;
- where applicable, reimbursement of management costs incurred and payment of management fees of the financial instrument.

Eligible management costs and fees incurred by the fund of funds and the financial intermediaries are degressive over the development eligibility period, the legislation sets a maximum threshold for them by the type of financial intermediary concerned. Thresholds are summarized in the following table.

*Table 24 – Remuneration of financial intermediaries and fund of funds*

| | Max. amount that may be used in the eligibility period (in percentage of programme contribution, per year) | Schedule of eligible fees | |
|---|---|---|---|
| | | Basic fees | Performance based remuneration (per year) |
| **Fund of funds** | 7% | 3% in the first 12 months, 1% in the next 12 months, 0.5% per year after that | |
| **Intermediary providing capital share** | 20% | 2.5% per year in the first 24 months, 1% per year after that | 2.5% |
| **Intermediary providing loans** | 8% | 0.5% per year | 1% |
| **Intermediary providing guarantees** | 10% | | 1.5% |
| **Intermediary providing microloans** | 10 % | | 1.5% |
| **Financial intermediary providing grant assistance, interest subsidies, guarantee fee subsidies** | 6% | | 0.5% |

The legislatively set management costs and fees may be exceeded if the financial intermediary *'has been selected through a competitive tender in accordance with the applicable rules and the competitive tender proved the need for higher management costs and fees'.*

Requirements regarding the institutions implementing the financial instruments and other questions related to financial instruments are contained in Section II of regulation 480/2014/EU. Financial intermediaries must be chosen with some form of competitive tendering, because, according to the legislation: '*The selection shall be transparent and justified on objective grounds and shall not give rise to a conflict of interest'.* The process is considered to be in line with the principles mentioned above if the selection from the eligible intermediaries is made in compliance with the following criteria (article 7 paragraph 2):

- robustness and credibility of the methodology;
- the level of management costs and fees and the methodology proposed for their

calculation;

- terms and conditions applied in relation to support provided, including pricing;
- the ability to raise resources on the level of the financial intermediary; the ability to demonstrate additional activity in comparison to present activity;
- in cases where the body implementing the financial instrument allocates its own financial resources to the financial instrument or shares the risk, proposed measures to align interests and to mitigate possible conflicts of interest.

Before choosing financial intermediaries, it is wise to review the principal experience from 2007-2013. It is clear that financial enterprises and foundations with the aim of enterprise development had the most success in reaching the target group (projects of micro- and small enterprises that cannot get funding from commercial banks). Even if we deduct combined micro-loan arrangements (available through financial enterprises and LEAs) from the total number of cases, we get a share of 80% for the two types of intermediaries mentioned above.

In the following table, we present the most important characteristics of various financial intermediaries based on interviews conducted with market operators as well as the study[69] commissioned by MV Zrt. on the portfolio of financial intermediaries conducted by Századvég Economic Research Co.

[69] Effect of bad assets on the financial intermediaries of the loan programs of JEREMIE resources, Századvég Gazdaságkutató Zrt. 2014.

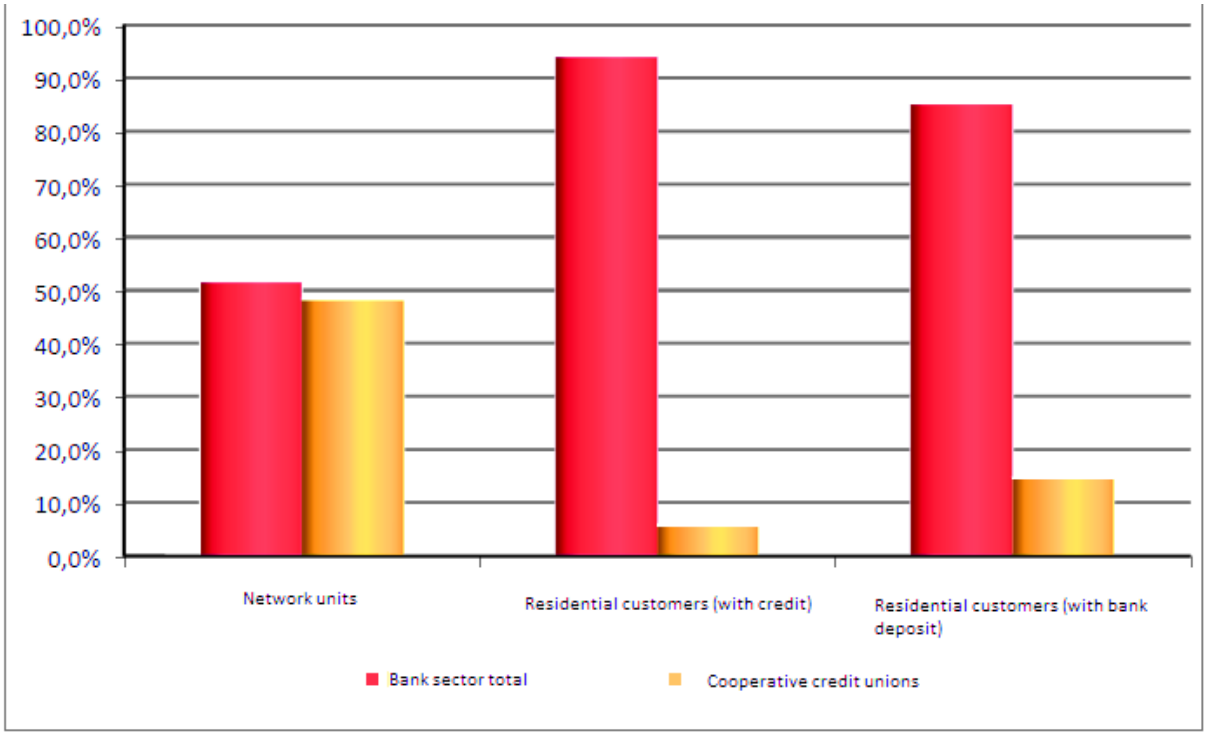
*Table 25 – Most important characteristics of financial intermediaries*

| Financial characteristics intermediary | Most important limitations, |
|---|---|
| **Financial enterprises** | - They financed smaller and riskier transactions that were not taken up by commercial banks, however, compared to LEAs, their functioning is closer to the practices of commercial banks.<br>- In the beginning of the period 2007-2013, they are less risk-averse, however, by the end of this period their portfolio quality is improving (combined products contain almost no doubtful assets).<br>- Their activities were typically connected to Jeremie programmes, and their operation is highly determined by how they can take part in the period of 2014-2020.<br>- 25 percent of financial enterprises and LEAs are above 80% of the counterparty limit defined by the risk management regulation drawn up by MV Zrt., while 16 percent is over 90% (according to August 2014 data), therefore they are capable of providing new loan in a limited way.<br>- There is need and demand for the training of financial intermediaries (at the area of financial advisory services).<br>- There are differences in the loan evaluation system of various companies, their collateral and risk evaluation practices also differ significantly. On the one hand it provides opportunity to reach the widest possible target group. On the other hand, however, it makes controlling more difficult (common IT platform has to be developed). |
| **LEA** | - They have strong local knowledge, but on the field of financial advisory services they have less experience and competence. Financial training might be needed.<br>- 25 percent of financial enterprises and LEAs are above 80% of the counterparty limit defined by the risk management regulation drawn up by MV Zrt., while 16 percent is over 90% (according to August 2014 data), therefore they are capable of providing new loan in a limited way.<br>- Besides some extremely bad portfolios, the ratio of doubtful portfolio is almost the same as that of financial enterprises. |
| **Commercial Banks** | - Primarily, they finance large, less risky projects.<br>- Different risk management model. |

| | |
|---|---|
| **Mutual Savings Banks** | - They entered the company of intermediaries after August 2012, but even so, their participation is larger than that of commercial banks (according to the number of transactions and the amount of contracts).<br>- They could take part in the popular combined micro-lending (unlike commercial banks).<br>- Widespread branch network in municipalities where there are no commercial banks. Two-thirds of them are in municipalities with a population under 5000.<br>- They can use integrated IT and risk management systems, they can be provided with higher counterparty limit. |

Intermediaries who contributed to mediating repayable assistance in the previous period offered financial products only for businesses. However, in building energetics projects we have to count with an outstandingly high number (according to our prior calculations approximately 100,000) of residential customers. On the other hand, this number is not significant in comparison with the number of residential customers who already took on loans (5.3 million in Q3 2014).

FIGURE 12 – ILLUSTRATION THE RATIO OF THE BRANCH NETWORK OF LOAN INSTITUTIONS AND RESIDENTIAL CUSTOMERS BY INTERMEDIARIES
(Q3, 2014)




*Source: Central Bank of Hungary*

Besides commercial banks, it is worth relying on cooperative mutual saving banks. Although their role in residential lending decreased in the last decade (declined from 25 percent to under 10 percent in 10 years), their branch network extends even to rural villages where no commercial bank branch can be found. According to a document titled 'The role of national mutual savings banks in rural financing' by Dr. Gál Zoltán, there are one thousand municipialities where mutual savings banks are available but there are no bank branches[70]. Two-thirds of the branch units of mutual savings banks can be found in villages with less than 5,000 inhabitants, so they make it is easier to reach people living in the rural areas.

In the following table we summarized the expectations towards financial operators that mediate loan products.

[70] http://www.ksh.hu/docs/hun/xftp/terstat/2012/05/gal.pdf

*Table 26 – Proposed criteria for selecting financial intermediaries*

| Evaluation defined | Expectations criteria in legislation |
|---|---|
| **Robustness and credibility of the methodology** | Preparedness for evaluation according to professional criteria (RDI, projects), the need for involving external resources (experts)<br>The amount of time needed for selecting the<br>projects Experience in financing similar projects<br>Minimal requirements regarding financial competences and human resources |
| **The level of management costs and fees and the methodology proposed for their calculation** | Professional regards (experts' fees)<br>Requirements for preferential remuneration (for private capital)<br>Implementation costs of the IT system, the probability of connecting the available system at level of fund of funds. |
| **Conditions concerning aid, pricing** | Presenting risk management.<br>Minimum requirement for own resources. |
| **Fund-raising abilities at the level of financial intermediaries** | Minimum 10 percent expected contribution at the level of intermediaries, remuneration of increasing contribution. |
| **The ability to demonstrate additional activity in comparison to present activity** | Expected development of the portfolio's content due to the aid programme and the latter's effects on the efficiency rates. |
| **In cases where the body implementing the financial instrument allocates its own financial resources to the financial instrument or shares the risk, proposed measures to align interests and to mitigate possible conflicts of interest** | Presenting the rules regarding conflict of interests within the institution.<br>Principles of division between market products and supported ones. |
| **Further recommended regards in evaluation** | Extended branch network primarily in the convergence region.<br>The quality of the current portfolio |

Hungary would like to use combined products in several areas between 2014 and 2020, so institutional background has to be geared up to handle these products. Basically, two combinations are conceivable: the grant assistance is evaluated by financial intermediaries or the MA, while financial assets are evaluated by financial intermediaries (this is in effect

identical to the previous combined micro-loan scheme, where the client was served by 'one window', but in the background the process of evaluation and contracting parted). In the following table arguments are collected to help decide between the two models.

*Table 27 – Aspects of choosing financial intermediaries*

| Financial intermediary handles the grant | Separate institutional background to evaluate the grant and the financial assets |
|---|---|
| Risks are more manageable for the intermediary (there is no funder whose decisions would affect the project)<br><br>There is no risk in evaluation and realization of a project that could be caused by the procedures and the synchronisation of IT systems.<br><br>There is a possibility for the fund of funds to perform the task, so a unified evaluation can be assured.<br><br>Financial intermediaries' institutional accreditation (because of grant mediation) might be delayed and it raises realization risks.<br><br>Intermediaries are not always prepared for operating in accordance with policy requirements and professional criteria (e.g. energy projects). | Management of grant assistance stays with those with more experience.<br><br>Evaluation based on the aims of development policy does not fall to a financial intermediary where the aims are hard to keep under control.<br><br>Experience in the management of such institutions, the prior good procedures can be used.<br><br>Overlap/demarcation with other support programs (also domestically, primarily on the field of innovation) can be managed more easily.<br><br>As there are projects which are realized with the help of an individual grant, capacities have to be built up within the MA anyway. |

Basically we consider the previous institutional scheme reasonable, i.e. the institutional separation of the route of the two kinds of grants behind the one-stop shop system.[71] It should also be examined that under a certain size it is easier to mediate grants through financial intermediaries, and consider to 'separate' the intermediary institutional system only in the case of higher grant assistance. On the other hand, over a certain size, a project can be financed without the financial intermediary level, in this case, financing can be performed through a corporation which executes the fund of funds.

# V. Proposed financial instruments

Main requirements for financial products to be developed can be drawn up as follows:

[71] We should note that in the support for residential energy efficiency investments there is another point to consider (residential customers can be supported only through intermediaries), which necessitates that financial intermediaries mediate grant assistance in these constructions. For more details see the ex ante assessment for TO4.

- Universal products: The financial products (loan, capital, guarantee) have to be constructed with such parameters to ensure that they align with several of the measures planned under the different thematic objectives. With this, the appearance of a complicated, administratively undesirable, multifarious product range can be avoided.
- Incentive products: In low interest rate environment such loan product constructions are needed that make financial intermediaries less risk-averse (i.e. preferential remuneration on private capital or pricing has to cover higher risks, so that the interest costs the final beneficiary has to bear remain competitive in the low interest rate environment).
- Products reflecting policy expectations: In combined products policy expectations should appear primarily through grant assistance. Financial intermediaries primarily evaluate the project's return and creditability.

In connection with measures planned in the Operational Programme, the following products are recommended.

*Table 28 –Financial instruments recommended in EDIOP and CCHOP*

| Measures | Recommended instruments |
|---|---|
| Increasing the intensity of corporate RDI activity (TO1) – EDIOP, CCHOP | - Combined products: Grant assistance + low-interest loan<br>- Low interest business loan<br>- Capital investments (innovative start-up, spin-off, increasing RDI) |
| Improving productialisation potential of ICT companies and Encouraging the market expansion of internationally competitive Hungarian ICT SMEs (TO2) - EDIOP | - Capital investments (new, start-up)<br>- Low interest business loan |
| Improving the efficiency and informatisation level of SMEs and Increasing the ratio of the enterprises' use of electronic services (TO2) - EDIOP | - Combined products: Grants + low-interest loan for businesses<br>- Low interest business loan |

| | |
|---|---|
| Development of new generation (NGA) and regional networks (TO2) - EDIOP | - After the precise mapping of the commercially recoverable and non-recoverable periods, periods in which it is probably possible and not possible to use financial instruments are separable. With devices that ensure network connectivity and are close to the subscribers the involvement of SMEs should be considered at a later stage of the investments. At SMEs with favourable index of return combination with financial instruments may also be justified. |
| Establishment of modern business infrastructure (TO3) – EDIOP, CCHOP | - Low interest business loan<br>- Supported counter-guarantee available with market-based loan |
| Capacity enhancement (TO3) – EDIOP, CCHOP | - Combined products: Grants + low-interest loan<br>- Low interest business loan<br>- Supported counter-guarantee available with market-based loan<br>- Capital investments |
| Support for residential energy efficiency investments (TO4) – EDIOP, CCHOP | - Combined products: Grants + low-interest loan<br>- Combined products: Grants + portfolio guarantee |
| Energy efficiency support for enterprise production processes (TO4) - EDIOP | - Low interest loan<br>- Guarantee product |
| Renewable investments producing for the grid (TO4) - EDIOP | - Combined products: Grants + guarantee products |
| Support for enterprise building energetics investment (TO4) - EDIOP | - Combined products: Grants + low-interest loan<br>- Combined products: Grants + guarantee products |
| District heating investments (TO4) - EDIOP | Grant assistance |
| Improving the employment of job seekers, especially in the case of those with low schooling and Intern programme and supporting young people in becoming entrepreneurs (TO8) - EDIOP | - Combined product: Grant + low-interest loan + guarantee |
| Encouraging and supporting social enterprises (TO8) - EDIOP | - Primarily individual grants, or grants combined with low-interest loans |

One recommended form of financial instruments with grant assistance is – with all kinds of measures – implementation of instruments combined with guarantee fee or interest subsidies. Depending on the final and exact degree of customer interest rate – which will be defined in the future – interest subsidy payments may be needed, while with guarantee fee subsidy the borrowing of businesses can be widely supported.

## 5.1. Loans

The two most critical requirements of the off-the-shelf scheme (see Chapter 3.2.) are that it can be combined with grant assistance only to a limited degree (5%), and that the required rate of private capital contribution is relatively high (25% in case of SME crediting) on the level of the financial intermediary. In the 2007-2013 period, financial businesses and LEAs covered the largest proportion of loans, while by the end of this period they operated with 100 percent refinancing[72]. 25 percent market contribution on the level of the intermediary can be expected primarily of loan institutions. Besides considering these facts, it is recommended to consider the application of the so called risk-sharing loan, as it can be introduced quickly. As a greater volume of financial instruments are available compared to the 2007-2013 period, to reduce the risk of absorption it is recommended to publish the scheme as soon as possible. This product would be available only individually for each thematic objective (not in combination). For the purpose of combination with grant assistance a separate loan product should be developed.

*Table 29 – Pros and cons of the off-the-shelf scheme*

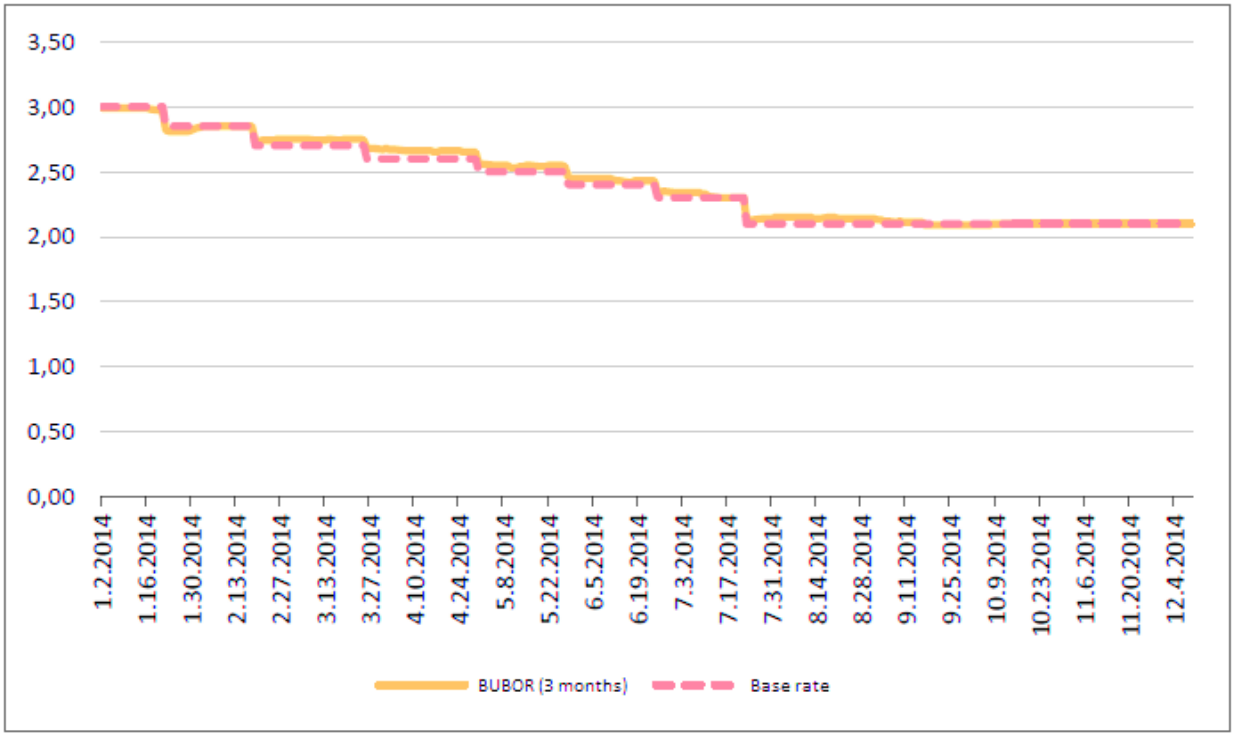
| Pros | Cons |
|---|---|
| **It can be launched quickly**<br>**Minimal regulatory and execution risk (on the side of the Committee)**<br>**The required parameters still allow for significant modifications** | The required 25 percent private investor contribution can be expected primarily from commercial banks, only to a lesser extent from other financial intermediaries.<br>New loan products should be developed for combined products (off-the-shelf can be combined with grants only to a certain extent). |

One of the most important parameters of the loan fund is the available return on private capital. The greater the risk on the level of the final beneficiaries within the loan fund, the higher the expected return on private capital.

[72] This loosening of the rules took place after the financial crisis, in order to accelerate lending. While loan institutions later reduced the extent of refinancing, smaller intermediaries (financial businesses, LEAs) kept it at the same level.

The following factors have an impact on the funding costs of banks: base rate, interbank rates, customer deposit rates, publicly issued securities. There is a considerable overlap among the factors, as, for example, changing the base rate has an impact on the other parameters. Base rate has been on a steady decline since the end of August 2012, from 7 percent to 2.1 percent, the three-month interbank rate is also at 2.1 percent.

FIGURE 13 – 3 MONTHLY BUBOR AND BASE RATE in 2014




*Source: Central Bank of Hungary*

In the framework of CBH NHP, commercial banks can refinance at 0 percent loan interest on debt. According to the NHP's experience it is clear that the maximum 2.5 percent customer interest rate does not provide enough net interest rate margin to enable commercial banks to reach smaller projects of smaller businesses (financial leasing is an exception, which is also allowed by NHP. Micro-enterprises take up 60 percent of these). Micro-enterprises signed loan contracts valued on average 17.4 million HUF under the auspices of the programme. The detailed analysis[73] of the first phase finds that while 65 percent of loans of SMEs is under 10 million HUF in the first phase of NHP the same ratio remained under 30 percent i.e. at a maximum 2.5 percent net interest rate margin commercial banks did not want to finance smaller projects.

According to these findings, to successfully reach businesses with loan products that are not covered by the market, the return expected of private capital should be at least 3-4 percent –

[73] Analysis of the first phase of the 'Funding for Growth Scheme'. www.mnb.hu

in the current, reasonably favourable interest rate environment. On the level of loan funds, even with 20 percent of private capital contribution, it means barely 1 percent for the customer annually.

(With 10 percent intermediary contribution it does not reach 0.5 percent). This interest rate is still lower than the market interest, moreover, in this way, the preferential remuneration of the financial intermediary does not reduce the overall resources of the programme.

*Table 30 – Low interest loans for businesses*

| Parameter | Value |
|---|---|
| **Target group** | General support of SMEs |
| **Required contribution from intermediaries** | At least 10 percent |
| **Required own resources at the level of final beneficiary (businesses)** | 25 percent (in the case when the title is not regional investment aid there is no such requirement) |
| **Interest rate** | It 'extracts' the yield that was expected by intermediaries, however it is more advantageous than the conditions offered by the 'Funding for Growth Scheme', so it can reach new types of projects (with lower debt repayment rate) and businesses (maximum 2 percent per year). |
| **Term** | 5-10 years |

It is important to take into consideration that according to the Article 140 of the Act on Budget, only 'financially viable'[74] businesses can be supported by financial instruments. If combined products are announced (when the financial instrument is supplemented with grant assistance) the requirement of viability or return of investment can also be realized through the interest rate. According the previously cited Paragraph the interest that approximates zero contains risks that should be taken into account during the negotiations with the Commission.

- At the same time, the scheme presented above that is charged to the customer is: a model that follows market interest more effectively (The interest that is charged to the customer is defined by the cost of funds of the financial intermediary, but the rate is cushioned);
- Preferential remuneration of financial intermediary does not reduce the resources of a project (but the management fee does).

Suggested products designed for target groups planned by measures:

- For start-ups, innovative businesses and for start-ups planned under TO8, aid is

[74] 'financially viable'

accessible under the title regarding start-ups in the Block Exemption Regulation. In this case, at the level of financial intermediaries, only 10 percent contribution and at the level of final beneficiaries 1.5 million Euro (HUF 450 million) loan is accessible. For innovative businesses the amount of available loan can be doubled.

- For other businesses, the aid is accessible in harmony with de minimis rules, 1 million EUR for minimum 5 years or 500,000 EUR for 10 years.

Different approach is needed for schemes that are aimed at residential customers. In the case of aid for residential customers at least 30 percent non-repayable portion must to be factored in. The rate of aid has to be adjusted to 7-8 years of payback time. To deal with the difficulties in acquiring the required own resources, preferential loans and even guaranteed products (depending on the resources) might be needed to be paired with grant assistance, while reckoning with the limitations inherent in the combination of grant assistance and non-repayable assistance.

*Table 31 – Beneficial aid for residential customers, combined with grants*

| Parameter | Value |
|---|---|
| **Target** | Renovation of private homes and apartment houses, housing associations |
| **Required own resources** | 10%, including savings at Home Savings and Loan Associations can also be used |
| **Size of project** | Max HUF 5 million for renovation of private homes, max HUF 1 billion for renovation of apartment houses, housing associations |
| **Ratio of grants** | 30%-40% |
| **Primary selection criteria** | - the extent of savings on energy efficiency<br>- variable aid intensity according to the depth and complexity of investment (however, the largest amount of energy savings can be obtained at 30% grant). |
| **Term** | 15 year maximum |
| **Interest rate** | it is also recommended to charge the fees and preferential remuneration of the financial intermediary to the beneficiary (at the current interest rate environment approximately 4 percent interest rate for customers) |

## 5.2. Capital investment

As experience from the 2007-2013 period shows, seed capital investments at early stage are needed in a larger scale (see Chapter 2.1.3.). In the stage before seed capital, individual grant assistance is needed in the first place, as contribution of private investors is unlikely because of the high risks. According to the EVCA data investments at growth phase also decreased in the last years (see 2.1.3.).

Capital investment instruments are basically appropriate to use in line with thematic objectives 1 and 2, where the appearance of projects and start-ups

with high growth potential is more likely. As growth potential is not clearly sector-specific[75], the application of the instrument should be extended to thematic objective 3 which is aimed at a wide range of SMEs.

In the period of 2014-2020, it is expedient to use capital investments that fit corporate life stages considering the typical financing needs and risk level of each life stage. Besides seed capital provided by different fund management, early-stage growth capital investments and a low number of growth funds are needed.

*Table 32 – Recommended capital investment funds*

| | Private equity contribution | Number of funds | Target group |
|---|---|---|---|
| **Seed capital** | The minimal 10% according to state aid regulations | Most of the 'initiatives' are at this level, there are a lot of small projects. It is recommended to choose more funds than previously (4) that are flexible and have great experience in certain industries. These types of businesses require the largest number of fund managers. | Start-up, spin-off, innovative businesses Start-up IT enterprises |
| **Early Growth Stage** | According to Block Exemption Regulation 40% private capital is expected | Higher (approximately HUF 500 million) investments, through smaller number (5-10) of funds | SMEs, ICTs, innovative SMEs with high growth potential |
| **Growth Stage** | According to Block Exemption Regulation 40% private capital is expected | Typically large investments over up to HUF 1 billion. 2-3 competing fund managers. | SMEs in growth stage IT businesses planning international expansion |

Taking into account that in 2015 an additional HUF 35 billion capital had to be allocated against the 2007-2013 funds, the launch of a wide range of capital investment programs is only recommended from 2016. We recommend, however, the consideration of a seed capital programme.

[75] Békés-Muraközy: Magyar gazellák ('Hungarian Gazelles'). This study emphasizes that high growth potential is not sector-specific. According to the analysis, 'economic policy aimed at certain industries, areas or companies can only marginally influence the number of quickly growing enterprises. In this respect the only exception is the aid of young enterprises'. (http://epa.oszk.hu/00000/00017/00190/pdf/EPA00017_Kozgazdasagi_szemle_2012_03_01%20Bekes%20Murakozy.pdf) It does not exclude the sectoral approach, only shows that high growth potential can be found not only in one or two specific industries.

## 5.3. Guarantee products

Demand for guarantee products (from 2008 loan guarantee, from 2011 counter-guarantee, then combined loan guarantee) was low in the period of 2007-2013. In the case of counter-guarantee and combined loan guarantee products only a few transactions were realized. One important boundary of guarantee product's build-up was that after the economic crisis the demand for investment loan decreased, so the guarantee behind the loan was not needed either. Typically realized investments were financed from grant assistance.

Guarantee products decrease the risk of banks. In turn, their willingness of funding is increased which provides better chances for project implementation. It should be mentioned that the latter is only effective in the short term because making recipient banks interested is time-consuming. As we presented in Chapter 2.1.1., the most serious difficulties we face in financing businesses nowadays is the absence of collateral and guarantee. So we consider it reasonable to start a new guarantee product.

Also, off-the-shelf schemes are recommended for loan and guarantee products, so a product would be available as it could be 'taken off' the shelf ensuring the access for businesses to market loan.

In harmony with regulation regarding state aid, the following titles should be used:

- For start-ups, innovative businesses and for start-ups planned under TO8, aid is accessible under the title regarding start-ups in the Block Exemption Regulation. Here final beneficiaries can get 80 percent guarantee behind minimum EUR 2.25 million (HUF 670 million) loan. For innovative businesses the amount of disbursable loan may be doubled.
- For other businesses, in line with de minimis rules, EUR 1.5 million can be obtained with 80 percent guarantee.

For the purpose of supporting energy efficiency and renewable projects – on the basis of professional merit – it is justifiable to involve ESCO companies in the planned scheme. In the case of apartment buildings and housing associations it is recommended to use grant assistance combined with investments implemented by ESCO companies. For this purpose, a guarantee product must be laid behind the contract signed by the apartment building and the ESCO company. In line with the proposal, the apartment building or housing association gets the grant assistance, then signs a service contract with the ESCO company. This way, the investment costs of the project will be covered by the grant assistance and the ESCO company. A guarantee product is needed to mitigate the risks of the ESCO company, as it provides financial security against the service contract signed by the apartment building. However, the statutory definition of ESCO companies is indispensable for the purpose of a detailed elaboration of financial instruments, so the publication of the scheme must be preceded by a preparation process which may take up approximately 6 months. Statutory

options to accept home savings fund contributions as own resources should be examined later. Before the scheme's final formation we recommend to adjust the related (and not yet considered) regulatory framework to the expectations stated above.

*Table 33 – Guarantee products combined with non-refundable assistance, for businesses*

| Parameter | Value |
|---|---|
| **Target** | Aiding individual building energy investments of enterprises, modernisation of office building's energy efficiency;<br>Renewable investments producing for the grid; |
| **Required own resources** | 25% |
| **Ratio of grants** | 30-50% |
| **Degree of guarantee** | 80 percent for market loans, with a maximum amount defined by de minimis regulations (for a EUR 1.5 million loan) |
| **Primary selection criteria** | - Individual projects and products available for office buildings and industrial parks<br>- Grant depending on the depth and complexity of renovation.<br>- With renewables the ratio of grant assistance depends on the degree of MOS<br>- Aid provided according to IRR calculations<br>- obligatory application of energy certification |
| **Term** | 5-10 years |

# VI. Conditions of a repeated ex ante assessment

An ex ante assessment was performed with the market conditions presented in Chapter II. Developed financial products and recommended parameters were determined according to identified market inadequacies and sub-optimal investment positions. Articles of Regulation 1303/2013/EU concerning financial instruments do not state that ex ante assessments have to define an investment strategy for the entire programming period. Market and – in line with the regulatory environment – legal conditions change, which requires the repetition of the assessment.

Below you can find the criteria according to which it is recommended to review the ex ante assessment, modify the parameters of financial products or develop completely new financial products.

- Interest rates are currently low. According to forecasts – and the expectations of the central bank – the favourable interest rate environment is going to remain until the end of 2015. To encourage business investments, the application of guarantee products – in terms of the use of resources – is more efficient in such a favourable interest rate environment. A raise of market interest rates and a general raise in the level of financial market risks would make the rethinking of the criteria system of financial products reasonable.
- CBH loan programme is the most competitive loan product available for enterprises. Until the end of 2015, the market position of the product is expected to remain determinant. If this monetary asset 'disappeared' from the market, it would become necessary to double-check changes in market financing.
- Thanks to the price regulation of district heating (with the recognition of investment costs) projects may become more desirable for market-based intermediaries. In this case, it is recommended to consider the possibility of introducing a low amount grant assistance combined with a subsidized loan.
- Changes in the regulation of the purchase price of renewable electricity significantly influence the return on investment indicators of the projects. In all cases, we recommend to justify the introduction of new grant assistance with calculations for return that respond to the expected changes of purchase prices. Changes in MOS regulation affect market failure, so market position has to be reappraised.
- Actual demand on introduced schemes will be apparent only after introducing the products. If the intended target group did not show as much interest for the financial instruments as the ex ante assessment indicates, the scheme should be reappraised and parameters should be adjusted to demand.

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# Annex no. 1 – Steps of quantifying the GAP (TO4)

## Energy efficiency

Based on data presented in the objectives subsection, the National Energy Strategy envisages a reduction of the consumption of primary energy by 236 PJ by 2020. This objective is currently under revision, but the amount of energy saved is probably going to decrease to around 107 PJ.

Indicator tables for Operational Programmes listing energy efficiency as an objective (EEEOP, EDIOP, TOP, CCHOP), on 27 December, 2014, during the planning of Operational Programmes for the 2014-2020 programming period, contained, in total, 13.59 PJ as reduction objective in primer energy utilisation.

Besides the assistance resources of the Operational Programmes already mentioned, another source that may be used for energy efficiency purposes is the revenue from the sale of carbon quotas. With current quota prices, the government expects HUF 30 billion from this source[76] for the 2014-2020 period. The current practice is that 50 percent of these sources is spent on energy efficiency objectives. With this rate of allocation and a specific aid requirement of HUF 20 billion/PJ, this can lead to 0.75 PJ in savings.

Other policies not connected to EU aid schemes might also contribute to the fulfilment of these obligations. Such policies might include a scheme for voluntary agreements, energy efficiency investments supported through building societies and regulations that serve the improvement of energy efficiency. By factoring in these details, Századvég Economic Research Co. believes that energy savings amounting to 7-10 PJ are viable. That means that in line with the current OP planning state, the fulfilment of obligations set forth by the energy strategy might occur in the following way (table 12).

[76] ELŐTERJESZTÉS a Kormány részére az energiahatékonyságról szóló 2012/27/EU irányelv átültetésével kapcsolatos koncepcionális kérdésekről és a hazai végrehajtásához szükséges intézkedésekről, (PROPOSAL for the government in connection with the localization of directive2012/27/EU on energy efficiency, regarding conceptual questions and measures needed for implementation in Hungary) Nemzeti Fejlesztési Miniszter (Minister for National Development), Budapest, November 2014.

*Table 12 – Fulfilment assessment of obligations set out by the energy efficiency directive*

| Programmes, measures | Shortage in the fulfilment of the target numbers of the National Energy Strategy (PJ) | Shortage in the obligation set out by article 7 of the Energy Efficiency Directive (PJ) | |
|---|---|---|---|
| **Obligation set out by the Energy Efficiency Directive** | 107 | 38.515 | Member State obligation |
| **Measures in the Operational Programme framework** | 13.59 | 13.59 | According to OP-planning as of 17 December 2014 |
| **Programmes funded by selling carbon quotas**[77] | 0.75 | 0.75 | Expectations of the government |
| **Other measures (e.g. voluntary agreements, legislative measures)** | 10 | 10 | Századvég estimate |
| **Shortfall in energy savings (PJ)** | 82.66 | 14.175 | Századvég estimate |
| **Shortfall in investments (HUF billion )** | 4703 | 807 | Századvég estimate |

*Source: calculation by Századvég*

Inadequacies indicated in the National Energy Strategy column of the table will be alleviated by measures in sectors which are unaffected by assistance resources present in EDIOP Priority 8. These may include the electrification of transportation, modernisation of large power plants as well as the mitigation of losses of transmission and distribution networks. Technical development, decreasing technology prices and the consequent investments made on a market basis may further decrease the shortfall. It is not the purpose of this study to quantify the factors mentioned above. However, we can clearly see that the effects above are not going to nullify the shortfall, which means that the need for aid schemes with the planned resources is fully substantiated.

[77] ELŐTERJESZTÉS a Kormány részére az energiahatékonyságról szóló 2012/27/EU irányelv átültetésével kapcsolatos koncepcionális kérdésekről és a hazai végrehajtásához szükséges intézkedésekről, 2014. november (PROPOSAL for the government in connection with the localization of directive2012/27/EU on energy efficiency, regarding conceptual questions and measures needed for implementation in Hungary, November 2014), calculated with 30 billion HUF revenue from quotas, of which 70 percent is spent on energy efficiency objectives and used with an effectivity of 42 billion HUF/PJ.

It is advisable to compare the effect of aid programmes and other measures in effect not only with the energy strategy, but with the obligations set out by Article 7 of the new energy efficiency directive[78] too. The significance of this is that while even sectors where aid programmes are not available must contribute towards reaching the objectives set out by the Energy Strategy, commitments included in Article 7 of the directive specifically target those final consumer sectors where EU aid resources will be utilized. This provides for a new level where the use of aid resources can be substantiated.

Article 7 of the directive states that the amount of energy savings must reach 38.515 PJ/year by 2020. As a general rule, in line with the directive, every Member State must create a commitment scheme to ensure the fulfilment of the energy savings commitments. In the context of this system, energy suppliers and/or retail energy vendors operating on the territory of the Member State achieve the energy savings objective mentioned above. At the same time, the directive allows Member States to combine this commitment system with other alternate policies (national energy efficiency programmes, voluntary agreements, standards or norms etc.). Hungary, in a notification sent to the European Commission[79] raised the possibility of a creation of an commitment system, and noted that it is still in the process of examination which operators of the energy sector it should appoint as responsible parties. When the government makes a decision on the localisation of the energy efficiency directive, we shall get a clearer picture of the actual implementation of the directive.

However, we can establish now that the aim is that resources available for energy efficiency investments (OP-sources, carbon quota revenues) as well as the effect of other measures shall be counted towards the objectives in the context of the commitment system. In our analysis we treated this assumption as a fact.

Based on Table 2, it is safe to assume that even with the use of aid resources and by implementing other planned state measures, Hungary will not be able to produce such energy savings by 2020 that would be desirable according to the commitments. Some savings commitments remain to be fulfilled both in the context of the energy strategy and the energy efficiency directive, so further measures might be needed. We can declare that the planned amount of aid is justifiable in the case of energy efficiency. Now, we shall present the shortfall in the form of amount of investments.

We calculated with a specific investment cost of HUF 57 billion/PJ for the purpose of quantifying the investment need. This value is a weighted average of specific investment costs assigned to energy efficiency measure of the Operational Programmes and the gross value of investments per measure.

As the largest share of energy efficiency investments will materialise in the building energetics sector (in harmony with OPs, renovations will account for 63 percent of planned

78 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:315:0001:0056:HU:PDF
79 http://ec.europa.eu/energy/efficiency/eed/article7_en.htm

savings), we dedicated a whole chapter to this sector and the related GAP.

## Building energetics

In line with data published by the Ministry for National Development [80], 70% of the 4.2 million buildings in Hungary need renovation. 40% of energy consumption is linked to buildings in inadequate condition. In harmony with CHOP experience and studies conducted regarding this matter, there is a great number of buildings, among them public buildings (the five types of building consuming the largest amount of primary energy belong to the category of health institutions, according to the subcategories of public buildings defined by the National Building Energetics Strategy[81]) in Hungary where building energetics development would be advisable. In the next table, target figures of the National Building Energetics Strategy were compared with the effect of investments planned under the auspices of the Operational Programmes.

*Table 13 –Assessment of the fulfilment of building energetics objectives*

| | Energy savings objective set by the National Building Energetics Strategy (PJ) | Energy savings planned in OPs (PJ) | Shortfall in energy savings (PJ) | Shortfall in investments (billion HUF) |
|---|---|---|---|---|
| **Residential buildings** | 38.4 | 4.16 | 34.24 | 1438 |
| **Buildings owned by companies** | 4 | 2.73 | 1.27 | 53.3 |
| **Public buildings** | 1.6 | 1.6 | 0 | 0 |

*Source: Building Energetics Strategy, Operational Programmes indicator table, calculation by Századvég*

We can clearly see from the table that the amount of investments in all sectors except public buildings falls short of the target values, which supports the validity of the planned target numbers of the Operational Programmes.

In the residential sector, the strategy plans for the renovation of 700,000 residential buildings. Of this, according to plans, 76,000 will materialise thanks to the Operational Programmes.

When quantifying the investment shortfall, we counted with a specific investment value of HUF 42 billion/PJ for company buildings and HUF 95 billion/PJ for public buildings. Both figures are taken from the National Building Energetics Strategy.

As we can see from the data mentioned above, the number of potentially realisable building energetics projects is very high, so demand is ensured on the project side.

[80] Horváth Attila Imre: Az energiapolitika aspektusai az energiahatékonyság tükrében, 2013. november 6.
[81] Dr. Magyar Zoltán: Nemzeti Épületenergetikai Stratégia (előadás), 2013. november 6.

## The use of renewable sources of energy

The following table compares the objectives of the Action Plan for the Use of Renewable Energy with the planned values found in the indicative tables of the Operational Programmes. The Action Plan defines separate target values for the use of renewable energy based on application type: cooling-heating, based on electricity and transportation. As renewable energy used for the purpose of transportation does not fall in the focus of renewable energy production, this commitment was not included in this table.

*Table 14 – Assessment of the fulfilment of objectives defined in the Action Plan for the Use of Renewable Energy*

| | PJ/year |
|---|---|
| **Total gross consumption of renewable energy of the heating-cooling sector by 2020 according to the action plan** | 78.0 |
| **Renewables-based heat production planned under OPs** | 17.22 |
| **Total gross consumption of renewables-based electricity by 2020 according to the action plan** | 20.1 |
| **Renewables-based electricity production planned under OPs** | 3.64 |
| **Total expectable renewables consumption by 2020, without transportation, set forth by the Action Plan** | 98.1 |
| **Implemented by 2012, without transportation** | 43.1 |
| **Total renewables production planned under OPs** | 20.86 |
| **GAP PJ** | 34.14 |
| **GAP in HUF billion** | 1127 |

*Source: Action Plan for the Use of Renewable Energy, indicative tables of Operational Programmes, calculation by Századvég*

We can see from the table that there is a shortfall in the production of renewables-based heat and electricity when compared with the objectives set. This means that the amount of resources allocated for the purpose of supporting renewable heat and electricity production is well-founded.

The shortfall in investments was calculated based on a specific investment value of HUF 33 /PJ, in line with the data found in the indicative tables of Operational Programmes. This value is calculated as a weighted average of the specific value of each measure and the total investment value of each measure.

As the advancement of the use of renewable energy in district heating plants is a separate measure in EEOP, the related target values were examined separately.

*Table 15 – Assessment of the fulfilment of objectives defined in the District Heating Action Plan*

| | PJ |
|---|---|
| **Objective set in the District Heating Action Plan** | 5.09 |
| **Renewable energy production planned under OPs** | 4.91 |

*Source: District Heating Action Plan, Indicative table of Operational Programmes, calculation by Századvég*

The table above compares the objectives of the District Heating Action Plan with the planned values found in the indicative tables of the Operational Programmes. We can see from the table that objectives set by the Action Plan that may not be realised from the market are covered by the programmes planned under the umbrella of the Operational Programmes. This means that the investment GAP apparent in this sector can be fully dissolved by 2020 thanks to resources from the structural and cohesion funds.

# Annex no 2. – Steps of quantifying the GAP (TO3)

**Companies planning some form of investment**

GAP was counted based on companies where there was already an investment concept in place. Such a rate can easily be obtained from the related economic activity study[82]. A more sophisticated approach is to start with the data from a questionnaire conducted by K&H Bank in 2013, where the aim was to find out what percentage of SMEs had a business plan. From this, it is apparent that a relatively low percentage of companies draw up business plans, and if they do, then they do not update it regularly. Companies were deemed to have serious plans to invest when they had a business plan for a period longer than one year (28%). While the latter percentage is more professionally sound for the use in the model, the former can be verified with multiple studies and can be accessed more frequently, so we used the HDB indicator data regarding companies' plans to invest. (It is worth noting that there is no significant difference between the numbers.)

**Companies using outer sources for the purpose of investments**

On average, Hungarian SMEs use less outer sources than their international counterparts. In line with SME Yearbook 2013 data, almost 60 percent of SMEs would rather use their own resources for the purpose of making investments. In view of corporate tax returns, only 34 percent of companies have long-term commitments. There is a sizeable difference when it comes to microenterprises (18%) and large enterprises (57%).

**Rejected loan applications**

To determine the gap between investment demand and supply, we must know the rate of rejected loan applications. In harmony with Access to Finance survey, this is 27 percent. Obviously, there are significant differences based on the size of the company. Microenterprises suffer from a higher rate, while only a negligible amount of applications of large enterprises is rejected. As we have no detailed data regarding this for Hungary, we used the EU average distribution (by company size) that Access to Finance survey determined.

**Correction of rejected loan applications**

A part of rejected loan applications is almost certainly cannot be attributed to market failures (higher risk associated with start-ups and smaller enterprises, lack of loan history and references etc.), rather, the cause is probably technical (e.g. administrative problems, unrealistic investment concepts ets.). Therefore, we thought it was wise to apply a correction factor to the model at this point. The percentage is to be determined with the help of expert estimations, in harmony with our prior assumptions, the rate will be between

[82] The question most often was: 'Do you plan on making an investment in the next 6/12 months?'

10 and 15%. The rate will be validated through interviews with funders.

**Suppressed demand**

We know from the Access to Finance survey that 5 percent of companies becomes discouraged before submitting a loan application, and postpones the investment or implements it using its own resources. There are differences here based on the size of the company. The specific rate was (like with the rejected applications) determined using the EU average (or rather, proportions of the cumulative EU data taking into account the size of the company).

**Calculating GAP**

So far, we have counted with the number of companies, which must be converted to a HUF value. GAP is calculated at the last step on the basis of the average number of projects in the period of 2007-2013 (investments made by one company over a period of seven years) and the average project size in the loan programme of CBH.

The market gap calculated this way was only partly tied to measures planned under thematic objective 3. According to surveys made by MFB Indikátor, 73 percent of all investments target some kind of technical development or production expansion.

## GAP-calculation with data