FINANCING INNOVATIVE BUSINESS INVESTMENT IN POLAND

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ABSTRACT/RÉSUMÉ
Financing innovative business investment in Poland

Poland’s productivity has grown strongly over the past two decades. However, the public and private capital stock is weak, and investment remains focused on the adoption of existing technologies, which weighs on future productivity gains and innovation. Many micro enterprises have low productivity, and structural bottlenecks reduce start-ups’ growth and their chances of survival. The EU and the government are stepping up funding for business research and development, collaboration with the public sector, entrepreneurship and innovation. This is an opportunity to improve the management of public business support, and the large new programmes should be carefully discussed with stakeholders and regularly evaluated to avoid the risks of subsidising low-productivity firms and to strengthen the take up from the most productive small and medium-sized enterprises. The sustainability of this ambitious package of measures will also require significant public revenues and promoting alternative market-based financing instruments will be critical over the medium term. Ongoing improvements in insolvency procedures and efforts to reduce the regulatory burden are set to ease reallocation of resources through the economy. However, the level of state involvement would remain important, and ensuring the independence of the network industry regulators and the Competition Authority and a level playing field between alternative technologies, as well as easing labour mobility would be good moves.

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Le financement d'investissements innovants en Pologne

La productivité de la Pologne a fortement augmenté au cours des deux dernières décennies. Cependant, le stock de capital public et privé est faible et l'investissement reste axé sur l'adoption de technologies existantes, ce qui pèse sur les gains de productivité et l'innovation. De nombreuses micro-entreprises ont une faible productivité et les goulots d'étranglement structurels réduisent la croissance des start-ups et leurs chances de survie. L’UE et le gouvernement intensifient leur financement pour la recherche et le développement des entreprises, la collaboration avec le secteur public, l'entrepreneuriat et l'innovation. Cela représente une opportunité pour améliorer la gestion du soutien public aux entreprises, et les nouveaux programmes importants devraient être soigneusement discutés avec les parties prenantes et régulièrement évalués pour éviter les risques de subventionner les entreprises à faible productivité et pour s'assurer que les petites et moyennes entreprises les plus productives bénéficient pleinement de ces programmes. La viabilité de cet ensemble de mesures ambitieux nécessitera également des recettes publiques importantes et la promotion d'instruments de financement alternatifs fondés sur le marché sera essentielle à moyen terme. L'amélioration continue des procédures d'insolvabilité et les efforts visant à réduire le fardeau réglementaire devraient faciliter la réaffectation des ressources dans l'économie. Cependant, le niveau de participation de l'État resterait important. Ainsi, garantir l'indépendance des régulateurs de l'industrie des réseaux et de l'Autorité de la concurrence et s’assurer de l’équité des conditions de concurrence entre les technologies alternatives, tout en facilitant la mobilité de la main-d'œuvre demeurent nécessaires.

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FINANCING INNOVATIVE BUSINESS INVESTMENT

By Antoine Goujard and Pierre Guérin

Poland has to keep upgrading its knowledge and technology to sustain long-term economic growth. Labour productivity has increased rapidly but remains below many other OECD countries (Figure 1, Panels A and B). Productivity gains explain the major part of Poland’s recent growth performance. Impressive technological progress has driven improved standards of living, and physical capital intensity has increased significantly (Panel C). However, spending on research and development (R&D) activities is still lagging (Panel D), and the innovative capacity of the economy low (Brandt, 2018). Fostering innovation and diffusion of new technologies and ideas would support productivity growth and raise medium-term growth prospects (Andrews et al., 2015), as economic efficiency gains are becoming harder to achieve and Poland’s catch-up process will be mechanically slowed by the fast population ageing resulting from low fertility rates and a steady rise in life expectancy (OECD, 2016a).

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Firms are major drivers of innovation, but investment in R&D and innovation (RDI) remains limited. On the one hand, weak RDI activities reflect Poland’s industrial structure where less R&D-intensive industries such as business services and medium-low-technology industries are well represented. On the other hand, even after controlling for industrial structure, Poland has a low business R&D intensity compared to the OECD average (OECD, 2017) in that Polish firms, notably small and medium-sized enterprises (SMEs), are less innovative than those from many other European countries, and business investment has lagged most OECD countries and other central and eastern European countries (CEECs) over the past two decades (Figure 2, Panels A and B). In particular, business R&D spending is limited (Panel C). SMEs and the growing share of micro enterprises with less than 10 employees (PARP, 2015 and 2017) still face significant financing challenges, as innovation needs long-term investment in intangible assets, skills and technology, which may be difficult to finance without own funds and collateral (Panel D). Indeed, Polish enterprises mention insufficient funding as the main barrier to innovation, particularly in its initial phase (European Commission, 2016a; Lewandowska, 2016). OECD econometric evidence points to a lack of any statistically significant relationship between the growth of firms in Poland and their innovation, as measured by their patenting activity over 2003-10 (Andrews et al., 2014). In many sectors, allocative efficiency, as measured by the extent to which the most productive firms are the largest thereby indicating their ability to attract workers, appears weak compared to other European countries (Andrews and Cingano, 2012; European Commission, 2013).
Business investment and R&D spending remain targeted at the diffusion of innovation. Historically, public and private business R&D spending has increased at a slower rate than overall investment in Poland (Figure 2.3, Panel A). Encouragingly, given its link with higher labour productivity growth, machinery and equipment investment is relatively high (Panel B). However, despite a fast increase in business spending on R&D over recent years, most innovative investments remained targeted at the acquisition and diffusion of existing technologies in the 2007-13 EU budget period (Brandt, 2018; Kapil et al., 2013). In particular, investment in intangible assets in the economy, such as data, software, patents, designs, new organisational processes and firm-specific skills, which in aggregate constitute so-called knowledge-based capital (KBC), has increased only moderately over the past 10 years and remains low in international comparison (Panel C). Though the ongoing productivity catch-up and substantial public infrastructure investment explain part of the structure of investment (OECD, 2016a), expenditures on intangibles have also declined from a low level in the industrial sector (Panel D). This may hamper productivity growth in the longer term, as investment in knowledge such as R&D can be recombined with many other inputs in multiple applications, giving rise to increasing returns, and may result in positive spill-overs for other firms (OECD, 2013a).
Public support for business innovation has increased, and the government has taken many steps to strengthen the financing of business RDI. Until 2014, public funding for R&D and business R&D, notably tax incentives, remained low compared to other OECD countries (Panels A and B), though public expenditures were a significant share of overall R&D spending (Figure 4, Panel C). The Strategy for Responsible Development foresees an increase in R&D spending from 1% of GDP in 2015 to 1.7% in 2020 and overall investment from 20% of GDP to above 22% of GDP (Ministry of Economic Development, 2017a). The government has reformed the innovation framework over 2015-17 based on the 2016 and 2017 innovation laws, and the 2016 “White Paper on Innovation” developed further legislative and organisational proposals (Ministry of Science and Higher Education, 2016). In the medium term public support for RDI relies heavily on increasing EU funding, which accounted for around 83% of public expenditures for business innovation in 2015 (Panel D). The 2014-20 EU Structural and Investment Funds (ESIF) foresee spending about EUR 105 billion (24% of 2015 GDP) over seven years in Poland, and projects under the Smart Growth Operational Programme (see below) would receive 9.7% of the total amount to develop research and innovation as well as technology diffusion, entrepreneurship and SMEs (Ministry of Economic Development, 2014).
The development of public support for business innovation is welcome, but its large scale and fast implementation bear risks. Increasing public support appears justified. Firm innovative expenditures, including firm R&D spending, can boost productivity and their gains may be shared with other firms through knowledge and information spillovers. However, such spillovers also lower private spending incentives, and firms may face difficulties to find external market-based finance for intangible assets (OECD, 2016b). A number of obstacles still hinder innovative activities and the efficiency of public support in Poland, such as the large share of micro firms, the complexity of administrative procedures and the lack of experience of public and private managers in the development of innovation (Kapil et al., 2013; Breznitz and Ornstorn, 2017). In addition, competitive pressures that could provide incentives for innovation remain low in some sectors, and a large share of the population has relatively weak skills (OECD, 2016a). Strengthening the design and management of public and private RDI support, as well as improving the regulatory environment, would improve the medium-term sustainability of RDI programmes. Indeed, infrastructure needs remain substantial, and other public spending items, notably on health and pensions, are set to rise, while RDI funding could decline following the 2014-20 ESIF programming period (OECD, 2016a).

This chapter reviews the institutional framework surrounding the financing of innovative business investment and start-ups. The main results are:
• Despite significant progress in boosting private RDI, innovative business investment remains low. In particular, small firms’ innovativeness appears to lag other OECD countries. The government should pursue its efforts to strengthen business support, through ESIF funds, by better integrating policy and investment priorities across ministries and agencies. Over the medium term developing domestic public funding and market-based financing is needed to ensure sustainable support and investment.

• Credit supply has been resilient, and the authorities have provided additional tools to support new investment in intangible capital and SMEs. However, the profitability of the banking sector has declined, and there is ongoing uncertainty related to the foreign-currency-denominated mortgage loans as the details of a law meant to facilitate the voluntary restructuring of such loans have yet to be fully decided. At the same time, the targeting and magnitude of the numerous support measures for entrepreneurship and SMEs remain questionable and could increase businesses’ incentives to remain small and discourage efforts to enhance productivity, while preventing the emergence of market-based finance.

• More structural product and labour market reforms would help attract innovative foreign direct investment (FDI) and bolster the quality of business investment. Strengthening the policy formulation process, creating pro-competitive market structures and securing non-discriminatory network-sector regulations would have considerable benefits for medium-term investment incentives and productivity.

Financing innovative business investments

General financing conditions have improved, but structural bottlenecks remain

Investment has declined sharply in volume terms in 2016 on the back of weaker disbursement of EU funds and increasing uncertainty. The decline is mostly attributable to a large fall in construction (Figure 5, Panel A). As in other CEECs, infrastructure investment has fallen because of temporarily lower disbursements of EU funds, notably in network sectors. Increased uncertainty is also holding back business investment, despite easy credit conditions, rising profits and high capacity utilisation. In particular, the introduction of sector-specific taxes, together with frequent changes in the regulatory environment (see below), has reduced predictability and risk tolerance. Investment in machinery and equipment as a share of GDP is just back to its 2005 level, while expenditures on intellectual property products stalled.

Financing conditions have generally been supportive of business investment. A historically low policy interest rate since March 2015 has continued to be supportive, and interest rates have declined steadily (Figure 6, Panels A and B). Corporate debt has continued to grow as a share of GDP, but it remains contained by international standards (Panel C). At the same time, the annual gross operating surplus of non-financial corporations is relatively high and growing steadily, suggesting that many companies have the capacity to finance investment from retained earnings (Panel D). In fact, retained earnings have been the dominant source of funding for investment since 2008 (NBP, 2017a). However, credit extension to SMEs has somewhat lagged that to the largest firms until 2017, and the spread between average lending rates for non-financial corporations and sole proprietorships and unincorporated partnerships, which accounted for 84% of the firms created in 2015 (Statistics Poland, 2017), remains sizeable.
Some SMEs and start-ups are financially constrained, which hinders their investment, productivity and growth. Employment in micro firms is a large share of the total, while intermediate-sized enterprises (ISEs), capable of innovating and developing and exporting new products, are in short supply (Figure 7,
Panel A). This firm size distribution reflects a plethora of start-ups, which experience significant difficulties to survive and grow, despite a dynamic economy (Panels C and D). In particular, SMEs’ innovation expenditures (including R&D spending) are low, mirroring a wide and persistent innovation gap compared to larger firms (Figure 8). As in other OECD countries, sub-optimal investments in young firms and SMEs may result from monitoring problems for credit institutions and from a narrow range of financial products and services (OECD, 2015a; Calvino et al., 2015). In Poland, such structural problems in access to financing are compounded by remaining weaknesses in the business environment, such as a lack of independence of some sectoral regulators and weak competitive pressures in services (OECD, 2016a and 2016c).

Figure 7. SMEs and young firms in the economy

1. Or latest available year.
2. Average of available years. Young firms are those less than two years old.

Figure 8. R&D and innovation expenditures and innovation by firm size

A, Business R&D-related expenditures
Per cent of GDP

B, Small firms relative innovativeness

1. Share of innovative firms among 10-49 employee firms divided by the share of innovative firms among firms with over 250 employees.


Public support for business SMEs, start-ups and business RDI is set to increase sharply. The 2014-20 ESIF foresees a continuously high spending through the Smart Growth operational programme. Various measures targeted at RDI and SMEs’ competitiveness would reach nearly 5.7% of 2015 GDP over seven years (Figure 9). The European Commission expects that support for private investment and RDI will involve around one third of Polish SMEs (European Commission, 2017). In particular, the new EU programming period targets a larger amount of EU funds being allocated to private-sector R&D and cooperation between science and business, and less direct focus on capital investment. It also puts additional emphasis on the SME sector. Renewed public support for business RDI could boost productivity growth and innovation in the economy, but implementation challenges are elevated. The current innovative capacity of RDI institutions remains low, and the large scale-up of public support for RDI could raise wage pressures for researchers and high-skilled workers, as shortages have already occurred, and a large share of the workforce lacks advanced and digital skills (OECD, 2016a).

Figure 9. EU Structural and Investment Funds, 2014-20

A, EU Structural and Investment funds
Per cent of 2015 GDP

B, Funds for Innovation and SMEs
Per cent of 2015 GDP

1. EU and domestic funding. The data refers to European Structural and Investment Funds with thematic objectives “Research & Innovation” and “Competitiveness of SMEs”. For comparison across countries, the figure excludes some measures for technical assistance that represent 3.4% of expenditures under the Smart Growth operational programme in Poland.

**Ensuring the effectiveness of government support to SMEs and innovative firms**

The Polish authorities have reformed the organisation of support to innovation and business RDI. At the beginning of 2016 the government attempted to improve coordination with the introduction of the Innovation Council, engaging five ministries. Finally, several agencies and funds are becoming part of a single Polish Development Fund (Brandt, 2018 and Box 1). This could promote cooperation between different institutions, ease firms’ take-up of specific measures and encourage cooperation between firms, universities and other research institutions (Brandt, 2018; Kapil et al., 2013). But old agencies and new departments may still operate in the same area, and their individual priorities may continue to adversely affect the effectiveness of activities and of expenditures. Moreover, the creation of the Innovation Council is a step in the right direction, but it has attracted private-sector scepticism, as it relies exclusively on public-sector institutions (Brennitz and Ornston, 2017). As policies that promote innovation are difficult for governments to design and even more difficult for them to successfully implement, greater private-sector involvement could help the government identify the right policies, as in several productivity commissions of OECD countries, such as Denmark and New Zealand (Banks, 2015). The Netherlands’ approach to industrial policy in R&D-intensive sectors – “top sectors” – whereby representatives from industry, public research and government provide systematic input to the drafting of an innovation agenda is another example of best practice in this respect (OECD, 2014a).

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**Box 1. The 2016 and 2017 innovation laws and the Polish Development Fund (PFR)**

**The 2016 innovation law** entered into force in January 2017. It concerns four key aspects of the financing of innovation. First, it reformed the 2016 incentives for R&D by increasing tax deductions. For example, the deductibility of the R&D wage bill increased from 30% to 50%. It also expanded the carry-forward period from three to six years and eligible cost categories (covering notably patent application costs for SMEs) and created cash refunds for start-ups. Second, the law removed the five-year limit during which scientists could be entitled to a share in the profits from commercialisation, and abolished the taxation of the in-kind contribution of intellectual and industrial property incomes. Third, the law included a temporary tax preference for venture capital firms. Fourth, universities and other research institutes are now obliged to spend 0.5% of their grants for commercialisation.

**The 2017 innovation law** entered into force in January 2018. The authorities foresee a further reform of the R&D tax incentive to: (i) increase tax breaks for enterprises investing in R&D - the level of tax relief would increase to 100% of the costs incurred (up to 150% for research centres); and (ii) include tests to determine patentability and earlier scientific research into eligible costs. The authorities also plan to extend the temporary tax exemptions for venture capital funds on the sale of stocks of some innovative companies, create new tax relief for those investing in innovative start-ups, ease collaboration with businesses using PhD students, and update the accountability law and the reporting of R&D expenditures.

**The Polish Development Fund (PFR) was created in April 2016.** It is based on the 2013 Polish Investments for Development (PIR) fund. This state-owned investment fund targets innovation and business support at various stages of development. It also integrates the management of the state-owned development bank (BGK) and the export credit agency (KUKE), and puts under the same umbrella public institutions responsible for supporting entrepreneurship in Poland, such as the National Centre for Research and Development (NCBiR), the Polish Agency for Enterprise Development (PARP), the Industrial Development Agency (ARP), and the Polish Investment and Trade Agency (PAIH). One of the first PFR programmes was “Start In Poland”, which targets the development of venture capital though PFR ventures (Box 2.2).

Stepping-up evaluation efforts would increase the efficiency of public spending. Indeed, firms judged the design and implementation of past measures to support business innovation (Figure 2.10, Panel A) to be particularly complicated. Though the Regulatory Impact Assessment (RIA) framework in principle guarantees firms' engagement at all key stages of the policy-making cycle (Panel B), and the availability of e-information system for businesses and trade unions has increased, minimum periods for consultation with stakeholders are not always respected (OECD, 2015b). The frequency of business legislation has also accelerated recently, which further reduces the scope for public consultations (Grant Thornton, 2017). The authorities could increase the transparency of the policy formulation process and the general knowledge of
RIA inside and outside of government by publishing the annual RIA report that is presented to the government and using more standardised and simpler guidelines. Together with private-sector participation in the Innovation Council, this would improve stakeholders’ engagement in the design of RDI support and encourage the presentation of alternative solutions to enhance the impact of legislation and regulations.

**Figure 10.** Design of public support for innovation and stakeholder engagement in Regulatory Impact Assessments, 2014

A. Enterprises for which difficult government grants or subsidies processes were a barrier to innovate

<table>
<thead>
<tr>
<th>Country</th>
<th>All firms</th>
<th>Large firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>NO</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>LUX</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>ES</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>IT</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>DE</td>
<td>25</td>
<td>20</td>
</tr>
</tbody>
</table>

B. De-jure engagement of stakeholders in the Regulatory Impact Assessment of primary laws

1. Index from 0 to 4 (best practices).


Ex post evaluation efforts should also be strengthened, while maintaining more stable policies. As in other OECD countries, such efforts have been partly lacking (OECD, 2016c), though they are mandatory for EU-funded programmes. For example, the agency in charge of business innovation subsidies has no obligation to monitor their effectiveness, though it granted support worth 0.3% of GDP in 2015 (NIK, 2016a). It is also noticeable that data and evidence about the effectiveness of the 2017 R&D tax break are lacking, while the government increased further its funding in 2018. Defining *ex ante* the timing of the evaluation would have allowed a more efficient adjustment of the scheme and avoided incentives for firms to delay their investments. More generally, systematically evaluating RDI support schemes would help to ensure that they are constantly improved based on experience. This could be done by identifying a permanent body to monitor innovation policies, such as the Innovation Council, and by encouraging the participation of all stakeholders and promoting independent evaluations.

The authorities have taken numerous steps to support SMEs and start-ups, but they have had mixed effects on productivity and growth. As in other OECD countries, loan guarantees remain the most widely used policy instrument used by governments to facilitate SME access to finance (OECD, 2016d). Such programmes cover a large share of the economy (Figure 11) and are rapidly expanding (AECM, 2016). The state-owned development bank (Bank Gospodarstwa Krajowego, BGK) provides low-cost guarantees for bank loans towards working capital and investment through the *de minimis* guarantee programme. In December 2016, 119 000 SMEs were using such guarantees with outstanding value worth PLN 13.9 billion – 0.8% of GDP at end-2016 (BGK, 2017). In addition, heterogeneous local guarantee funds provided guarantees worth PLN 1.59 billion in 2015 (KFSP, 2016). Some 43% of *de minimis* participants report that the scheme supported some forms of innovation and 41% that it helped lift innovative investments (BGK, 2016). However, such large government support and the fragmented structure of local and regional funds may induce bank forbearance, allow the survival of low-productivity firms, lower long-run efficiency and
crowd-out alternative financing sources (Adalet McGowan et al., 2017; Biernat-Jarka and Planutis, 2013), but there is no rigorous evidence that such effects have materialised in Poland.

Figure 11. Poland makes extensive use of government loan guarantees for SMEs
As a percentage of GDP, 2015¹

1. Or latest available year.
2. 2016 data for Poland. They refer to PLN 13.9 billion of outstanding de minimis guarantees at end-2016 and PLN 1.59 billion of guarantees from local and regional funds.


Guarantees targeted at more risky projects are set to rise, but alternative market-based financing methods should also be developed for SMEs. Under the EU COSME programme the European Investment Fund (EIF) will support BGK’s provision of PLN 2 billion (0.1% of 2016 GDP) in loans to Polish SMEs (EIF, 2015). The loans would require less collateral than the de minimis programme thanks to an 80% guarantee provided by BGK and backed by EIF counter-guarantees. However, this high guarantee level could also discourage banks from actively monitoring their credit risks. Rigorous evidence on the effectiveness of both programmes is lacking. Yet, they should be carefully evaluated to reduce their potential costs for public finance, support to mature, low-productivity (“zombie”) firms and risks of negative spillovers towards non-targeted firms. In this regard, making data available to external researchers would be helpful to support an independent evaluation of these programmes. Indeed, the supply of guarantees to SMEs is already deemed as sufficient by many banks (Vienna Initiative, 2014), and fostering the development of the risk evaluation tools for SMEs as planned by the 2016 insolvency law would allow the development of further market-based finance for SMEs (see below).

While the market for factoring is relatively well-developed in Poland, developing it further along with reverse-factoring could reduce SMEs’ need for guarantees and ease their access to trade finance and supply chains (OECD, 2015c). This would protect them against payment delays that remain pervasive (Intrum Justitia, 2016; Coface, 2017), albeit they are not cited by firms as a strong barrier to development (NBP, 2017a). Factoring is a short-term financing mechanism whereby a firm receives cash from a specialised institution (the “factor”) in exchange for its accounts receivables. The credit risk and the collection of accounts are therefore entirely transferred to the factor. In contrast, reverse factoring generally entails the case of a large creditworthy firm which offers its suppliers, typically small SMEs, factoring; that is, the factor agrees to finance any of the receivables of the large firm generated by invoices from the small suppliers. Given that SMEs’ customer bases and future cash flows are difficult to assess and that payment delays are substantial, factoring and reverse factoring should be developed further. This could notably be done by securing tax treatment that allows the same deductibility as for other business financing methods.
and reducing the time needed to enforce contracts in the judicial system, which remains much longer than elsewhere in the OECD (Figure 12). Indeed, courts and judges tend to be overburdened by small, non-litigious cases and the take-up of e-technologies is low, though judicial spending is relatively high, and a 2015 reform eased ICT use for civil proceedings (CEPEJ, 2016; World Bank, 2013 and 2016).

**Figure 12. Enforcement of contracts, 2017**

A. Quality of judicial processes

- Index scale from 0 to 18 (best practices), 18 indicates best practices in the court structure and proceedings, case management, court automation and alternative dispute resolution.

B. Time to enforce contracts

1. Period for resolving a commercial dispute through a local first-instance court.


Many public grants also target innovative investment. Until recently, grants were the bulk of public financing for business innovation. Grants are in principle appropriate for supporting early-stage innovation by young firms, which generally lack the profits to benefit from non-refundable tax credits (Appelt et al., 2016). Some grant programmes have benefited from thorough evaluation and have had significant positive effects. In particular, a scheme for consortia of firms and research entities – In-Tech - led to more science-industry collaboration and increased the probability of applying for a patent, with tentative positive effects on commercialisation (Bruhn and Mckenzie, 2017). However, most programmes have favoured large firms and established technologies (Kapil et al., 2013). Indeed, risk aversion has steered a large proportion of public funding to big companies, in the form of grants for the adoption of existing technologies, and neglected innovative SMEs (Figure 13). For example, under the EU 2007-13 and 2014-20 programmes, BGK has used competitive applications to provide grants for innovative SMEs when they finance their innovation through bank loans. The “technological credit” covers up to 75% of project costs. The programme has been scaled up significantly under the EU 2014-20 programme. The grants have been awarded through open competitions since 2009, with the maximum eligible amount per project of EUR 1.5 million. During the 2007-13 EU financial framework, expenditures have been higher than planned, but the selection process has not supported the most innovative firms and was overly bureaucratic (NIK, 2016b).
The new EU programming period provides more diversified sources of funding for business RDI. The ESIF funds put more emphasis on the use of revolving and equity-based instruments and on financing technology development (as opposed to its absorption), with several measures focused on launching new products and services. In particular, the amount of many loan instruments targeted at innovative start-ups and SMEs is being scaled up (Figure 9 and Table 1). Within the so-called “SME window”, a BGK guarantee fund will help innovative SMEs secure up to 80% of the loans. In addition, new equity-based instruments would involve private investors, such as venture capital funds and business angels to finance innovative enterprises (see below). These programmes are welcome, as they will offer diversified sources of funding for firms and innovations at different stages of development. For example, grants and equity-based finance will be appropriate for young firms and highly innovative start-ups, while loan programmes would be available to finance absorption-oriented activities and capital investments that are likely to generate stable long-term cash-flows (Appelt et al., 2016). However, the multiple government agencies operating under the Polish Development Fund still face the challenge of creating operational synergies in order to better integrate research and innovation policies. In addition, young people are not always eligible for some regional programmes for entrepreneurship (OECD, 2015d) and the authorities should ensure a fair access to grants regardless of age.
<table>
<thead>
<tr>
<th>Programme</th>
<th>Total financing (EUR billion)</th>
<th>Total financing (% of 2015 GDP)</th>
<th>Share of EU financing</th>
<th>Domestic financing (% of 2015 GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Smart Growth (of which)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Support for R&amp;D activity of enterprises</td>
<td>10.2</td>
<td>2.4</td>
<td>84.5%</td>
<td>0.4</td>
</tr>
<tr>
<td>II. Support for the environment and capacity of enterprises for RDI activity</td>
<td>4.6</td>
<td>1.1</td>
<td>84.5%</td>
<td>0.2</td>
</tr>
<tr>
<td>III. Support for innovation in enterprises</td>
<td>1.2</td>
<td>0.3</td>
<td>84.5%</td>
<td>0.0</td>
</tr>
<tr>
<td>IV. Increasing the research potential</td>
<td>2.6</td>
<td>0.6</td>
<td>84.5%</td>
<td>0.1</td>
</tr>
<tr>
<td>V. Technical Assistance</td>
<td>1.4</td>
<td>0.3</td>
<td>84.6%</td>
<td>0.1</td>
</tr>
<tr>
<td>B. Regional programmes¹</td>
<td>0.4</td>
<td>0.1</td>
<td>84.6%</td>
<td>0.0</td>
</tr>
<tr>
<td>C. Eastern Poland¹</td>
<td>7.0</td>
<td>1.6</td>
<td>84.6%</td>
<td>0.3</td>
</tr>
<tr>
<td>D. National Rural Development¹</td>
<td>0.8</td>
<td>0.2</td>
<td>85.0%</td>
<td>0.0</td>
</tr>
<tr>
<td>E. Maritime and Fisheries¹</td>
<td>6.3</td>
<td>1.5</td>
<td>63.6%</td>
<td>0.5</td>
</tr>
<tr>
<td>Total (A+B+C+D+E)</td>
<td>24.7</td>
<td>5.7</td>
<td>79.1%</td>
<td>1.2</td>
</tr>
</tbody>
</table>

1. Refers to European Structural and Investment Funds with thematic objectives “Research & Innovation” and “Competitiveness of SMEs”.

R&D tax incentives have been scaled up and should be carefully reviewed. Until 2015 the use of R&D tax incentives had remained anecdotal, with only 80 companies using it that year. The non-refundable system tended to favour large firms and was focused on acquiring existing technologies (Figure 14; Kapil et al., 2013; NBP, 2016a). A new R&D tax allowance that also supports internal R&D investments replaced the tax relief for acquiring new technology in 2016. In 2017 the authorities expanded the list of tax-deductible R&D spending, made the subsidy refundable for start-ups in the first year of business activity (two years for SMEs) and extended the carry-forward option from three to six years. The authorities further scaled up deductions in 2018 (Box 1). These are welcome steps, as the tax subsidies remained limited until 2016, and evidence suggests that R&D tax incentives should positively affect R&D spending and innovation (Appelt, 2017; Becker, 2015; Dechezlepretre et al., 2016; OECD, 2016e). If the take-up of the R&D tax relief by small innovative SMEs remains low, making the tax allowance refundable more generally (e.g., for SMEs operating for more than two years) could help boost SMEs’ R&D spending. At the same time, the authorities should monitor the risks of abuse of the scheme for tax avoidance and cross-border tax planning by multinationals. Indeed, OECD research shows that, if not well designed, R&D tax incentives tend to protect incumbents and slow down the sectoral reallocation process (Bravo-Biosca et al., 2013).
Further measures could enhance the efficiency of the new R&D tax relief. Unclear Polish law and interpretations by tax authorities have created uncertainty about eligible costs and may slow the take-up of the measure (Deloitte, 2016). Indeed, tax allowance rates vary by type of cost and firm size, and many firms remain concerned by how tax authorities evaluate qualification requirements. The recent progress made in extending the R&D tax relief (Box 1) would be supported by further improvements in tax administration to make it more accessible to start-ups and small companies. For example, using the OECD Frascati Manual (OECD, 2015e) to develop standardised definitions for R&D expenditures and compiling a common list of qualified costs would help. A centralised review of claims and training of tax administration personnel would also be helpful. Finally, many OECD countries offer services to assist firms in tax-claiming procedures (e.g. online information and simplified claims forms) and to improve the speed and predictability of claims processing, such as certification procedures that have binding effects on national tax authorities in Austria, France, Hungary and Spain (OECD, 2016c; Appelt et al., 2016).

Beyond R&D expenditures, the government plans new tax support for business investment. The corporate income tax (CIT) law provides for favourable depreciation rules for intangible assets, their annual depreciation rates range from 20% to 50% for copyrights and software licenses, and 100% for R&D expenditures. A 2017 bill also introduced a new accelerated depreciation of machinery and equipment. This would expand the possibility to immediately write off capital investment, which has been available heretofore only to SMEs (OECD, 2015f). The authorities estimate it could benefit up to 150 000 companies every year (Ministry of Economic Development, 2017b). The new scheme would apply to asset purchases between PLN 10 000 and 100 000. This could push firms to frontload their investments and accelerate technology absorption, and it would reduce young firms and SMEs’ liquidity constraints. The authorities should monitor this new scheme, and should the take-up be low for young and small firms, adjust its provisions to ensure effective incentives for this category of firms.
Specific tax measures have also been targeted at SMEs, but the authorities should avoid creating size thresholds that discourage firm growth. The CIT rate was cut from 19% to 15% for small and newly registered firms in 2017. They also exempted new businesses from some social contributions and reduced them for small companies (PNB, 2017). There can be a rationale for special tax regimes for small and initially unprofitable firms, especially in a country with relatively high informality, to ease tax compliance and related fixed costs that are more burdensome for SMEs (OECD, 2015f). However, such reduced tax SME rates and the abrupt end of the social security contribution exemption after two years may also curb firm growth, induce some firms to split, distort resource allocation and waste resources with little impact on innovation and entrepreneurship as they are available for all SMEs, irrespective of their investment needs (OECD, 2015f; IFS, 2010). These negative efficiency costs can be particularly large. For example, evaluations of such losses range from 0.3-4.5% GDP for regulatory thresholds in France (Gourio and Roys, 2014; Garicano et al., 2016). By contrast, further general simplification of the tax system would improve efficiency, as its complexity continues to weigh particularly heavily on smaller firms (World Bank, 2016).

Phasing out the relief from social security contributions for start-ups over a longer period of time could also allow young businesses to develop without facing onerous adjustment costs.

The large increase in public support for business investment and RDI also raises issues for its medium-term fiscal sustainability. Policymakers should ensure that these measures are integrated into a long-term agenda, since beyond the current EU budgetary cycle, funding may be substantially reduced, and R&D expenditure and innovation require a predictable policy environment. This could notably allow to crowd-in more private investment, as long-term public research funds can help support projects with high and long-term social returns but that are too risky for private investors (Mazzucato, 2015). It is welcome that the 2017 Plan for Responsible Development set goals for innovation policies both to 2020 and 2030. However, bridging the remaining infrastructure gaps (OECD, 2016a) and maintaining a stable support system for innovation will require significant fiscal discipline. However, some recent measures, such as the lowering of the retirement age and the hike in family benefits, may not be conducive to long-term growth and could reduce public revenues over the medium term in addition to increase public spending. The currently available fiscal room would have been better used to bring forward the planned investment in infrastructure that could crowd-in private investment and complement innovation support over the longer term (OECD, 2016f).

Maintaining a sound financial system

Poland's banking system is well capitalised and liquid, but recent policy decisions imply new financial burdens for the banks. The average core Tier I capital ratio, at 17.2%, stood well above Basel III requirements at end-September 2017. Leverage has been stable at a moderate level (Figure 15, Panel A). Non-performing loans are declining, while their share is relatively low (Panels B and C). Despite historically low interest rates, there are no signs of asset price bubbles nor unwarranted debt accumulation (OECD, 2016a). However, due to narrowing interest rate margins and increasing costs, bank net profits declined in 2015-16. Indeed, banks have contributed to a new fund for distressed debtors in 2015, and they had to pay higher contributions to the bank-guarantee fund, following payments to depositors of credit unions and two cooperative banks as well as the need to build ex-ante resolution funds following the implementation of the European Bank Recovery and Resolution Directive (BRRD). In addition, in 2016 the authorities levied a new tax on the total value of bank assets in excess of PLN 4 billion, excluding own funds and purchased sovereign debt. Together, these three measures amount to around half of 2014 bank profits (OECD, 2016c), and indicators of bank lending conditions tightened at the end of 2016, notably for long-term loans (Panel D). Moreover, the bank asset tax may have created incentives for banks to increase holdings of (exempted) local government bonds (IMF, 2016a) and could potentially be detrimental to business financing over the medium term.
New costs for the banking sector should be thoroughly evaluated. While the economic risks associated with the portfolio of foreign-currency-denominated mortgage loans do not appear to have systemic consequences (NBP, 2016b), the details of a law to facilitate the voluntary restructuring of such loans through bilateral negotiations between banks and their clients have yet to be fully decided. Discussions over this matter have been ongoing for over two years and need to be quickly drawn to a close. However, most of the recommendations issued by the Financial Stability Committee in January 2017 to facilitate the voluntary conversion of foreign-currency-denominated mortgage loans through regulatory changes – such as higher risk weights to be provisioned by banks on their foreign-currency-denominated mortgage loans – have been implemented.

The authorities have strengthened the financial-sector framework, and securitisation is being developed. A macro-prudential framework has been completed, which allows for early detection and prevention of systemic risk, and the new bank resolution system, in accordance with the European Bank Recovery and Resolution Directive (BRRD) has been implemented. A recent regulation on non-banks limited non-interest costs of loans and constrained the practice of rolling over credit, in particular to prevent escalating consumer debts (IMF, 2016b). Moreover, a welcome 2015 law eased the issuance of covered bonds and improved long-term liquidity. Indeed, Poland’s universal banks neither had direct access to covered bonds nor engaged in securitisation and relied on the stickiness of short-term deposit
liquidity for mortgage lending. The new law reduces tax barriers to the development of covered bonds and promotes pension-fund, credit-union and foreign investment in such assets. As a result, two new mortgage banks were established, and covered bond issues increased by 55% year on year in 2015 (ECBC, 2016). This is welcome, as this lengths the maturity of bank funding, but the level of outstanding covered bonds – at 0.3% of GDP in 2015 – remains well below other CEECs (EMF, 2016).

**Developing alternative sources of finance**

Capital market finance has increased, but the availability of long-term private sources of financing remains limited for SMEs and start-ups. Polish companies raise slightly more funds on the stock market than in other CEECs, though stock market capitalisation is dominated by large stated-controlled firms, and corporate bond issuance is relatively limited (Figure 16, Panels A and B). Financing instruments that sustain the short and medium-to-long-term financing needs of SMEs, but that rely on different mechanisms than traditional debt, have expanded quickly (Table 2; OECD, 2013b, 2015c and 2015g). This is the case of asset-backed finance, such as leasing, which has increased rapidly for all firm sizes (Panel C and D). However, leasing is mostly used for investment in transport material (NBP, 2017b). Moreover, Polish capital markets have recently faced headwinds from uncertainty about the liquidation of open pension funds (OFEs) and global capital outflows from emerging market economies which may affect the development of the financing of innovative activities (OECD, 2016f).

**Figure 16. Development of alternative forms of finance**

1. Market capitalisation is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts and companies whose only business goal is to hold shares of other listed companies are excluded. Data are end-of-year values.

2. Small firms have between 10 and 49 employees, medium-sized firms between 50 and 249 and large firms more than 500. Data are smoothed over the March and October Surveys.

Table 2. External financing techniques for SMEs and entrepreneurs

<table>
<thead>
<tr>
<th>Low risk/ return</th>
<th>Low risk/ return</th>
<th>Medium Risk/ Return</th>
<th>High risk/ return</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asset-based finance</strong></td>
<td><strong>Alternative finance</strong></td>
<td><strong>“Hybrid” instruments</strong></td>
<td><strong>Equity instruments</strong></td>
</tr>
<tr>
<td>- Asset-based lending</td>
<td>- Corporate bonds</td>
<td>- Subordinated loans/bonds</td>
<td>- Private equity</td>
</tr>
<tr>
<td>- Factoring</td>
<td>- Securitised debt</td>
<td>- Silent participations</td>
<td>- Venture capital</td>
</tr>
<tr>
<td>- Leasing</td>
<td>- Covered bonds</td>
<td>- Participating loans</td>
<td>- Business angels</td>
</tr>
<tr>
<td>- Purchase order finance</td>
<td>- Private placements</td>
<td>- Profit participation rights</td>
<td>- Specialised platforms for public listing of SMEs</td>
</tr>
<tr>
<td>- Warehouse receipts</td>
<td>- Crowdfunding (debt)</td>
<td>- Convertible bonds</td>
<td>- Crowdfunding (equity)</td>
</tr>
</tbody>
</table>


The development of venture capital has been limited by regulatory and tax uncertainty. The use of venture capital and private equity instruments for innovative projects remains particularly rare, and perceived opportunities for funding are few (Figure 17), though low investments may also be explained by a lack of good projects. This may be especially problematic for young Polish companies that intend to roll their product out to the market, as venture capital plays a prominent role at a late stage of the innovation cycle. Venture capital investments had been subject to double taxation though CIT and PIT, as the profit achieved by the funds and dividends paid to shareholders were both taxed (Stroiński and Prager, 2012; Breznitz and Ornston, 2017). Regulatory uncertainty is also high. In particular, Polish pension funds represented a well-developed investor base that was, in principle, able to invest in riskier long-term projects through equity and private equity vehicles. However, the 2014 pension reforms shrank their role, as most people switched to the public pension scheme for their mandatory contributions, and voluntary contributions to private pension funds are now modest. In addition, the government has announced another reform of the OFEs (see below) and even envisaged their liquidation, creating further uncertainty.

Figure 17. Venture capital development

A. Venture capital investments, 2016

B. Perceived availability of venture capital, 2017

1. Or latest available year.
2. Index from 0 to 7 (highest perceived availability).


Several recent tax and regulatory reforms have aimed at removing barriers to the development of venture capital (VC). The 2016 innovation law (see Box 1) permanently removed the tax on intellectual property income and created a temporary tax exemption for the sale of stocks of R&D-performing companies in which VCs hold at least 10% of the capital. This second exemption initially held only for
investments realised in 2016-17, but was subsequently extended up to 2023 according to the 2017 bill on innovation. Making this solution permanent would stabilise the tax environment for VC funds and encourage their development.

The authorities have stepped up their direct support to the development of venture capital. The Polish Growth Fund of Funds (PGFF) was established in 2013 in cooperation with the European Investment Fund (EIF) to stimulate equity investments, and the National Capital Fund (KFK), owned by BGK, was refocused on venture capital funds supporting the start-up phase of innovative SMEs. The state-owned Polish Development Fund (PFR) also has a 2017-23 total budget of PLN 2.8 billion (0.2% of 2016 GDP) to make early-stage direct and indirect (through private VC funds) equity investments in start-ups and innovative companies (Box 2). The first call for proposals took place in January 2017 (PFR Starter FIZ) and was targeted towards VC funds that will invest in innovative SMEs at the earliest stages of development. Under the new EU programming period, multiple measures have also been integrated into the PFR programmes (European Commission, 2017). Private-sector involvement is welcome, as it ensures in principle more independence from the public sector in terms of projects and is in line with recent developments across OECD countries (Wilson, 2015). However, much will depend on PFR Ventures’ implementation. The scale of funds appears to be particularly large compared to total VC investments, and earlier KFK initiatives had to be downscaled significantly because of a lack of viable projects. The overall governance framework of PFR Ventures needs also to ensure independence from the authorities and state-owned companies, in particular for direct investment, as well as long-term accountability. In particular, PFR should progressively withdraw from these activities in order to ease the development of private investment funds over the medium term.

Box 2. PFR ventures and the development of venture capital

PFR Ventures is one of the companies within the Polish Development Fund (Box 2.1). PFR Ventures is to invest PLN 2.8 billion of public funds through the “Start In Poland” programme. Investments target various stages of the innovation cycle through co-investment with national and international private investors or through direct public investment.

In the incubation phase PFR Ventures is in charge of five funds worth PLN 1.05 billion. Technology incubators provide tangible and intangible services to new technology-based firms and entrepreneurs. In particular, the PFR Starter FIZ programme (PLN 782 million) would invest in 10 to 25 seed capital funds, for relatively small projects from PLN 200 000 to PLN 3 million.

In the acceleration phase, PFR relies mostly on the Polish Agency for Enterprise Development (PARP) structure. The NCBiR manages notably two programmes, BRIdge Alfa and Bridge VC, which support proof of principle and concept until the formation of a spin-off of the initial R&D projects, and then the commercialisation of the projects. In addition, the Scale up programme will link young firms and SMEs with large firms.

In the development phase, PFR ventures plans to support the expansion of production and the commercialisation of innovative solutions, and business R&D expenditures by investing PLN 1.75 billion.

Enabling venture capitalists to recover their investments is also crucial to encourage reinvestments in innovative activities. Further development of the stock and private equity markets would provide venture capitalists with a way to exit and monetise their investments (Nasser and Wehinger, 2016; Wilson, 2015). The limited development of the stock market for SMEs and the difficulties of mergers and acquisitions constrain exit strategies and the possibilities to realise financial returns. NewConnect, the specialised platform for SME listings that is part of the Warsaw Stock Exchange, benefits from a regulatory architecture designed for smaller enterprises and is more successful than comparable capital markets (Harwood and Konidaris, 2015). However, its activities remain rather limited in that it has helped to raise only PLN 1.8 billion (0.1% of 2015 GDP) since its creation in 2007, and its liquidity is low, suggesting that venture capitalists may potentially face difficulties in recovering their investments in Poland.
Strengthening the pool of domestic long-term investors would also help the development of capital markets. OFEs are the main large-scale institutional investors in Poland, and the Strategy for Responsible Development includes proposals to reform them in 2018. The authorities would transfer 25% of OFEs’ assets to the demographic reserve fund, and the remaining 75% of assets would be put into new privately owned funds under the umbrella of the Polish Development Fund (Box 1; Ministry of Economic Development, 2017a). Though the reform could clarify the private nature of pension funds and put an end to the repeated transfers of assets towards the ZUS, it has not yet been approved, and some details remain to be spelled out. In particular, the authorities should avoid regulations constraining funds’ investment portfolios, such as specific restrictions on equity and bond holdings, and the current rules of transfers of private individual pension accounts towards the ZUS 10 years prior to retirement should be lifted to allow a more diversified range of long-term saving plans to be available to households.

A level playing field over different forms of finance would also encourage the development of capital markets and innovative firms. The tax deductibility of interest payments on debt from taxable income puts equity financing at a disadvantage in Poland as in many European countries (Nasser and Wehinger, 2016; European Commission, 2016b). This in turn favours certain business types that are more suited to debt than equity financing in turn biasing capital allocation away from innovative new investments in knowledge. Firms with tangible assets as collateral will find it easier to raise debt and thereby gain the tax advantage relative to innovative new firms whose main asset is knowledge-based capital. Limiting the deductibility of interest from the corporate tax base in line with the OECD Base Erosion and Profit Shifting (BEPS) project (OECD, 2015h) could allow a less distortive financing structure for the economy and broaden the tax base. Moreover, the development of crowdfunding could help kick-start projects by innovative firms. Crowdfunding connects those who need funding for a specific project with a large number of investors, lenders or donors, typically in public online tenders. Setting up a regulatory framework for crowdfunding as in other OECD countries such as Italy could facilitate its development by fostering trust in this financing source, while addressing concerns about transparency and investor protection (OECD, 2015c). In this respect, implementing the recommendations from the Special Task Force for Financial Innovation in Poland would help enhancing legal certainty for crowdfunding activities and be conducive for their development (KNF, 2017).

Improving financial education would complement the measures to expand the use of capital markets. Most Polish firms do not consider the equity market as relevant for financing (European Commission, 2016c), and smaller companies with fewer than 50 employees are more likely to say financial skills would help improve or kick start their innovation activities than larger companies (European Commission, 2016a). It is welcome that the 2014-20 ESIF programming period supports the development of SME-specialised ecosystems (including investment banks, SME-specialised banks, research analysts, sales people, brokers, market makers and other third-party advisors focused on SMEs) that can support small public equity offerings.

Improving incentives for innovative investments

Beyond policies to improve access to finance, increasing innovative investment also requires that firms and investors expect good returns on their projects. In this respect the government can play an important role as a customer for new technologies, for example through public procurement (Brandt, 2018). However, maintaining strong institutions and policies also raises the risk-adjusted returns to investment, and many labour- and product-market reforms could support investment and innovation by lowering the costs of labour reallocation and easing the social costs of experimentation and firm exits (Andrews and Saia, 2017). Well-chosen infrastructure projects could also crowd in private investment, as transport and energy sector bottlenecks still weigh on productivity in Poland (Goujard, 2016). This could help attract FDI that has been shown to generate positive technology spillovers to Polish firms (Kolasa, 2012).
FDI is another important potential source of innovative investment. Poland’s stock of inward FDI as a share of GDP is slightly above the OECD average, but lags other CEECs (Figure 18, Panel A), particularly due to smaller inflows before the global financial crisis (Panel B). The low level of FDI as a share of GDP is linked to Poland's position in global value chains, where it tends to act as supplier of intermediate inputs in medium-low technology industries (Panels C and D). Indeed, Poland stands out negatively in the region, especially in terms of its limits on the shares of foreign investors in selected sectors, such as transport. Another area that reduces investment incentives is the government’s wide scope for using exemptions from merger regulation on public interest grounds. This means that market participants in these sectors do not know what forces are shaping future market structures. For example, the authorities blocked the sale of local heating and electricity assets by a French utility to a Czech company in January 2017 (Reuters, 2017). Moreover, fostering regulatory convergence would help raise FDI inflows (OECD, 2016g), as its transposition of EU law into national legislation lags behind other European countries (European Commission, 2016d). Such measures would also promote FDI by removing entry barriers and ensuring a more pro-competitive regulatory framework (see below).

**Figure 18. FDI investment and integration in global value chains**

1. 3-year moving average.
2. EA4 is the average of Germany, France, Italy and Spain. CEEC is the average of Hungary and the Czech and Slovak Republics.
3. The indicator measures the value of imported inputs in the overall exports of a country (the remainder being the domestic content of exports). This indicator provides an indication of the contribution of foreign industries to the exports of a country by looking at the foreign value added embodied in the gross exports in 2011.
4. The indicator provides the share of exported goods and services used as imported inputs to produce other countries’ exports. It gives an indication of the contribution of domestically produced intermediates to exports in third countries in 2011.

**Strengthening the overall regulatory framework**

The government wants to reduce the administrative burden on firms and start-ups. This could also encourage process innovation and improved management methods by raising competitive pressures. Poland substantially reduced the burden of Product Market Regulation (PMR) on the economy between 2003 and 2013, according to the OECD’s aggregated PMR indicator (Figure 19, Panel A). Since 2013, the authorities developed new services and support for taxpayers, notably young businesses. In 2015 Poland finalised an ambitious deregulation of services that is improving access to non-tradable inputs, which should boost the competitiveness of manufacturing firms. The 2017 Strategy for Responsible Development also foresees the implementation of a new “business constitution” and 100 improvements for SMEs that could lower administrative compliance costs. The government would notably introduce the possibility of a simplified joint stock company with low capital requirements to facilitate business start-ups.

**Figure 19. Product market regulation in OECD countries, 2013**

A. **Product market regulation indicator**

B. **Public ownership in the economy**

1. 2008 for the United States.
2. Index scale from 0 to 6, from least to most restrictive.
3. The OECD public ownership indicator measures the scope of public ownership in 30 sectors, the extent of state ownership in network industries and the level of public control in enterprises where the state owns shares. The indicator is based on qualitative information, for example the presence or absence of SOEs in a given sector. It measures the scope of public ownership across sectors, rather than the quantitative scale of public ownership in the economy.

**Source:** OECD (2017), *Product Market Regulation Indicators* (database).

Substantial state involvement in key network industries can make it difficult for private actors to obtain equal conditions to compete. State involvement in the economy remains pervasive (Figure 19, Panel B), but the government has announced it will stop privatisation. Reinforcing the independence of sector regulators would reduce regulatory uncertainties that inhibit private investment, as reported in previous OECD Surveys (Égert and Goujard, 2014; OECD, 2014b and 2016a). For example, the president of the Competition Authority can be recalled without justification. Regulators should have fixed-term, non-renewable mandates during which they cannot be dismissed without fault. At the same time revolving-door opportunities should be eliminated.

The government plans to get large state-owned enterprises (SOEs) involved with SMEs to develop innovative activities (Box 1). Though state ownership can in principle promote a longer-term horizon for management and innovation (Aghion et al., 2013), regular reshuffling of managers and assets among state-owned enterprises and the lack of transparency about the nomination of board members, with the removal of open selection procedures, is likely to lower the efficiency of this programme. Indeed, management and supervisory board positions in the numerous SOEs may be subject to potential conflicts of interest, and the
establishment of a non-partisan appointments committee to select candidates would help alleviate them (European Commission, 2014). This could also lower the perceived risks of conflicts of interest and regulatory uncertainty that may deter private investment (OECD, 2015i).

**Boosting greener investment and innovation**

Specific sectoral policies are also hampering greener investment and innovation. Poland’s current R&D expenditures in eco-innovation and investment in more traditional electricity generation capacity appear particularly low by EU standards (Figure 20). Though the development of green technologies, such as e-buses, is supported by key national strategy documents, the instability of the regulatory framework has deterred private investment. Poland’s ageing generation capacity remains dominated by coal, with substantial resulting environmental and health costs (EEA, 2016; OECD, 2015j and 2016a); an updated long-term energy plan has been pending over the past two years. At the same time, recent tightened regulations of onshore wind farms have lowered the potential to develop such technologies.

**Figure 20. Energy and environmental investment**

1. The index is based on three indicators: government investments in environmental and energy R&D, green early-stage investments and total R&D personnel.
2. EA4 is the average of Germany, France, Italy and Spain. CEEC is the average of Hungary and the Czech and Slovak Republics.


Regulations and green taxes could raise the return to innovative and greener investment. For example, coal used by households for heating is a significant source of urban air pollution but is not subject to any environmental tax. While this is allowed by EU regulations, a tax would reinforce the government’s subsidy programmes to replace inefficient individual household heating systems and its plans to move towards district heating. Indeed, CO2 and energy taxes could promote district heating and help to reduce emissions in the residential sector, as in Sweden (OECD, 2011). Many Polish companies developing environmental technologies point to insufficient demand as a barrier to investment in the development of greener solutions (Klincewicz and Szkuta, 2016).

**Removing barriers to efficient resource allocation**

Recent reforms of the insolvency framework should help restructure companies that are still viable and speed up liquidation procedures. The main design characteristics of Poland’s insolvency framework, such as the time to discharge, creditors’ ability to initiate restructuring, the presence of pre-insolvency
regimes, the possibility and priority of new financing or the possibility to ‘cram-down’ on dissenting creditors, are now similar to the OECD average (Figure 21, Panel A; Adalet McGowan, et al., 2017). Indeed, the 2016 changes to the corporate insolvency regime significantly improved the insolvency framework (Panel B): a dedicated tribunal is now in charge of firm restructuring, a bankruptcy register is being established, entrepreneurs can start negotiations with creditors to reach out-of-court agreements, and specific procedures have been put in place to outvote minority creditors and shareholders that could unduly prevent restructuring. This tends to encourage restructuring instead of liquidation of viable firms (European Commission, 2016d), and the number of formal bankruptcy procedures declined by 14% year on year over the first half of 2016, while restructuring procedures increased (Sielewicz, 2016).

**Figure 21. Bankruptcy procedures**

1. Index scale from 0 (most efficient) to 1 (least efficient).
2. Index scale from 0 to 16, from the system the least (0) to the most (16) able to rehabilitate viable firms and liquidate nonviable ones.
3. Period from the company’s default until the payment of some or all of the money owed to the bank.


Faster and more efficient insolvency procedures are likely to contribute to higher private investment. They would facilitate the reallocation of capital and other resources to more productive companies, as court procedures remain complex and the time needed to deal with insolvency cases was among the highest in the OECD in 2016 (Figure 21, Panels C and D). However, practices may take time to change, and the Strategy for Responsible Development targets only to reduce the duration of the court process to less than 20 months by 2030. Limiting the burden of non-litigious cases on judges could free up some resources, as in commercial-court cases (see above).
The authorities also plan to develop the 2014 “new chance policy” to prevent bankruptcies and support entrepreneurs through additional training and mentoring (Ministry of Economic Development, 2017a). The 2016 insolvency law reduces the debt discharge period for honest insolvent entrepreneurs to three years in line with European best practices (Carcea et al., 2015). The authorities also plan to strengthen lifelong training opportunities. This could encourage experimentation and innovation, as international evidence shows that training programmes tend to help prospective entrepreneurs launch new businesses more quickly (McKenzie and Woodruff, 2014). However, the quality of business development services (business advisory services, coaching and mentoring) is highly variable across Polish regions (OECD, 2015d).

Facilitating labour and housing mobility would also strengthen innovative investment and the diffusion of new technologies. Indeed, spatial disparities in terms of unemployment and GDP per capita have recently risen (Figure 22, Panels A and B), and residential mobility remains low, while the quality of transport infrastructure is still perceived as weak (Panels C and D). At the macroeconomic level, lowering transport costs would improve access to markets and regional resource re-allocation and boost agglomeration effects, productivity and economic growth. Developing more efficient transport infrastructure, notably urban rapid transit, is important to reduce the sector’s environmental impacts and local labour market mismatches, and to sustain regional development. This would require extending spatial zoning, possibly through mandatory requirements and fostering municipal collaboration within metropolitan areas (OECD, 2016a). At the same time, capital gains from the sale of real estate are tax-exempt if the individual has owned the property for at least five years. Shifting public support away from home ownership could make investment in the rental market and firms more attractive, as would reducing VAT tax preferences on construction work worth 0.6% of GDP in 2014 (Ministry of Finance, 2016).

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Figure 22. Labour market and regional disparities

A. Unemployment rates across regions

B. GDP per capita of the main metropolitan areas

C. Residential mobility, 2012

D. Perceived quality of Infrastructure, 2017

1. Share of population having moved to another dwelling within the last five-year period.
2. Index from the lowest perceived quality (0) to the highest (7).

Recommendations to boost innovative investment

(Key Recommendations are in bold and italics)

Strengthening the financing of innovative activities

- If the take-up of the new R&D tax allowance is low among small innovative firms, adjust its provisions.
- Enhance financial and digital literacy of entrepreneurs.
- Monitor the use of tax incentives and government guarantee schemes.
- Improve transparency, stability and impact assessment of public support by involving the private sector in the Innovation Council. Make more extensive use of impact analyses, notably by engaging with stakeholders in ex ante consultative processes and ex post evaluations.
- Plan for the national financing of business R&D and innovation programmes beyond the current EU budgetary cycle, if necessary.

Developing market-based finance

- Rigorously evaluate the general loan-guarantee programme for SMEs and adjust its provisions if needed as it can lock in resources in low-productivity firms and crowd-out alternative financing sources. Improve the enforcement of contracts to ease the development of alternative market-based financing instruments, such as reverse factoring.
- Stabilise the regulatory and tax environment of pension and venture capital (VC) funds. Make permanent CIT tax exemptions that prevent the double-taxation of VC funds investing in innovative firms and their shareholders.
- Reduce the bias towards debt over equity financing of businesses.

Improving the allocation of capital and investment

- Continue efforts to cut red tape and reduce barriers to entry. Make the relief from social security contributions for start-ups degressive over time, rather than ending it abruptly after two years.
- Build on the recent bankruptcy law to reduce the length of court procedures, and strengthen second-chance training opportunities for entrepreneurs.
- Introduce fixed-term, non-renewable mandates for the President of the Competition Authority and all sectoral regulators, during which they cannot be dismissed without fault, and prevent revolving-door opportunities. Ensure a level playing field between state-controlled and other companies.
- Develop and implement clear and stable climate-change policies aligned with European and international objectives to reduce uncertainty for innovative green investments. Ensure the stability and clarity of policies affecting investment decisions.
- Reform tax incentives to foster the demand for innovative and green investments. In particular, raise taxes on fossil fuels to help finance investment in and the demand for green innovation.
- Ensure tax neutrality between different assets for households. In particular, phase out support for home ownership, while developing the rental market to support business investment and improve labour mobility.
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