



# 08:

## Financing innovation

Innovation requires finance during all phases of the cycle – from the birth of ideas and companies to the commercialisation of those ideas and their subsequent growth and development. Access to finance by Russian firms (including small and medium-sized companies) has improved in recent years, and a number of government-supported initiatives have been launched. However, financing for innovative firms is not yet available during all necessary phases of the cycle. State-led initiatives providing finance for innovative firms need to be balanced with private-sector co-financing, and improvements in the provision of specialist financing need to be accompanied by improvements in the overall business environment, which will strengthen demand for such funding.

### KEY FACTS:

**70%** by 2010 the market capitalisation of listed companies in Russia stood at nearly 70 per cent of GDP

**0.001%** in 2010 the total value of venture capital investment in emerging Europe and Central Asia was only around 0.001% of the region's GDP

**11%** of respondents to the 2010 Life in Transition Survey (LiTS) tried setting up a business

# Financing innovation

## 1. Introduction

The previous chapter discussed some of the instruments that can be used to stimulate innovation. It also showed that recent Russian policy in the area of innovation has tried to combine three main elements, namely (i) improvements in publicly funded research, (ii) enhanced incentives for large firms to invest in innovation, and (iii) a concerted attempt by government to create funding channels and other infrastructure in order to support the emergence of high-growth, high-productivity firms.

While these are not conflicting goals, this suggests that policy-makers believe that the country should be aiming not just at the imitation or adaptation of technology, but also at the development of cutting-edge technology with the aid of funding and other support for research and development (R&D). Yet if the move to such technology is to be successful, it is likely to require a business environment that differs greatly from that described in previous chapters. In particular, evidence from a wide range of other countries underscores not only the role that R&D plays in this respect, but also the complementary role that firm entry and exit plays in driving innovation. Furthermore, empirical findings suggest that the level of financial development will have a strong impact on the entry of small firms, as well as the subsequent growth of entrants.<sup>1</sup> Other research using evidence from Europe suggests that higher levels of venture capital funding can, in particular, be associated with increased firm entry, notably in industries with high levels of R&D.<sup>2</sup> However, the question of whether a lack of access to finance has been the main factor inhibiting the entry and growth of entrepreneurial firms in Russia has been difficult to answer in any conclusive manner. Indeed, some evidence points to other factors – mostly relating to the quality of the institutional environment – being the most important in terms of holding back the proliferation of entrepreneurial and innovative activity.

This chapter sifts through available evidence on the financing of the corporate sector, particularly with respect to innovative activity, while also critically examining Russia's current public policy as regards the provision of finance for innovation, not least its strong reliance on government-led and funded institutions.

## 2. Constraints on the funding of innovation

Under-investment in innovation can result from a combination of market failures, information gaps and other constraints. In particular, R&D – the most common summary measure of innovation – has properties that make it different from other forms of investment. These include the intangible nature of assets and the extent of specialisation. A further broad difference concerns risks or uncertainty with respect to prospective returns. This uncertainty tends to be greatest with new ventures or start-ups. As a consequence, R&D-intensive firms are less likely to use debt financing, even if they have access to it. Indeed, debt and

equity financing are likely to be more costly for R&D than for other investment.<sup>3</sup> Furthermore, small and start-up ventures in R&D-intensive areas of activity tend to face higher capital costs than larger firms and firms in less R&D-intensive areas.

This has often led to policy initiatives and proposals aimed at closing the gap between private and social benefits through intervention (for example by means of tax incentives) to reduce the cost of capital for R&D.<sup>4</sup> The most widely applied incentives have been tax credits, which have, in some instances, targeted small firms. Tax credits can take a variety of forms. They can, for example, go directly to companies as front-loaded investment credits or be provided to financial institutions to offset any losses from investing in small and medium-sized enterprises (SMEs). As such, they have proven to be a fairly flexible policy instrument, albeit one that has relied on robust institutional infrastructure and integrity in the tax assessment and collection system. Where this is lacking, tax credits may simply provide incentives for tax avoidance, rather than investment. They also have other obvious limitations, notably the fact that they will not be of much use to start-ups, which generally lack profits against which they can receive tax credits. This also suggests that, particularly if the objective is to stimulate the entry of new, innovative companies, grants (rather than loans) may be more appropriate, as these may be more suitable for risky activities with uncertain initial cash flows.<sup>5</sup>

Whether or not larger firms face a financing gap for innovation is less clear: while such firms predominantly use internal funds for R&D (as opposed to borrowing or using external equity financing), this could be driven by several factors. And there may still be a case for public support, even if larger firms are not actually cut off from innovation financing, given the positive spillovers and externalities associated with R&D.<sup>6</sup> Aside from tax credits, public intervention has seen the provision of matching funds – Israel's Office of the Chief Scientist (OCS) and Matching Grants Programme with its annual budget of more than US\$ 300 million is one such example – and the setting-up of funding vehicles, such as publicly owned or invested venture capital funds, as well as funds of funds. Matching funds have been used fairly extensively in recent years, with the aim of stimulating risk-sharing with companies and the forging of closer links between sources of innovation – such as universities – and those who take innovative research to markets. However, such programmes depend both on independent and monitorable selection procedures and on the presence of a body of innovative activity to support. While this is certainly present in many advanced economies, the supply of innovation – whether actual or potential – is less evident in the case of Russia, as we have seen.

Banks have generally proved ineffectual when it comes to the provision of venture capital. This is a result of legal limitations on equity holdings and, more generally, the fact that they lack the skills needed to vet and manage risky, poorly collateralised projects. Incentive arrangements in banks may also play a part. By contrast, venture firms tend to invest heavily in information-gathering aimed at reducing the information asymmetry

<sup>1</sup> Aghion et al. (2007).

<sup>2</sup> Popov and Roosenboom (2009).

<sup>3</sup> Hall and Lerner (2009).

<sup>4</sup> Evidence on whether subsidies lead to incremental R&D investment and output (as measured by patents, for example) is fairly inconclusive. There is significant variation in outcomes across countries and modes of intervention.

<sup>5</sup> Some grant programmes have been set up to replicate positive cash flows through subsequent royalty payments when a project becomes successful. This obviously requires close monitoring and an ability to enforce contracts, something that is lacking in many emerging markets, including Russia. See World Bank (2011).

<sup>6</sup> A point made by Hall (2005).

between entrepreneurs and investors, while also providing active monitoring and advice and releasing capital in a carefully staggered manner subject to specific conditions being met. Consequently, when monitoring and information-gathering are very important, as is the case with most early-stage firms with intangible assets, venture capital is increasingly seen as an appropriate funding vehicle. Evidence also suggests that venture capital tends to be drawn to high-technology and high-growth sectors of an economy, such as information technology, life sciences and new energy technologies.<sup>7</sup>

For the United States, there is evidence that venture funding has had a positive impact on innovation, with innovative companies having a higher probability of receiving venture capital funding.<sup>8</sup> Venture capital firms appear to select more innovative companies and help them to take products or services to market faster. This effect is particularly strong for industries where the time to market is especially important.<sup>9</sup> Evidence also indicates that government policies can play a major role in determining the flow of resources to venture capital – for example, through changes to the regulation of public pension funds or capital gains tax. There is also evidence (from, among others, Israel, South Korea and Tapei China) that governments investing in privately managed funds can help to grow a local venture capital industry.<sup>10</sup> This objective has sometimes been complemented by governments co-investing with private institutions in exchange for mandated lending targets for particular types of company (such as SMEs). Approaches involving public co-investment may be particularly appropriate for emerging markets, where both investment risks and potential returns on investment are perceived to be higher.<sup>11</sup>

However, venture capital has some obvious limitations. These include a focus on a limited number of sectors (for example,

high-technology sectors), as well as the fact that only a minority of venture capital funds provide seed-stage financing (that is to say, investment of less than €1 million). As a result, most start-ups have had to rely on “angel investors” (wealthy individuals investing their own funds) and other sources in order to secure funding. Perhaps most importantly, venture capital has generally been dependent on the existence of a clear exit route, principally through initial public offerings (IPOs). Thus, a deep market for the equity of small and new firms has proven essential in allowing an effective exit. This option has, until now, remained fairly limited in most emerging markets, including Russia, owing to the small size and insufficient liquidity of their equity markets. This has materially affected the development of venture capital funding, not least by effectively restricting the exit route to trade sales.<sup>12</sup> We will now look in greater detail at the situation in Russia, focusing on its experience with the financing of innovative activity.

### 3. Russia's financing landscape

As with most other transition economies, financial markets in Russia have seen rapid growth, both in terms of credit to the private sector and in terms of the size of equity markets. Stock market capitalisation relative to gross domestic product (GDP) has increased very rapidly from a low base around 2000. Chart 8.1 shows that by 2010, the market capitalisation of listed companies in Russia had fallen back from its 2007 peak to stand at nearly 70 per cent of GDP – comparable to much of Europe, albeit somewhat lower than the United Kingdom and the two main Asian comparators. Having stood at around 10 per cent of GDP in 2000, credit to the private sector currently stands at more than 40 per cent of GDP (see Chart 8.2). The dominant state-owned bank – Sberbank – accounts for around half of the deposit base, although a number of other banks now have a country-wide

Chart 8.1  
Market capitalisation in Russia and other emerging markets: 2000-10

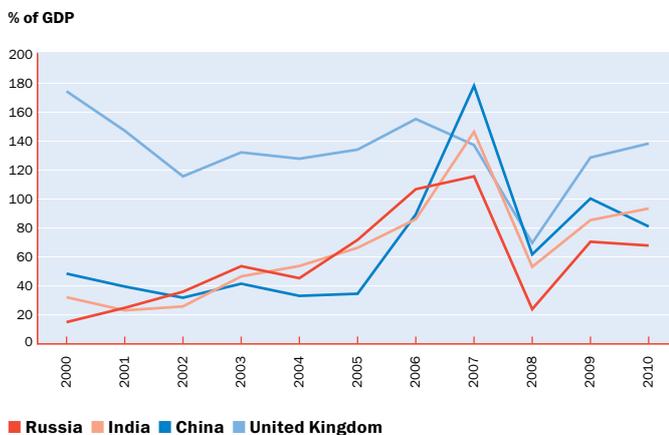
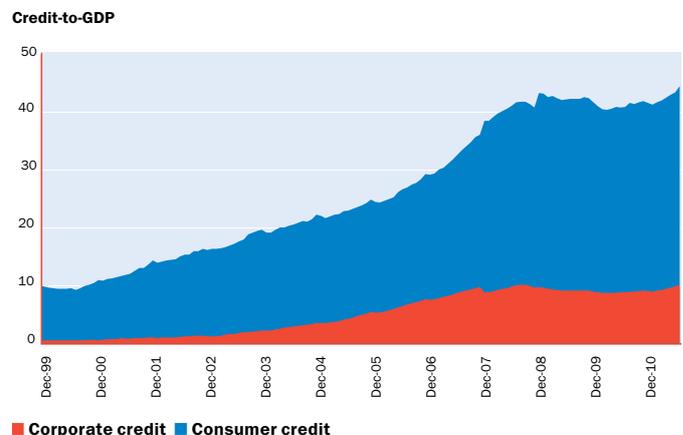


Chart 8.2  
Credit as a percentage of GDP in Russia



<sup>7</sup>Hellman and Puri (2000).

<sup>8</sup>Lerner (2009); Hellman and Puri (2002).

<sup>9</sup>Da Rin et al. (2011).

<sup>10</sup>A point made by Lerner (2009).

<sup>11</sup>An argument also made by the World Bank (2011).

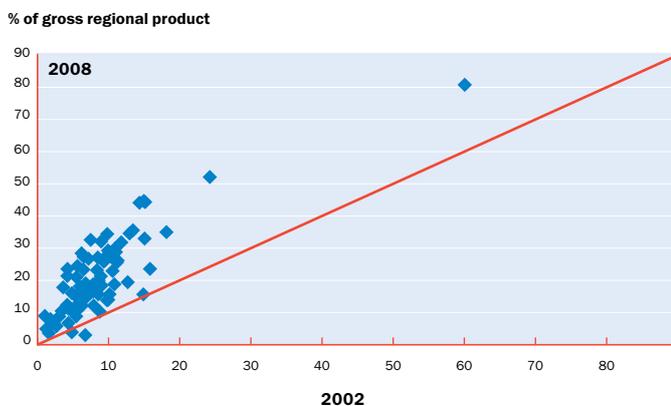
<sup>12</sup>EBRD (2007).

branch network and there are a large number of small regional banks in the market. Credit to companies has actually trebled in the past decade, most of which (more than 80 per cent) has been denominated in the local currency. However, most of that credit is extended to larger companies, with around one-quarter of domestic private credit being extended to SMEs. Furthermore, while the rate of growth has been rapid, the total volume of credit remains relatively small compared with countries belonging to the Organisation for Economic Co-operation and Development (OECD). Unfortunately, there is no breakdown by type of lending, so there is no information available regarding the percentage of lending targeting R&D and other indicators of innovation.

Aggregate data may hide significant variation within a country, particularly in a country as large and diverse as Russia. Indeed, many regions remain chronically under-banked. Chart 8.3 provides two snapshots (for 2002 and 2008, respectively) of corporate credit as a percentage of GDP at regional level. Aside from indicating the almost universal growth in credit across Russia's regions (as almost all points are above the 45-degree line), the very significant variation across regions stands out: Moscow has a credit ratio of more than 80 per cent of gross regional product (GRP), while some other regions have ratios of less than 4 per cent.<sup>13</sup>

Data on the maturity structure made available by the Central Bank of Russia suggest that medium- and long-term loans account for a significant percentage of bank lending to the corporate sector: more than 60 per cent of rouble-denominated lending has a maturity of more than one year, and more than one-third has a maturity of more than three years. This has also been the case with foreign currency-denominated lending.

**Chart 8.3**  
Corporate credit in 2002 and 2008, broken down by region



Source: Central Bank of Russia, Rosstat and authors' calculations.  
Note: Based on location of bank branches.

### 3.1 Composition of lending

Unlike many other transition economies, Russian banks' funding of companies remained resilient following the 2008-09 crisis, partly reflecting the lack of an inflow-driven credit bubble prior to 2008, and partly reflecting the role played by state-owned banks in maintaining credit to the private sector in the wake of the crisis. This benefited larger companies in particular, which tend, in any case, to have easier access to bank finance. However, survey evidence suggests that credit constraints for SMEs have been weakening over time (whether in terms of coverage or in terms of the scale of lending)<sup>14</sup> and that many SMEs were able to maintain (or regain) access to finance following the crisis.

The EBRD's 2005 Banking Environment and Performance Survey (BEPS) sheds light on the composition of lending prior to the crisis in terms of the size of recipients. Using data for 220 banks in 20 countries, including 27 banks in Russia, the survey showed that larger banks tended to lend more to large firms, including state-owned enterprises, while smaller, domestically owned banks tended to have larger exposures to SMEs. The same was observed in Russia. At the same time, SMEs made up almost 45 per cent of total bank loans. More than 21 per cent of outstanding loans by Russian banks were extended to companies with fewer than 50 employees, and this was slightly higher for domestic banks. A further 23 per cent of outstanding lending was to firms with 50 to 249 employees.

While the BEPS survey has not yet been repeated following the crisis, preliminary data from the 2011-12 Business Environment and Enterprise Performance Survey (BEEPS), which covered more than 4,000 Russian firms, mostly SMEs, suggest that access to finance is not currently a major obstacle for SMEs in Russia. In that survey, only 23 per cent of firms listed lack of access to finance as a "major" or "very severe" obstacle, and less than 6 per cent reported that a loan application had been denied.

Additional evidence – derived from the Life in Transition Survey (LITS) by the EBRD and the World Bank in 2010, which covered 1,500 individuals – sheds light on several associated aspects: whether individuals have ever tried to set up a business, their success or otherwise, and their access to finance. That survey showed that 11 per cent of respondents had tried to set up a business. Of those, around half were unsuccessful. Among those who failed (78 people), a lack of financing was cited as the main reason for not setting up the business. However, of the 40 per cent who attempted to borrow in order to set up their business, nearly 75 per cent managed to secure funding, with around one-third securing funding from a bank or microfinance institution and a similar number borrowing from friends or family. In short, the evidence suggests that access to organised finance has been improving for businesses of all sizes and has not necessarily been the main impediment to businesses' establishment or growth.

While access to bank finance per se may not be the primary impediment constraining small firms and would-be entrepreneurs in Russia, the evidence also suggests that SMEs do tend to face much higher borrowing costs. According to official data

<sup>13</sup>Isakova and Plekhanov (2011).

<sup>14</sup>Pissarides et al. (2003).





Venture capital investment has also remained highly limited in Russia, as in other emerging markets (see Box 8.1). Worldwide, the largest locus for venture capital (relative to GDP) is Israel, followed by North America and Australasia. Indeed, in terms of the share of total venture capital, North America and Australasia account for more than half of all venture capital used for seed and start-up funding.<sup>17</sup> This regional concentration appears to be closely linked to the depth of equity markets and the ability to launch IPOs.

The view that non-bank entities have a major role to play in financing innovative projects and help to foster the development of a more vibrant entrepreneurial economy has been adopted by the Russian government, which has set up a number of funding vehicles, such as Rusnano (see Box 8.2) and the Russian Venture Company (RVC), a fund of funds. This approach has explicitly favoured the creation and funding of government-owned or dominated non-bank vehicles. In the

case of RVC, up to 75 per cent of funding is supposed to be provided by that entity, with the rest being contributed by private investors.<sup>18</sup> To date, 12 RVC--backed funds have been established, with total capitalisation of around US\$ 900 million, of which RVC's share is around 60 per cent. Some investment has been carried out through funds with no significant outside participation. For example, RVC has a 99 per cent share in the RVC Seed Fund, an investee fund established in 2009 which targets seed-stage investment.

A further initiative set up in 2011 is the Direct Investment Fund, which has US\$ 10 billion of capital provided by the government and is managed by a subsidiary of the state-owned development bank Vnesheconombank (VEB). Its aim is to co-invest with foreign investors, who will take a minority stake in large projects. This requirement appears, in principle, to be a good way of trying to ensure that funded projects have strong commercial potential. It also suggests that the government's

## Box 8.2

### Rusnano: a description

In 2007 the Russian government set up Rusnano with an initial investment of 130 billion roubles (then in excess of US\$ 5 billion). Subsequently, Rusnano has raised a further 33 billion roubles by selling seven-year bonds backed by government guarantees, as well as securing 10 billion roubles in long-term bank loans, again guaranteed by the government. As regards its portfolio, just over 100 projects had been approved by end-2010, the bulk being in manufacturing. Eight projects were aimed at establishing Russian and/or international venture capital funds, while four projects aimed to establish nanotechnology centres. Rusnano also seeks to raise human resource potential for innovative activity in the nanotechnology sector through training and professional development. It also aims to stimulate demand for innovation by establishing formal links between product manufacturers in the nanotechnology industry and the main market participants, their suppliers and customers. Recently, the explicitly commercial side of the fund has been separated from these other supportive activities.

The projects approved and financed by Rusnano fall within a few main sectors: manufacturing, infrastructure, educational programmes and joint ventures. In manufacturing, most recent projects are

reported to have been in high-technology sectors such as nanomaterials, nanomedicine and nanophotonics. In the area of infrastructure, the main idea is to create nanotechnology centres, with projects being established to date in Kazan, Zelenograd, Ulyanovsk, Troitsk, Tomsk, Novosibirsk and Yekaterinburg. In the field of education, Rusnano has been involved in 38 educational programmes focusing on advanced training and professional development. Eight venture capital investment funds were also created between 2008 and 2010. Of the nearly 63 billion roubles in these funds, co-financing by Rusnano accounts for just under 50 per cent. In addition, a regional fund for the development of innovative projects was established in 2010 in cooperation with the government of Perm Krai. The fund aims to raise 2 billion roubles, with Rusnano and Perm Krai each providing 750 million roubles and the rest coming from private investors. The aim is for at least three-quarters of all funds invested to be in projects with nanotechnology applications in the region. Three further venture capital funds have been launched since 2010, with Rusnano investing a total of nearly 7 billion roubles in those funds.

Rusnano was also involved in the creation of a pan-European venture capital fund in 2010 in partnership with the UniCredit Group. The

EuroTech Transfer Fund is to invest in projects involving the transfer of primarily European technology to Russia and the commercialisation of that technology. Projects with a focus on import substitution are a priority. The fund has resources totalling 15 billion roubles, of which Rusnano has contributed 50 per cent.

# 100+

the number of  
approved Rusnano  
projects



<sup>18</sup> The ceiling for RVC's contribution is reduced to 50 per cent for biological and pharmaceutical funds.

approach to the co-financing of innovation has evolved on the basis of its experience with earlier initiatives.

Commonly cited examples justifying such intervention are the Small Business Investment Company (SBIC) and Small Business Innovation Research (SBIR) programmes in the United States,<sup>19</sup> as well as Israel's Yozma Programme.<sup>20</sup> The last of those, in particular, is widely viewed as one of the most successful examples of intervention, with a design that has allowed in foreign partners and created appropriate incentives, while also leaving the state as a largely passive partner – one that ultimately exited the initiative, having kick-started a local private venture industry.<sup>21</sup> However, if we look at other countries, experience with government funding in support of innovation has been very mixed. The overview of such experience provided by Lerner (2009) highlights numerous cases in which government intervention has been unrealistic and/or over-engineered, as well as having adverse effects on private venture funding and activity. Indeed, a common thread running through many of these episodes has been an inappropriate balance between funding and other factors (including complementary services) which are essential to the stimulation of entrepreneurship and innovation. A further common feature of many government-supported ventures has been a reluctance to conform to international standards, let alone appreciate the importance of international linkages and markets.<sup>22</sup>

A recent study using both North American and Asian data suggests that the manner in which the government intervenes can have an impact.<sup>23</sup> In particular, governments can attempt to operate fully-owned venture capital funds or try to provide resources through other, less direct channels. The study shows that government-owned venture funds have performed worse than government-supported entities. Why this is the case is not entirely clear, but it is possible that government ownership has impeded cooperation with private venture funds, not least as a result of the eschewing of minority holdings. Furthermore, government-owned funds may be less adept in this domain, owing to the greater complexity of their objectives and/or political interference. Certainly, government-owned funds tend to have objectives other than maximising profits through the venture capital business model, such as investing in the local economy, stimulating local employment and creating local technological hubs and networks. Indeed, all of these objectives appear to be present in Russia. Interestingly, a relatively modest amount of government funding appears to have improved performance in recipient firms relative to instances where funding was derived solely from private venture capital. This probably suggests a healthy dynamic in which government support remains disciplined by the market, while co-existing with private funding. Furthermore, part of the reason why some government-supported programmes have had a positive impact is the fact that they have been able to signal to private investors the quality of a project and/or firm. This signalling has triggered additional resources. In these instances, government support has acted as a catalyst.

An obvious associated issue concerns the question of whether

publicly owned funds complement or act as a substitute for private venture capital. Evidence from other countries suggests that public resources can indeed help to increase private involvement and thus complement private venture capital.<sup>24</sup> In Russia, however, the evidence to date suggests that growth in resources provided to publicly funded entities has not been associated with any growth in private venture capital. Indeed, the evidence points to a decline in private venture capital activity, suggesting instead that some crowding-out may have occurred. This has been a complaint from some of the private operators still in the market.

Lastly, there has also been some use of dedicated not-for-profit agencies in the provision of lending for science-based entrepreneurship. In particular, the Foundation for the Promotion of Small Enterprises in Science and Technology (FASIE) has a budget equivalent to 1.5 per cent of the total public R&D budget. Those resources have been used for various forms of intervention, ranging from direct financial support for start-ups to the provision of information and other support services to small innovative companies. Indeed, one of FASIE's major programmes targeting start-ups is explicitly modelled on the abovementioned SBIR programme in the United States.<sup>25</sup> This has funded more than 7,500 projects to date. Although the survival rate appears to have been fairly low at around 5 per cent, the number of clearly successful projects suggests that such intervention has generally yielded fairly positive results.

# 7,500

projects have been funded to date by the Foundation for the Promotion of Small Enterprises in Science and Technology (FASIE)

<sup>19</sup> Lerner (2009).

<sup>20</sup> Interestingly, this took two attempts; Israel's first attempt was a failure.

<sup>21</sup> Khavul (2005); World Bank (2011).

<sup>22</sup> Chapter 9 of Lerner (2009) summarises the main lessons and pitfalls.

<sup>23</sup> Brander et al. (2010).

<sup>24</sup> Brander et al. (2010).

<sup>25</sup> The OECD (2011) provides a more detailed description of FASIE and its constituent elements.

#### 4. Policy implications

Innovation typically occurs in incumbent firms and through the entry of new firms. However, as the previous chapter indicated, relatively few incumbent Russian companies manage to innovate successfully and firm entry and exit is restricted, so productivity growth has been very limited. In the case of firm entry, part of this can be attributed to the lack of a supportive financing chain or financing infrastructure, as well as other barriers in the business environment.

First, it is clear that innovation requires finance during all phases of the cycle – from the birth of ideas and companies to the commercialisation of those ideas and their subsequent growth and development. Despite recent initiatives, financing is not yet available through the chain in Russia. Available evidence suggests that incumbent Russian firms have increasingly had access to organised credit, principally through bank finance. The net of available funding for SMEs has also widened. However, start-ups in innovative sectors with little or no collateral cannot rely on this. And for the reasons discussed above, external funding for R&D can still be highly problematic.

Second, in order to address these limitations, small grants to researchers – as discussed in the previous chapter – can be complemented by grants to entrepreneurs. In some cases, the two will overlap. However, the latter is of central importance because it is entrepreneurs that test innovative ideas or products and subject them to the discipline of the market. Experience suggests that taking an idea to market depends not just on the quality of the innovation, but also on the business model and the strategy adopted. Thus, small grants at an early stage can be particularly beneficial if they provide entrepreneurs with access to business support services and advice. This may occur through a mixture of external consultants and/or links to networks comprising other entrepreneurs. The constraint in Russia, as in many emerging markets, is the fact that this supporting infrastructure is limited and/or skewed mainly towards the provision of physical infrastructure.<sup>26</sup> Furthermore, achieving the right administrative arrangements for a grant programme will be essential. Rather than trying to organise it through a government agency or ministry, a better solution would be to establish an independent authority with governance shared between the government (as the initial provider of funds) and private-sector representatives from both local and international businesses. It is obviously essential that the process followed in allocating grants be transparent, expeditious and subject to oversight and subsequent evaluation.

Third, although the Russian government's recent focus on supporting venture funding is welcome, evidence from other countries strongly suggests that venture capital has to be accompanied by financing and other support for entrepreneurs and inventors at the earliest possible stage of the innovation cycle. Furthermore, successful instances of government involvement with venture finance have been seen where governments have taken minority stakes in privately managed

funds, rather than attempting to launch or ensure majority ownership of investment funds.

Fourth, the evidence presented throughout this report also suggests that, for existing companies, access to finance may not always be the primary constraint on innovation; government policy and other factors may impose greater constraints.<sup>27</sup> Even so, funding for early-stage companies or initiatives is largely – if not entirely – lacking in Russia. Early-stage investing, as practised in some advanced economies, involves angel investors, spin-offs and spillovers from multinational firms and remains largely absent in Russia. Addressing these deficiencies will depend, above all, on confidence on the part of potential innovators that funding will be available throughout the cycle, as well as on innovators' ability to reliably derive rents from their innovation. Patent protection and the ability to enforce contracts play a central role in this regard. In neither case is the situation in Russia particularly supportive. Similarly, for potential investors to enter and engage in early-stage financing requires adequate investor protection and an ability to reap returns over a number of years. The same deficiencies in the business environment have materially affected the willingness of investors to enter the market.

Fifth, a cornerstone of innovation policy in Russia has been the decision to give public agencies a strong direct role in the allocation of funding. Rusnano and other initiatives such as RVC are the most obvious examples in this regard. These initiatives will need to be managed carefully in order to avoid the many risks associated with government involvement in venture funding. These include a lack of transparency, the introduction of multiple objectives, weak governance and the risk that the priority sectors chosen by the government may not, ultimately, be the sectors where national comparative advantages develop most naturally. (To its credit, Rusnano has recently worked to address these risks by strengthening its governance, seeking foreign co-investment and taking a very broad view of what qualifies as nanotechnology.) Furthermore, in line with other countries' experience of government finance, the profile of the companies that these funds actually support may potentially be skewed more towards relatively mature, low-risk activity, rather than truly innovative activity. Hence, this type of government support might be perfectly consistent with commercial viability, without necessarily addressing the perceived innovation shortfall.

Sixth, there has been a broad and protracted debate about the merits or otherwise of governments using industrial policy, including the use of government-supported finance.<sup>28</sup> As we have seen above, there are indeed instances in which government finance has proven to be a successful catalyst supporting innovation and, in particular, the growth of a venture capital industry. But for every Israel, there are countless examples of countries that have tried and failed to use and manage public resources in the service of innovation and/or diversification. Thus, while it is clear that a theoretical – and even a practical – case can be made for public intervention, this has to be

<sup>26</sup> The World Bank (2011) offers a comprehensive discussion of these issues.

<sup>27</sup> See, for example, the discussion in GEM (2010). However, while financing is cited as a significant factor constraining the development of entrepreneurship, government policy and the political situation are cited as significantly more important limitations (see Figure 30 of the report, which is based on the views of experts).

<sup>28</sup> For the flavour of recent discussions, see, among others, EBRD (2008), Rodrik (2008) and World Bank (2008).

weighed against the large body of experience in this field. That experience has been mixed at best – and at worst, disastrous. With the present arrangements, the Russian government has effectively decided that market and/or coordination failures have warranted the use of “vertical” policies that target particular types of activity or sector. Yet much of this report has also shown that factors associated with the business and investment environment, as well as the extent of competition, are some of the key impediments to firms investing (including investment in innovation) and are certainly not facilitating the entry of new and dynamic firms operating in high-productivity sectors. All available evidence continues to show that entrepreneurial activity remains highly limited. While there have been a number of attempts to focus policy on “horizontal” or “framework” issues, such reforms have so far proved difficult to implement and/or sustain, as discussed in previous chapters.

Seventh, a further issue concerns the impact of public policies on private funding and investment. At this stage, it is not possible to see with any accuracy whether recent policies have led to additional investment in R&D or crowded out private investment and funding. Given the scale of the resources allocated to Rusnano, it is unlikely that no crowding-out has occurred. However, this experiment with public venture funding is a relatively recent development and has not been set up in a way that lends itself to evaluation. Designing and carrying out a rigorous evaluation of publicly funded venture funds’ activities should be a key priority for the future. Moreover, the ultimate goal should be to make initiatives such as Rusnano and RVC commercially viable without any public funding. The government could signal this intention by committing itself to selling a majority stake in Rusnano to private investors in the medium term.

Lastly, Russia is continuing to miss out on one of the most powerful sources of innovation owing to the relatively limited presence of multinational companies in its economy. Experience elsewhere shows that multinational firms can play an important role in supporting and financing innovation. This ranges from the spinning-off of ventures to the provision of key services to new entrants and sectors. These effects continue to be largely absent in Russia. The recently created Direct Investment Fund is an attempt to use a public funding vehicle specifically to promote foreign investment in Russia. It is still too early to assess the effectiveness of this initiative.

23%

of firms in BEEPS survey view access to finance as major or very severe obstacle



all available evidence continues to show that entrepreneurial activity remains highly limited



## References

- P. Aghion, T. Fally and S. Scarpetta** (2007), "Credit constraints as a barrier to the entry and post-entry growth of firms", *Economic Policy*, Vol. 22, pp. 731-779.
- J. Brander, Q. Du and T. Hellman** (2010), "The effects of government-sponsored venture capital: International evidence", NBER Working Paper 16521.
- M. Da Rin, T. Hellman and M. Puri** (2011), "A survey of venture capital research", NBER Working Paper 17523.
- EBRD** (2007), *Transition Report 2007*, Chapter 5, London.
- EBRD** (2008), *Transition Report 2008*, Chapter 5, London.
- GEM** (2010), *Global Entrepreneurship Monitor: Russia Country Report*.
- B. Hall** (2005), "The financing of innovation", University of California, Berkeley, mimeo.
- B. Hall and J. Lerner** (2009), "The financing of R&D and innovation", in B. Hall and N. Rosenberg (eds), *Handbook of the Economics of Innovation*, Elsevier, Amsterdam.
- T. Hellmann and M. Puri** (2000), "The interaction between product market and financing strategy: The role of venture capital", *Review of Financial Studies*, Vol. 13, pp. 959-984.
- T. Hellmann and M. Puri** (2002), "Venture capital and the professionalization of start-up firms: Empirical evidence", *Journal of Finance*, Vol. 57, No 1, pp. 169-197.
- A. Isakova and A. Plekhanov** (2011), "Region-specific constraints to doing business: Evidence from Russia", *Aussenwirtschaft: The Swiss Review of International Economic Relations*, Vol. 2011, No 2, pp. 181-210.
- S. Khavul** (2005), "Israel and software", in S. Commander (ed), *The software industry in emerging markets*, Edward Elgar, London.
- J. Lerner** (2009), *Boulevard of Broken Dreams*, Princeton University Press, Princeton.
- A. Metrick and A. Yasuda** (2010), "Venture capital and other private equity: A survey", NBER Working Paper 16652.
- OECD** (2011), *Review of Innovation Policy: Russian Federation*, Paris.
- F. Pissarides, M. Singer and J. Svejnar** (2003), "Objectives and constraints of entrepreneurs: Evidence from small and medium size enterprises in Russia and Bulgaria", *Journal of Comparative Economics*, Vol. 31, No 3, pp. 503-531.
- A. Popov and P. Roosenboom** (2009), "On the real effects of private equity investment - Evidence from new business creation", ECB Working Paper 1078.
- D. Rodrik** (2008), *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*, Princeton University Press, Princeton.
- World Bank** (2008), *The Growth Report: Strategies for Sustained Growth and Inclusive Development*, Washington, D.C.
- World Bank** (2011), *Reliving the Sputnik Moment: Innovation Strategies for the Post-Transition Economies*, Washington, D.C.