



# BEYOND THE MIDDLE-INCOME TRAP

Middle-income economies tend to experience weaker growth in total factor productivity than low-income and high income economies. Furthermore, following a long period of strong economic growth, more than 40 per cent of countries experience a marked slow-down. Today, many economies in the EBRD region have reached middle-income levels in terms of GDP per capita, but have lost much of their growth momentum. Having exhausted the advantages that used to underpin their strong growth performance in the past, these economies now require a new growth model. That new model needs to facilitate innovation, going beyond the importing of technology. It could also involve the upgrading of infrastructure, which has the potential to give investment a much-needed boost.

## 18%

OF CAPITAL STOCK  
ESTIMATED CAPITAL  
STOCK GAP IN THE  
EBRD REGION

## BETWEEN ONE-THIRD

AND TWO-THIRDS  
OF US INCOME  
PER CAPITA:  
INCOME LEVEL AT WHICH  
PRODUCTIVITY GROWTH  
TENDS TO WEAKEN  
SIGNIFICANTLY

## 6

TOTAL NUMBER  
OF OUTPERFORMANCE  
EPISODES LASTING  
FOUR DECADES  
OR MORE

## Introduction

The *Transition Report 2013* asked whether the EBRD region had become “stuck in transition”.<sup>1</sup> Since then, the post-crisis slow-down in income convergence has become even more protracted, mirroring developments in other emerging markets around the world (see Chart 1.1). This raises two important questions. First, is this recent slow-down part of a broader phenomenon whereby the EBRD region has become trapped at middle-income levels?<sup>2</sup> And second, has the region’s recent growth performance been weaker than that of other emerging markets? This chapter addresses these two questions in turn.

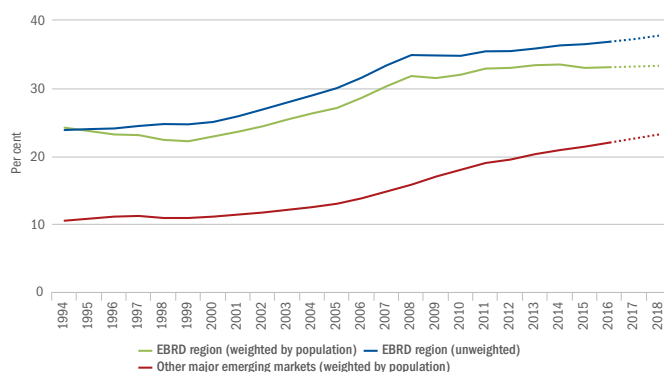
The term “middle-income trap” was originally coined by Indermit Gill and Homi Kharas to refer to the marked slow-down seen in South-East Asia’s economic growth following the 1997-98 financial crisis.<sup>3</sup> This followed Danny Quah’s earlier observation that countries’ income levels tend to form “twin peaks”, with fewer economies having middle-income levels.<sup>4</sup> The term “middle-income trap” is now used more broadly to refer to a slow-down in growth observed when an economy approaches the upper/middle-income level. The question of whether there is a middle-income trap at a specific level of income remains an issue of great debate.<sup>5</sup>

Instances of economies growing strongly for a decade or more and then suddenly hitting a period of weak growth are not uncommon. Over a period of 10 to 20 years, such economies tend to exhaust the comparative advantages that used to underpin their strong performance, with the original drivers of growth running out of steam. This happens for a variety of reasons. In many cases, the country’s original comparative advantage rested on relatively cheap labour and its ability to effectively import existing technology. In other cases, a decline in commodity prices results in a reversal of fortunes.

This chapter does not identify a particular income level at which marked slow-downs in economic growth or reversals of fortunes occur. However, middle-income countries do appear to experience weaker productivity growth and exhibit lower levels of total factor productivity. This productivity slow-down happens at income levels of around one-third to two-thirds of that of the United States of America (USA) – and can thus be thought of as the middle-income productivity trap – even if economies’ headline growth remains supported by the rapid accumulation of capital or labour growth. In particular, as economies’ incomes rise, productivity growth fails to keep up, with countries finding it difficult to switch from adopting technology to innovating and developing new technology.

Many of the economies in the EBRD region now find themselves in such a situation. In the 1990s and the 2000s, the region’s economies consistently outperformed comparable emerging markets elsewhere in the world. Since the 2008-09 financial crisis, however, the region’s average growth performance has consistently been weaker than that of its emerging market peers. Having exhausted the advantages that used to underpin their strong growth performance in the past,

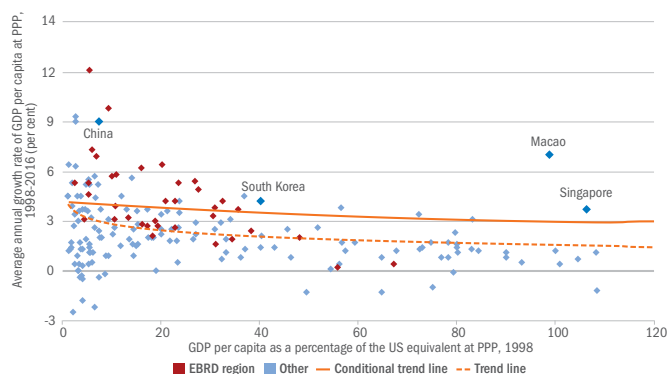
**CHART 1.1.** Average GDP per capita as a percentage of the US equivalent at PPP



Source: International Monetary Fund (IMF) and authors’ calculations.

Note: “Other major emerging markets” comprise G20 emerging market economies outside the EBRD region. Figures for 2017 and 2018 are based on EBRD and IMF projections as at 1 October 2017.

**CHART 1.2.** Initial GDP per capita and average annual growth in GDP per capita, 1998-2016



Source: IMF, World Bank and authors’ calculations.

Note: The trend line is based on a logarithmic fit for all countries. The conditional trend line is based on the regression of the growth rate of GDP per capita on initial values for the log of capital stock per worker, a human capital index and a number of other variables.

<sup>1</sup> See EBRD (2013).

<sup>2</sup> See ADB (2017) for a discussion of the middle-income trap in relation to Asia.

<sup>3</sup> See Gill and Kharas (2007).

<sup>4</sup> See Quah (1996).

<sup>5</sup> See, for instance, Eichengreen et al. (2014).



the region's economies now require a new growth model – one that goes beyond the imitation and importing of technology, and facilitates innovation. That model could also involve the upgrading of infrastructure, which has the potential to give investment a much-needed boost.

Analysis of recent episodes of sustained strong growth shows that investment, the availability of domestic savings in order to finance it and the quality of infrastructure play by far the most important role in explaining episodes of both strong and weak growth. The quality of economic and political institutions also has considerable explanatory power, as do the development of equity markets and demographic variables.

This chapter begins by revisiting the concept of the middle-income trap and presenting key stylised facts about the long-term growth performance of middle-income economies and the challenge of improving productivity. It then looks at the EBRD region's growth performance over the past two decades from a comparative perspective, showing that the region outperformed its peers prior to the 2008-09 financial crisis, but has since underperformed. It then examines episodes of consistently strong and consistently weak growth across countries and over time, looking at their key characteristics. While episodes of strong growth need not necessarily be followed by underperformance, reversals of fortunes are not uncommon. In contrast, it is rare for countries to achieve sustained growth over more than two decades. This chapter discusses various reasons for this pattern, before drawing a number of conclusions.

## The middle-income trap: myth or reality?

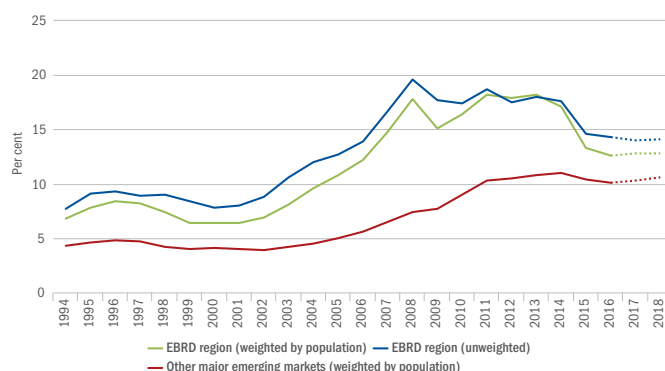
Many of the countries in the EBRD region have reached or are approaching middle-income levels.<sup>6</sup> Do countries get trapped in a cycle of weak growth at this particular stage of their development? We can start by looking at countries' growth performance at various levels of income per capita.

### No trap at a specific income level

The relationship between average growth in GDP per capita since 1998 and the initial level of GDP per capita does not point to growth weakening at a specific level of income (see Chart 1.2). Rather, the long-term income convergence performance of economies with a given level of income follows a law of diminishing returns. As income rises, economic growth tends to slow – a conjecture that is central to modern growth theories.<sup>7</sup> A similar picture emerges if the estimation of the relationship between the income level and growth takes account of a country's initial capital stock, its initial human capital and a number of other variables. The convergence of middle-income economies with the income levels of higher-income economies also holds for other time periods, as can be seen from Chart 1.1.

The picture is more nuanced if one looks at convergence in

**CHART 1.3.** Average GDP per capita as a percentage of the US equivalent at market exchange rates



Source: IMF and authors' calculations.

Note: "Other major emerging markets" comprise G20 emerging market economies outside the EBRD region. Figures for 2017 and 2018 are based on EBRD and IMF projections as at 1 October 2017.

terms of GDP per capita at market exchange rates (see Chart 1.3). When measured in this way, there has been little convergence between the income levels of emerging markets worldwide and those of the USA since 2011. Moreover, when measured on the basis of market exchange rates, average income per capita in the EBRD region (whether weighted or unweighted) is lower today as a percentage of the US equivalent than it was in 2007. Benchmarking against the G7 as a whole (that is to say, Canada, France, Germany, Italy, Japan, the United Kingdom and the USA) produces the same result, with average income per capita in the G7 remaining remarkably consistent at around 85 per cent of the US equivalent.

AROUND  
**40%**  
OF THE REGION'S  
CAPITAL STOCK GAP IS  
DUE TO INSUFFICIENT  
INFRASTRUCTURE

<sup>6</sup> The analysis in this chapter refrains from using specific income thresholds. If one defines "middle" incomes as one-third to two-thirds of US income per capita, we are talking about incomes of between US\$ 19,000 and US\$ 38,000 at purchasing power parity (PPP) or market exchange rates in 2016. In contrast, the World Bank defines upper/middle incomes as US\$ 7,650 to US\$ 19,800 at PPP.

<sup>7</sup> However, the conclusion that the income levels of poor countries rise towards those of rich economies is sometimes questioned (see World Bank, 2017).

## Weaker productivity growth in middle-income countries

Differences in convergence trajectories reflect the fact that many middle-income economies have fairly low income per capita at market exchange rates relative to their income levels at PPP (see Chart 1.4, which compares the two calculation methods for 2016). Differences between the two are more pronounced at income levels of between one-third and two-thirds of the US equivalent at PPP. The two measures tend to be aligned in the case of high-income economies, with the notable exception of the oil-rich Gulf economies.<sup>8</sup> This overall pattern implies that labour and many services (the “non-tradeable sector”) remain relatively cheap as middle-income economies develop.

This, in turn, is indicative of sustained low levels of productivity in the “tradeable” sectors of these economies (primarily manufacturing), in line with the Balassa-Samuelson theory.<sup>9</sup> In an economy with properly functioning labour markets, wages in manufacturing and service sectors are expected to be comparable.<sup>10</sup> Wages in the competitive manufacturing sector reflect the marginal product of labour, or labour productivity, while the prices of services that cannot easily be traded across borders reflect domestic wage levels. If service prices remain relatively low, labour remains relatively cheap in both manufacturing and service sectors, implying weak productivity growth in the manufacturing sector. One manifestation of the “middle-income trap” that can be seen in the data is middle income economies’ struggle to raise productivity levels in tradeable sectors.

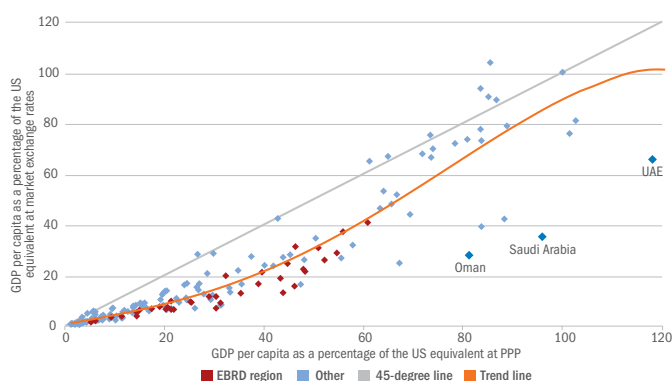
Most of the economies in the EBRD region – including those with higher levels of income – fall within the range where nominal incomes and incomes in PPP terms differ substantially. None are to the right of the point (at around two-thirds of US income) where the two measures start to converge.

In addition, the growth pattern of total factor productivity (TFP) around the world since 1998 indicates that middle-income economies find boosting TFP particularly challenging (see Chart 1.5). TFP refers to the efficiency with which factors of production – capital, labour and human capital – are combined to produce added value. In growth accounting, it represents the residual growth once the contributions of capital, labour and human capital have been identified. Total factor productivity and labour productivity are related: weaker growth in total factor productivity translates into weaker growth in output and hence into weaker growth in output per worker, or labour productivity.

As economies grow richer and approach the technological frontier, growth in total factor productivity tends to slow down. However, this slow-down is particularly pronounced in countries where GDP per capita is around one-third to two-thirds of the US equivalent. This income range is remarkably similar to the range where incomes at PPP and incomes at market exchange rates diverge (see Chart 1.4).

Indeed, we can see that advanced economies have, on average, enjoyed stronger productivity growth over this period than middle-income economies. Although EBRD economies have recorded significantly stronger TFP growth than other economies with similar income levels, further analysis will show that this is

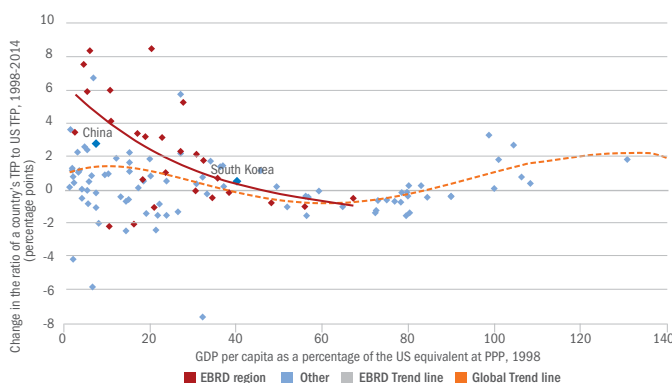
**CHART 1.4.** Relative GDP per capita in 2016 at PPP and at market exchange rates



Source: IMF and authors' calculations.

Note: The trend line is based on a polynomial fit.

**CHART 1.5.** Initial GDP per capita and TFP growth, 1998-2016



Source: Penn World Tables, IMF, World Bank and authors' calculations.

Note: Trend lines are based on a polynomial fit.

<sup>8</sup> See also Ravallion (2013) for a recent discussion of income comparisons at PPP. Some of these differentials may also be due to PPP estimates failing to fully catch up with actual increases in price levels in middle-income economies. In this case, income per capita measured at PPP may overstate the true level of economic development.

<sup>9</sup> See Balassa (1965). The tradeable sector also includes services that are subject to international competition, such as call centres.

<sup>10</sup> For instance, an abundance of unskilled labour, coupled with shortages of required skills, may result in substantial wage differentials between the tradeable sector and low-skilled services. Investment in physical and human capital can be expected to reduce such differentials over time.

entirely accounted for by the period prior to the financial crisis.

This middle-income “productivity trap” may reflect the changing nature of the factors needed to boost productivity as countries approach the technological frontier. In a neo-Schumpeterian framework, countries further away from the frontier can rapidly improve productivity, predominantly by importing and imitating technology developed in more advanced economies.<sup>11</sup> However, as the transfer of existing knowledge nears completion and labour costs in recipient countries rise, such economies increasingly need to develop new technology themselves (and potentially export it to lower-income countries).<sup>12</sup>

In other words, as countries develop and approach the technological frontier, their focus should shift from imitation to innovation. Similarly, their growth models and their priorities in terms of reforms need to change accordingly. Chapter 2 uses firm-level data to look in more detail at the challenge of raising productivity in middle-income economies.

The combination of modest growth performance and weak productivity growth suggests that, in recent decades at least, a number of middle-income economies may have been able to compensate for weaker TFP growth by means of strong growth in capital or labour and by keeping service prices and wages relatively low. Analysis later in the chapter shows that sustained periods of strong growth performance tend to be capital-intensive, coinciding with elevated investment levels. Indeed, most sustained periods of income convergence involve rapid capital accumulation, often leveraging earlier advances in productivity (see Box 1.1, which discusses the case of South Korea).

Interestingly, the strong slow-down in productivity growth also coincides with the income range where production tends to be the most carbon-intensive. Indeed, pollution per unit of GDP peaks when countries reach 35 to 60 per cent of the US income level, before starting to decline (see Chart 1.6). In other words, making growth more environmentally sustainable appears to be particularly challenging for middle-income economies (see Chapter 4 for a more detailed look at the issue of green growth).

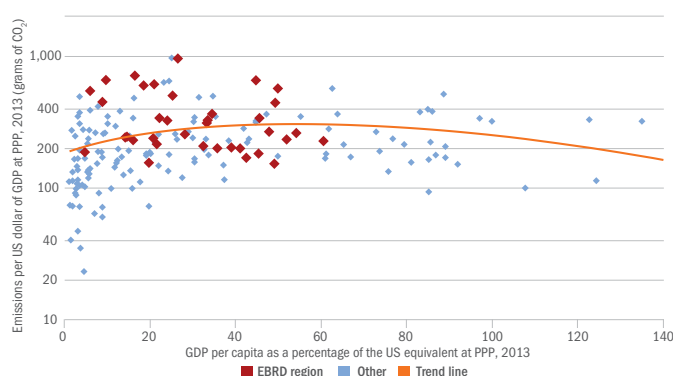
Having established several facts about growth in middle-income economies in general, this chapter now turns to the second question – that of the relative performance of the EBRD region.

## Growth from a comparative perspective

Has the EBRD region’s growth performance been different from that of other emerging markets? Or have EBRD countries of operations developed in line with expectations, given that average income per capita in the region is now approaching one-third of the US equivalent?

We can evaluate the region’s growth performance from a global perspective by comparing the performance of economies in the region with that of similar economies in the same year. This approach takes account of global trends affecting the growth of

CHART 1.6. GDP per capita and emissions in 2013



Source: World Resources Institute, IMF and authors’ calculations.  
Note: The trend line is based on a polynomial fit.

all economies (such as the 2008-09 financial crisis), as well as the slowing speed of convergence as income per capita rises. For each year, each country’s growth figures are contrasted with the average growth performance of a group of comparable economies, which are weighted on the basis of their similarity in terms of GDP per capita and population size.

This is effectively a modified synthetic control approach.<sup>13</sup> Large comparator groups are used to ensure the stability of comparisons: each reference group has a minimum of 15 countries, and no country has a weight of more than 15 per cent in any reference group. For instance, the countries with the largest weights in Tunisia’s comparator group include Ecuador, Indonesia and Sri Lanka. The comparator for the EBRD region as a whole is, in turn, a weighted average of the synthetic comparators constructed for the various countries in the EBRD region. When constructing comparators, we focus on income and population in order to explain economic performance with regard to various other country characteristics such as financial development (this analysis is presented later in Chapter 1).



<sup>11</sup> See Baldwin (2016) for a discussion of globalisation and the transfer of technology and Acemoglu et al. (2006) for a discussion of the neo-Schumpeterian growth framework.

<sup>12</sup> See Akamatsu (1962) for a discussion of the “flying geese paradigm”.

<sup>13</sup> See Abadie et al. (2010). As this chapter does not focus on a specific event, synthetic matching is performed for each individual year.

## Recent underperformance relative to comparators

Even taking global growth patterns into account, the EBRD region enjoyed 10 years of exceptionally strong growth between 1998 and 2008. The region consistently outperformed its synthetic comparator in that period (see Chart 1.7). Indeed, by the end of that period, the region's output was around 15 percentage points higher than would typically be expected of economies with that level of development.<sup>14</sup>

In contrast, average growth in the EBRD region consistently lagged behind that of its comparators in the period 2008-16, with that cumulative underperformance totalling 9 percentage points of GDP.<sup>15</sup> The overall trends are broadly similar when growth is analysed in per capita terms. The growth performance of central Europe and the Baltic states (CEB) is stronger in per capita terms, reflecting weaker population growth in those economies relative to other emerging markets. In contrast, the relative growth performance of economies in the southern and eastern Mediterranean (SEMED) region is considerably weaker when looked at in per capita terms (see Chart 1.8).

## Slow-down in terms of productivity growth

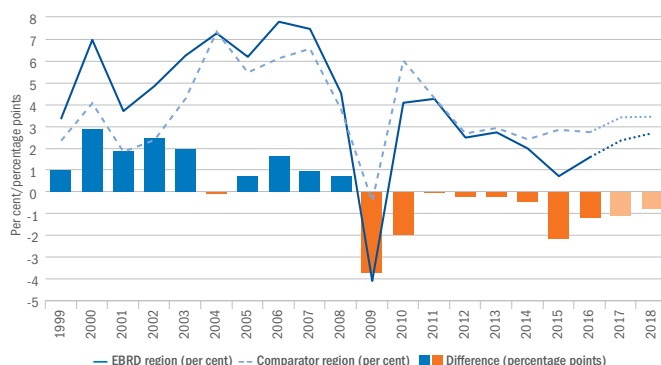
The closing of the gap in terms of TFP was a major factor in the strong growth seen between the mid 1990s and the 2008-09 financial crisis (see Chart 1.8). Factors of production had been combined inefficiently under central planning, and the region's economies embarked on the transition process with much lower TFP levels than would normally be expected in economies at that level of development. Market reforms helped to boost productivity and close that gap. While the region experienced higher levels of investment between 1998 and 2008 than it did before and after that period, the speed at which capital stock was accumulated was broadly in line with that seen in comparator countries.

By the time of the 2008-09 financial crisis, the differential between TFP in the EBRD region and TFP in other emerging markets had disappeared, as discussed in the *Transition Report 2013*. In the post crisis years, TFP growth has been slow and in many cases negative (see Chart 1.10), with a consistent pattern across subregions (see Chart 1.11). Productivity growth has also slowed across the global economy as a whole, although it has generally held up in emerging Asia.

In some cases, the decline in TFP growth reflects a reduction in the utilisation of capacity following the crisis (for which good cross-country data are not available). In Greece, for instance, capacity utilisation declined from 76 per cent in 2008 to 68 per cent in 2014 and 67 per cent in 2016. However, the average decline in capacity utilisation across countries covered by Eurostat has been relatively small at just 3 percentage points.

The contribution made by labour force growth has been modest, reflecting a combination of rapid population ageing and emigration in many of the countries in the EBRD region. The weak contribution made by human capital growth reflects the fact that levels of human capital were already relatively high (in terms of years of schooling, at least).

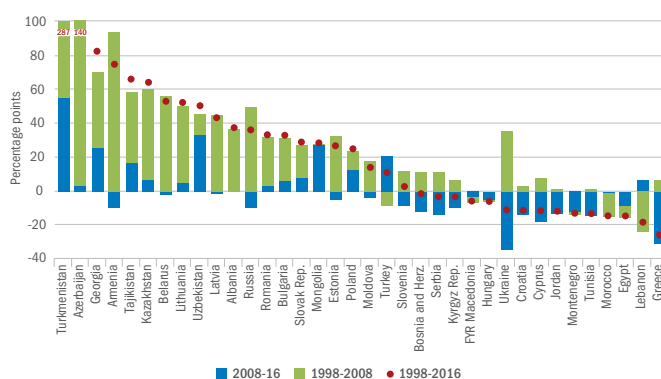
CHART 1.7. Average annual growth rates in the EBRD region and a comparator region



Source: IMF and authors' calculations.

Note: Weighted on the basis of GDP at PPP. Figures for 2017 and 2018 are based on IMF and EBRD forecasts as at 1 October 2017.

CHART 1.8. Growth in GDP per capita relative to comparator countries



Source: Penn World Tables, IMF, World Bank and authors' calculations

## The capital stock gap

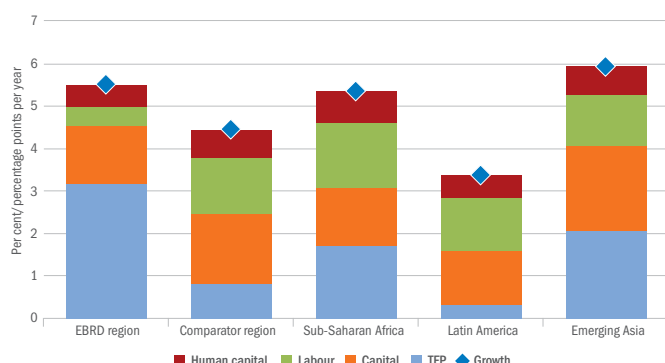
Although post-crisis growth has been driven largely by the accumulation of capital, the rate of fixed capital investment has been considerably lower than in comparator economies. This investment gap, which was first documented in the *Transition Report 2015-16*, can be seen in Chart 1.12.<sup>16</sup> Gaps can be observed for all countries except Azerbaijan, Belarus, Bulgaria, Turkey and Turkmenistan. In Latvia, for instance, the capital stock increased by around 20 percentage points less over the period 2008-14 than would be expected on the basis of trends in comparator economies.

<sup>14</sup> This cumulative result is calculated as the chain product of the ratios of an economy/region's real GDP relative to its comparator's real GDP in a given year, where for both the economy and its synthetic comparator the level of GDP in the preceding year is normalised to 100. It is expressed in percentage points.

<sup>15</sup> In this calculation, the comparators are reset each year. Similar results are observed if comparators are chosen on the basis of any specific year between 1999 and 2016.

<sup>16</sup> See EBRD (2015).

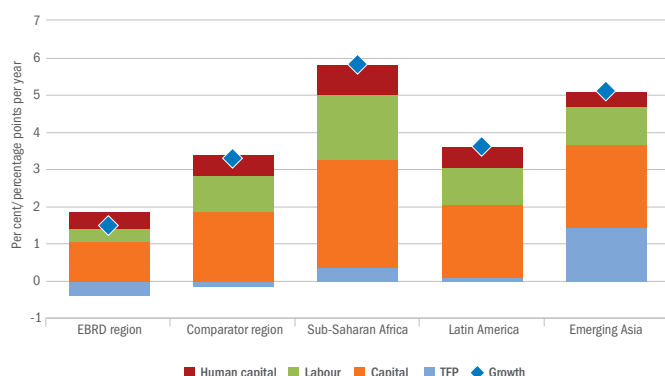
CHART 1.9. Decomposition of sources of growth, 1998-2008



Source: Penn World Tables, IMF, World Bank and authors' calculations.

Note: Simple averages across countries. Estimates for Latin America and sub-Saharan Africa are based on six large representative economies in each case.

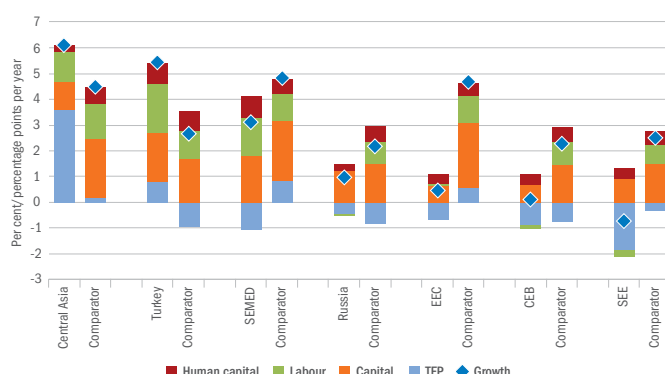
CHART 1.10. Decomposition of sources of growth, 2008-14



Source: Penn World Tables, IMF, World Bank and authors' calculations.

Note: Simple averages across countries. Estimates for Latin America and sub-Saharan Africa are based on six large representative economies in each case.

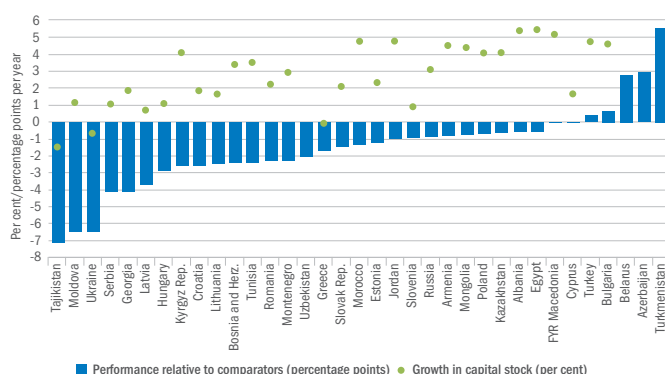
CHART 1.11. Sources of growth by subregion, 2008-14



Source: Penn World Tables, IMF, World Bank and authors' calculations.

Note: Simple averages across countries.

CHART 1.12. Average annual growth in capital stock, 2008-14



Source: Penn World Tables, IMF, World Bank and authors' calculations.

Note: In Azerbaijan, Belarus, Turkmenistan and Uzbekistan, average annual growth in capital stock exceeded 6 per cent in the period 2008-14.

In 2014, the EBRD region had a total estimated capital stock deficit of €2.2 trillion relative to other economies at a similar level of development, of which around €500 billion was on account of lower levels of investment during the period 2008-14.<sup>17</sup> According to the estimates presented in Chapter 3, around 40 per cent of that gap was accounted for by insufficient infrastructure, with the remaining 60 per cent corresponding to other forms of capital stock, such as machinery and equipment, buildings and intellectual property. That gap is equivalent to 18 per cent of the region's total capital stock and 47 per cent of the region's annual GDP.

Other factors also contributed to the EBRD region's strong growth performance in the 2000s and the subsequent reversal of fortunes. For instance, the commodities boom of the 2000s gave a major boost to commodity exporters and countries with strong economic ties to Russia. In the CEB region and south-eastern Europe (SEE), meanwhile, EU accession served as a solid anchor for reforms and helped to attract large inflows of foreign direct investment (FDI), as well as other capital flows. In addition, technological change facilitated these economies' integration into European and global supply chains.

Is it possible that this kind of pattern (that is to say, a decade of exceptionally strong growth, followed by a prolonged period of weak performance) is in fact common and in some ways inevitable? The next two sections identify episodes of strong and weak growth, look at their determinants and discuss the reasons why reversals of fortunes are indeed common – albeit not inevitable – occurrences.

<sup>17</sup> Grela et al. (2017) also find that the recent decline in investment rates is the main factor explaining the slow down in convergence in central and eastern Europe.



## Episodes of exceptionally strong and weak growth

### Defining growth episodes

Episodes of sustained strong and weak growth play a key role in shaping countries' long-term income trajectories.<sup>18</sup> Using synthetic comparators, we can look at instances where countries consistently achieve higher (or lower) rates of growth than would be expected on the basis of their income per capita and prevailing global economic conditions. In this chapter, an “outperformance episode” is defined as a period in which an economy outperforms its synthetic comparator at least 90 per cent of the time for at least eight consecutive years (allowing for brief – but only brief – dips in performance).<sup>19</sup> Countries' growth rates must exceed those of their comparators by an average of at least 1 percentage point per year over that period. “Underperformance episodes” are defined symmetrically.

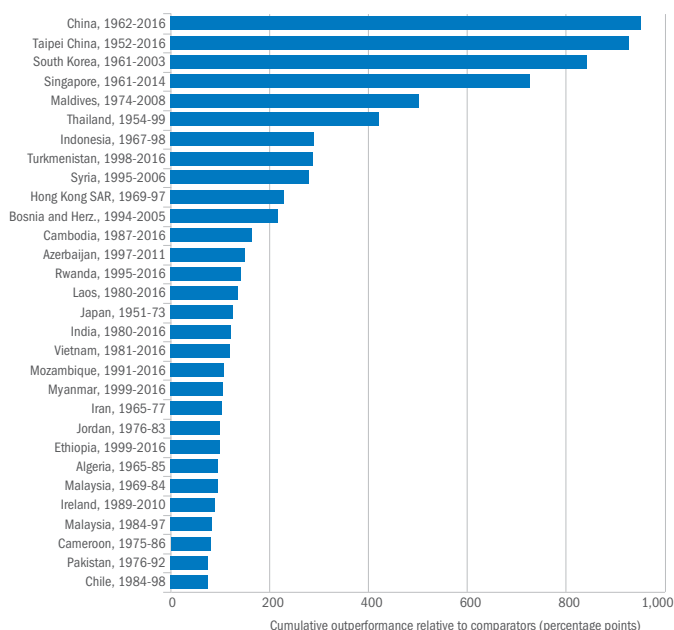
Periods of outperformance and underperformance differ from the periods of strengthening and weakening growth that are typically analysed in economic studies in several respects. For example, this measure takes account of global events such as the oil price shock of 1973-74 and the global financial crisis of 2008-09 (see Box 1.2 for an illustration based on the United Kingdom's performance before and after its accession to the European Communities).

Changes to an economy's income level also matter for its *relative* performance: although China's growth rate has fallen by several percentage points since the mid-2000s, its outperformance has remained remarkably consistent at around 4 percentage points per year over this period. In fact, China's contribution to global GDP growth is roughly the same today as it was 10 years ago, when its economy was smaller (as discussed in the Macroeconomic Overview).

In the period since 1951, the world's strongest outperformance episodes have been observed in China, Taipei China, South Korea and Singapore (see Chart 1.13). While many instances of fast convergence relate to emerging Asia, examples can be found all over the world (for instance, Chile, Ethiopia and Syria) and in virtually all time periods.

Some of these historical data are reassuring. A number of economies have succeeded in adjusting their economic policies and quickly growing beyond the middle-income level. Examples include South Korea (see Box 1.1), Taipei China and Israel (which has had a total of three outperformance episodes). At a lower level of income, Mauritius has undergone several structural shifts, leveraging comparative advantages first as an exporter of agricultural goods and quality apparel (supported by its preferential access to the European market), and then as a tourism destination and an offshore financial centre serving India. Mauritius's outperformance episode spans the period from 1981 to 2003, and the economy has also consistently outperformed its comparators since 2012.<sup>20</sup>

CHART 1.13. Episodes of strong long-term growth performance



Source: IMF, World Bank and authors' calculations.

Note: Cumulative outperformance is calculated relative to hypothetical growth trajectories based on comparators' growth each year.

### Outperformance episodes: where and when?

What do these periods of strong growth have in common? To answer this question, this section looks at the determinants of outperformance and underperformance episodes in a large sample of countries over the period 1995-2016 (and over the period 1951-2016 where data are available).

The modified synthetic control method is well suited to studying the characteristics of recent growth episodes. Traditional approaches to the identification of outperformance look for structural breaks in data or instances where a country's growth rate rises by, say, 2 percentage points relative to the preceding period.<sup>21</sup> In recent years, however, such increases in growth rates have been few and far between. Indeed, China could, if anything, be classified as having experienced a period of weakening growth, as opposed to a sustained period of remarkable growth.<sup>22</sup> In contrast, focusing on performance relative to similar economies allows us to take account of global trends and identify sustained periods of strong growth performance that started only recently.

Importantly, looking at more recent episodes allows us to use richer sources of data on the quality of economic institutions, the quality of infrastructure (see Chapter 3 for more details) and other relevant country-level characteristics. It also helps to identify the most relevant drivers of outperformance today. This is important, because some drivers may have changed

<sup>18</sup> See, for instance, Pritchett (2000).

<sup>19</sup> In some ways, this is similar to the approach employed by Aiyar et al. (2013), who look at growth residuals using regression analysis.

<sup>20</sup> See Sviridzenka and Petri (2014) for a discussion of Mauritius's growth performance.

<sup>21</sup> Many recent studies are based on the approach suggested by Hausmann et al. (2005). With this approach, a growth episode occurs where a country's growth rate picks up markedly relative to earlier trend levels, reaches a certain threshold (such as 3.5 per cent) and is sustained for a certain number of years. Other studies look for structural breaks in growth series (see Ben-David and Papell, 1998; and Berg et al., 2012).

<sup>22</sup> See Plekhanov and Stostad (2017) for further discussion and analysis.

TABLE 1.1. Determinants of outperformance and underperformance

Method	Outperformance			Underperformance		
	(1)	(2)	(3)	(4)	(5)	(6)
	Probit RE	Probit RE	Linear FE	Probit RE	Probit RE	Linear FE
Investment (% of GDP)	0.018*** (0.004)	0.026*** (0.005)	0.025*** (0.003)	-0.006*** (0.002)	-0.004** (0.002)	-0.008*** (0.002)
Current account (% of GDP)	0.009*** (0.002)	0.014*** (0.003)	0.014*** (0.002)	-0.004*** (0.001)	-0.003** (0.001)	-0.008*** (0.002)
Infrastructure (LPI index)	0.014 (0.036)	-0.003 (0.068)	0.058 (0.063)	-0.077** (0.032)	-0.038* (0.022)	-0.180*** (0.052)
Economic institutions	0.121** (0.051)	0.124* (0.074)	0.140** (0.070)	-0.167*** (0.052)	-0.079* (0.040)	-0.273*** (0.058)
Political institutions	0.053 (0.035)	0.082 (0.050)	0.111** (0.047)	-0.044* (0.023)	-0.002 (0.011)	-0.154*** (0.039)
Old-age dependency (%)	-0.004** (0.002)	0.0001 (0.003)	0.003 (0.003)	0.001 (0.001)	-0.001 (0.001)	-0.001 (0.002)
Population growth	0.224 (0.507)	-0.144 (0.815)	-1.135 (0.850)	-0.928 (0.735)	-0.390 (0.411)	0.033 (0.699)
Human capital growth	0.304 (1.302)	-0.097 (2.219)	-1.226 (1.853)	0.760 (0.953)	-0.335 (0.488)	-2.048 (1.525)
Merchandise trade (% of GDP)	0.0004 (0.0003)	0.0001 (0.001)	0.001 (0.001)	-0.001*** (0.0005)	-0.001 (0.001)	0.001 (0.001)
Financial openness index	0.009 (0.039)	0.042 (0.056)	0.025 (0.055)	-0.038 (0.035)	-0.043* (0.023)	-0.118*** (0.046)
GDP per capita at PPP (log)	-0.154*** (0.048)	-0.086 (0.069)	-0.097 (0.090)	0.112*** (0.034)	0.022 (0.018)	-0.022 (0.074)
Private sector credit (% of GDP)		-0.002*** (0.001)	-0.001*** (0.001)		0.001** (0.001)	0.001*** (0.001)
Stock market capitalisation (% of GDP)		0.001*** (0.0004)	0.001*** (0.001)		-0.001 (0.001)	-0.001 (0.001)
Observations	2,786	1,682	1,682	2,786	1,682	1,682
Number of countries	129	97	97	129	97	97

Source: Penn World Tables, IMF, World Bank, Polity and authors' calculations.

Note: Estimated using panel probit regression with random effects and linear probability model regression with fixed effects. All regressions report marginal effects. Standard errors are reported in parentheses, and \*, \*\* and \*\*\* denote values that are statistically significant at the 10, 5 and 1 per cent levels respectively.

over time – for instance, as economies have become more open and less reliant on industrialisation as a motor of economic development.<sup>23</sup>

In the analysis that follows, the existence of an outperformance or underperformance episode in a given year and country is explained by a variety of factors, with an emphasis on differences across countries. In line with the approach used by Lee (2017), the regressions are estimated using probit with random effects (see Table 1.1 for a summary of the results).

Outperformance episodes are characterised by high investment-to-GDP ratios. A 5 percentage point increase in a country's investment-to-GDP ratio is associated with an increase of approximately 10 percentage points in the likelihood of experiencing an outperformance episode. Furthermore, outperformance is more likely to be sustained where investment is financed using domestic savings and, accordingly, current account balances are higher as a percentage of GDP.

CHINA'S ANNUAL  
GROWTH RATE IS AROUND  
**4**  
PERCENTAGE POINTS  
HIGHER THAN THAT OF  
A GROUP OF COMPARATOR  
ECONOMIES WITH SIMILAR  
CHARACTERISTICS

<sup>23</sup> Industry's share of employment peaks at a lower level in countries that develop later (see Sposi et al., 2017).

The results for underperformance tend to be symmetrical, with a few nuances. In particular, high quality infrastructure, as captured by the Logistics Performance Index (LPI), makes underperformance episodes significantly less likely. An improvement from Armenia's LPI level to that of Croatia, corresponding to 1 standard deviation in the sample, is associated with a 4 percentage point decline in the probability of underperformance.

While increased openness to trade (as reflected in high levels of exports and imports as a percentage of GDP) is generally associated with stronger outperformance,<sup>24</sup> this relationship appears to have weakened in recent years, partly because increased openness to trade – and capital account openness – may make growth more volatile. That said, economies that are closed to trade and/or financial flows are much more likely to experience underperformance episodes.

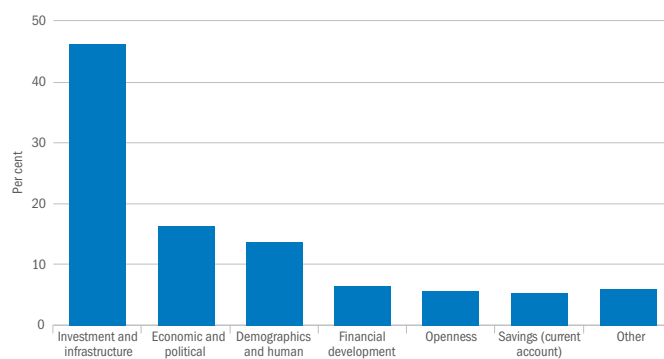
Outperformance episodes are more likely to occur in the presence of high-quality economic institutions (as captured by the average of the Worldwide Governance Indicators measuring control of corruption, the rule of law, regulatory quality and government effectiveness). A 1 standard deviation improvement in this average score (from Ukraine's level to that of Romania, for example) is associated with a 12 percentage point increase in the likelihood of achieving a sustained period of strong growth.

Countries are also more likely to experience strong growth (and thus less likely to underperform) when their political institutions are strengthened.<sup>25</sup> This can be seen from columns 3 and 6, where country fixed effects are included, so the coefficient highlights the differences between episodes of strong or weak growth and periods of mixed performance in the same country. A 1 standard deviation improvement in the quality of political institutions (from Morocco's level to that of Mongolia, for example) makes the onset of a period of weak growth 14 percentage points less likely.

Financial development, meanwhile, has a mixed impact. Outperformance episodes are more likely to occur in countries with better-developed stock markets, but higher domestic credit-to-GDP ratios tend, on average, to make sustained periods of growth less likely (by making growth more volatile). In addition, the term structure of credit may be more important than the volume of credit when it comes to facilitating sustained growth (see Box 1.3). Demographic factors also matter in some specifications. Although changes in the human capital index (based on the number of years of schooling) are not statistically significant, higher levels of human capital are already reflected in higher levels of income per capita.

The frequency of outperformance episodes in the EBRD region is roughly average once various determinants of outperformance and underperformance have been taken into account. Indeed, when the corresponding dummy variable is included, the coefficient is small and not statistically significant.

**CHART 1.14.** Determinants of outperformance: a Shapley decomposition



Source: Penn World Tables, IMF, World Bank, Polity and authors' calculations.

Note: Based on the average Shapley decomposition of pseudo  $R^2$  from pooled probit regressions and  $R^2$  from linear regressions for episodes of outperformance and underperformance, using the same variables as in Table 1.1.

## Relative importance of the various factors

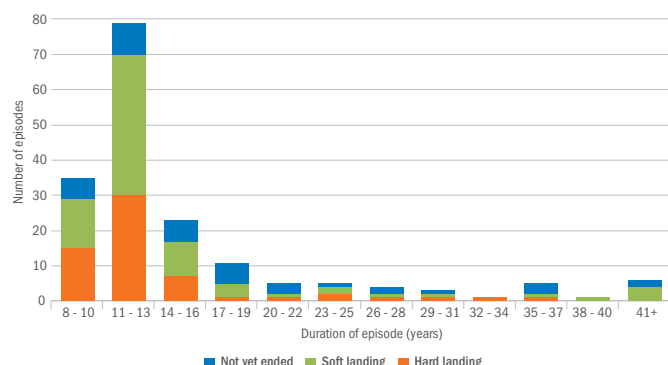
When it comes to the determinants of outperformance, a Shapley decomposition indicates that investment in capital stock (including infrastructure) plays by far the most important role (see Chart 1.14).<sup>26</sup> The quality of economic and political institutions also has considerable explanatory power, as do demographic and financial variables. Indeed, economic institutions, financial development and economic openness may be even more important to the extent that these variables have a major impact on investment and thus, indirectly, on growth performance.

<sup>24</sup> See Lee (2017).

<sup>25</sup> Political institutions are captured by the average of the Worldwide Governance Indicators measuring "voice and accountability" and "political stability and lack of violence".

<sup>26</sup> A Shapley decomposition takes the total explained variation in a dependent variable (here, the existence of a certain type of growth episode) and breaks it down into the variation explained by the various determinants (see Shorrocks, 1982).

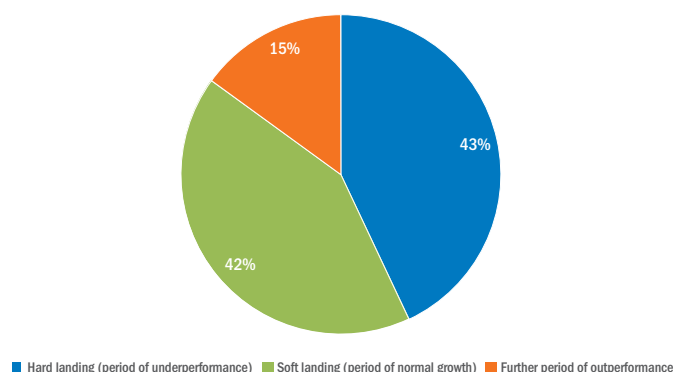
CHART 1.15. Breakdown of outperformance episodes by duration



Source: Penn World Tables, IMF, World Bank and authors' calculations.

Note: "Hard landings" are outperformance episodes that are followed by an eight-year period with cumulative underperformance totalling at least 8 percentage points.

CHART 1.16. How outperformance episodes end



Source: Penn World Tables, IMF, World Bank and authors' calculations.

Note: Based on outperformance episodes that ended prior to 2009.



## Avoiding reversals of fortunes

### Reversals: common, but not inevitable

Outperformance episodes are rarely sustained for a long period of time. Of the 180 or so episodes in the global sample, only 17 per cent (30 episodes) lasted two decades or more (see Chart 1.15). Only six were sustained for over 40 years (namely, the episodes observed in China, Taipei China, South Korea, Singapore, Thailand, and the Turks and Caicos Islands).

Hard landings – where outperformance is almost immediately followed by a prolonged period of weak performance – are also relatively common. If we look only at outperformance episodes that finished prior to 2009, 43 per cent of those episodes were followed by an eight-year period with cumulative underperformance totalling 8 percentage points or more. However, a positive outcome is still more likely than a negative one, with 42 per cent of economies experiencing a soft landing (that is to say, performing broadly in line with expectations following an outperformance episode) and a further 15 per cent embarking on another period of outperformance shortly afterwards (see Chart 1.16). All in all, the hard landing suffered by the EBRD region as a whole is fairly common, but not inevitable.

There are various reasons why countries struggle to sustain growth episodes for a long period of time and experience hard landings, as the following sections explain.

### Success erodes countries' comparative advantages

First and foremost, fast-growing economies tend to exhaust their competitive advantages. For example, economies that initially benefit from cheap skilled labour (such as those in emerging Asia) see their workers' wages rise quickly. Thus, economic growth gradually erodes the very advantage on which the country's fast convergence has been built. The analysis above suggests, moreover, that many of these economies struggle to compensate for wage rises by raising productivity in manufacturing – for instance through better management practices and innovation.<sup>27</sup>

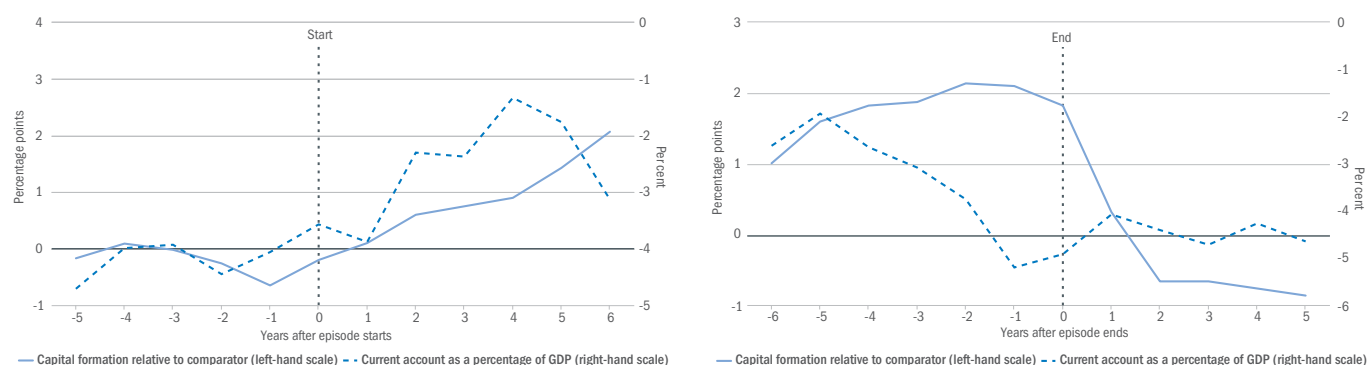
These middle-income economies risk getting trapped in a low-wage, low-productivity growth model, with all the obvious limitations that this entails. In order to sustain growth in the absence of productivity improvements, countries may be forced to rely on very high levels of investment, which may lead to excess capacity in certain sectors, or labour force growth, often on the back of high levels of immigration.

The TFP-led growth episode experienced by the economies of emerging Europe and Central Asia was something of a rarity. The combination of abundant capital stock, large quantities of skilled labour, initially poor management practices and low levels of technological development enabled these economies to grow quickly for a number of years by improving their TFP. However, these advantages were exhausted within a decade or so.

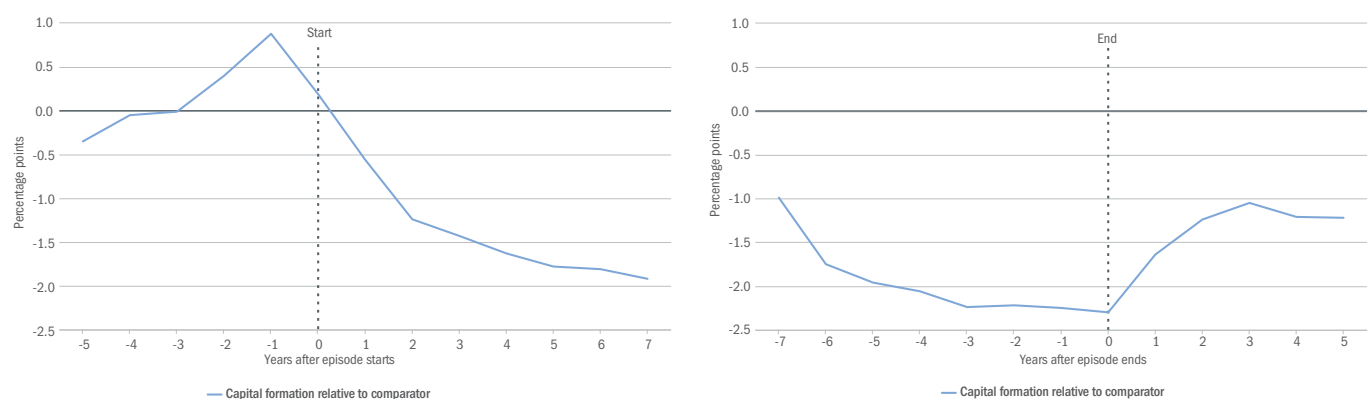
While TFP-led episodes are not common, episodes of outperformance are strongly associated with elevated levels of investment. In a typical growth episode, the average rate of

<sup>27</sup> See EBRD (2014).



**CHART 1.17.** Capital formation: relative performance during outperformance episodes

Source: IMF, World Bank and authors' calculations.

**CHART 1.18.** Capital formation: relative performance during underperformance episodes

Source: IMF, World Bank and authors' calculations.

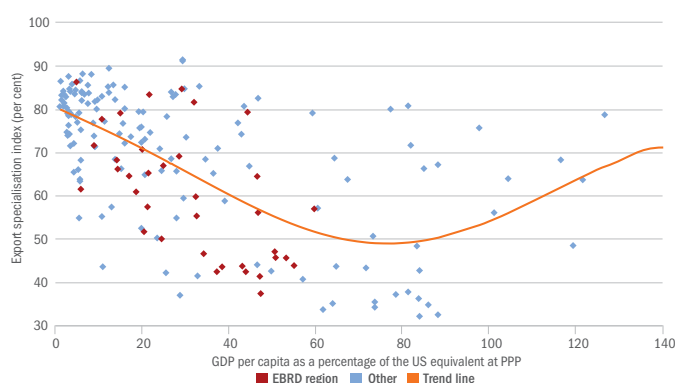
capital formation exceeds that of peer economies by around 1.5 percentage points. Investment typically responds to an improving outlook, rather than preceding a growth episode, and it quickly drops back to its baseline level at the end of the growth episode (see Chart 1.17).<sup>28</sup>

Likewise, underperformance episodes tend to be “investment-light” and end when investment rises. At the same time, investment fails to fully recover afterwards, possibly owing to the impact that a protracted period of weak economic performance has on business confidence (see Chart 1.18).

One way to boost investment in the short term is to increase spending on infrastructure, taking advantage of favourable financing conditions and low interest rates globally. Panama, for instance, has achieved impressive growth over the past 15 years, becoming one of the highest-income economies in Latin America and the Caribbean. The expansion of the Panama Canal, which took place between 2006 and 2016, played a key role in this. Chapter 3 looks in more detail at the case for increased infrastructure spending in the EBRD region.

<sup>28</sup> Similarly, Jones and Olken (2008) note that growth episodes tend to start with increased openness to trade, leading to higher levels of investment, and end with a decline in investment.

CHART 1.19. Export specialisation index and GDP per capita



Source: United Nations Conference on Trade and Development (UNCTAD), IMF and authors' calculations.

Note: This export specialisation index measures the difference between a country's export structure in 2015 and the average global export structure in that year. Higher values correspond to greater specialisation.

## The external environment and changing patterns of economic diversification

Patterns of economic diversification also play a role in explaining the productivity challenge that middle-income economies face. As countries develop, achieving per capita income in excess of 10-15 per cent of that of the USA, they initially tend to diversify, and the structure of their exports becomes more similar to the structure of global exports (see Chart 1.19). Diversification helps to match domestic production to growing domestic demand and develop a broader skills base, which is a prerequisite for stronger productivity growth. Indeed, increased diversification of exports tends, on average, to be associated with a substantial growth premium.<sup>29</sup> However, as countries get closer to the technological frontier, developing new technology increasingly requires large amounts of highly specialised human capital and equipment.

As a result, when income levels reach one-third of that of the USA, diversification starts to slow down. And when income levels reach two-thirds of the US level, countries start to specialise again – typically in new areas – and their export structure starts to move away from the average global export structure again. So, production and exports initially become less concentrated in particular industries as incomes rise, but then measures of concentration stabilise and begin to increase again.<sup>30</sup> This is another reason why economies may experience weaker growth on reaching upper/middle-income levels and need to readjust their development models, shifting from the diversification of production and skills to the adoption of strategies to promote smart specialisation.

In some cases, relatively undiversified economies may enjoy strong growth owing to external factors such as rising prices of oil and other commodities. This has been observed in Azerbaijan, Kazakhstan, Mongolia, Russia and Turkmenistan, as well as many Latin American and African economies. However, once commodity prices start to decline, undiversified economies face strong headwinds.<sup>31</sup> As a result of globalisation, the global economic environment has been having an increasingly large impact on growth levels in emerging market economies.<sup>32</sup>

## Demographics

Demographics tend to create tailwinds as economies move towards middle-income status, only to produce strong headwinds later on. As low-income economies develop, the birth rate tends to fall and per capita spending on human capital rises. This boosts productivity growth. In addition, the labour force may initially rise as a percentage of the overall population as the number of children per adult falls.

As economies develop further, however, improvements in the standard of living and health care translate into rising life expectancy. As a result, populations age and the labour force starts to decline rapidly as a percentage of the total population, while pension obligations necessitate increases in taxation, public debt and/or long-term interest rates. Most of the countries

## ECONOMIC DIVERSIFICATION

HELPS TO MATCH DOMESTIC PRODUCTION TO GROWING DOMESTIC DEMAND AND DEVELOP A BROADER SKILLS BASE

<sup>29</sup> See Al-Marhubi (2000).

<sup>30</sup> See Imbs and Wacziarg (2003). Both the general pattern and the income threshold at which specialisation begins to dominate are robust across time periods, country samples and industry breakdowns (see Hesse, 2008).

<sup>31</sup> See Guriev et al. (2012).

<sup>32</sup> See IMF (2017) for analysis of recent developments in this regard.

in the EBRD region have now entered this “mature demographics” phase (see Macroeconomic Overview).

Going forward, strong growth in middle-income economies will become increasingly reliant on workers’ ability to stay employed for longer.<sup>33</sup> To facilitate this change, policies will need to focus more on life-long learning and the accumulation of human capital – perhaps at the expense of tax subsidies promoting the accumulation of physical capital (and thus the automation of production). In addition, workplaces and working practices will need to adapt to the ageing workforce.

## Internal divisions

Rapid income growth often exacerbates income inequality. Indeed, emerging Europe and emerging Asia have both experienced substantial increases in inequality since the late 1980s.<sup>34</sup> Rising inequality may aggravate pre-existing divisions in society, such that external shocks then trigger a backlash against reforms or spark armed conflict, leading to periods of weak growth.<sup>35</sup> In order to be sustainable, growth needs to make societies more cohesive and lead to rising living standards across the board.

## Crises and complacency

Fast-growing economies often struggle to recover from banking and currency crises. On average, the probability of an outperformance episode ending in a given year is around 5 per cent, but in the three years following the 1997-98 financial crisis this termination rate averaged 11 per cent. The 2008-09 financial crisis also led to termination rates spiking, albeit at lower levels of around 7.5 per cent. This suggests that many of the world’s top performers weathered the 2008-09 crisis fairly well relative to an “average” economy. The EBRD region was a notable exception, however, since six of the nine outperformance episodes that ended in 2008-09 were in EBRD countries.

Crises have the potential to disrupt supply chains and burden corporations and banks with non performing loans, which may take a long time to clear, depressing growth for years to come.<sup>36</sup> As economies develop and their financial systems deepen, crises become more disruptive and their legacies become harder to overcome. For instance, at the time of the 1997-98 crisis, bank credit totalled just 9 per cent of GDP in Russia. By the time of the 2008-09 crisis, it exceeded 40 per cent. Meanwhile, outstanding bank loans in an advanced economy will typically total more than 100 per cent of GDP. The larger the financial sector, the greater the impact on the real economy in the event of a financial crisis.

Those economies that have sustained impressive long-term growth have not been immune to financial crises. It should be noted, for instance, that South Korea’s GDP contracted by 5.5 per cent in 1998. Rather, they have been successful at cleaning up the balance sheets of banks and corporations in an expedient manner and swiftly moving on. South-East Asia’s economies recovered relatively quickly following the 2008-09 crisis and have continued to outperform their peers.

In contrast, analysis indicates not only that the EBRD region was hit particularly hard by the 2008-09 crisis, but also that the subsequent recovery has been slow. This partly reflects the fact that a large percentage of the strong investment seen in the region in the 2000s was financed using foreign savings. This is not typical of outperformance episodes: current account deficits do not normally increase significantly, as increases in investment are usually financed using domestic savings.<sup>37</sup>

Not all crises are triggered by external events or international contagion. Indeed, many have domestic origins. Policy-makers have a tendency to become complacent following a period of strong growth, which may also explain reversals of fortunes. Moreover, while a crisis may initially lead to reforms, resulting in improvements in growth performance, such improvements can themselves breed complacency and lead to a new crisis, trapping a country in a CRIC (crisis-reform-improvement-complacency) cycle.<sup>38</sup>

<sup>33</sup> See OECD (2014) for a discussion of this issue.

<sup>34</sup> See EBRD (2016).

<sup>35</sup> See, for instance, Rodrik (1999).

<sup>36</sup> See Balgova et al. (2016) for estimates of this impact.

<sup>37</sup> Buera and Shin (2017), for example, show that savings tend to rise faster than investment following liberalisation reforms.

<sup>38</sup> See Feldman (2003).

## Conclusion

While economic growth naturally slows as countries grow richer, there is no evidence that economies fail to approach or surpass a particular income threshold. However, middle-income countries do tend to experience slow-downs in the growth of total factor productivity.

This can be thought of as the middle-income productivity trap, as the slow-down in productivity appears to occur as income levels surpass one-third of that of the USA. The resulting declines in productivity levels can be detected by comparing countries' income per capita at PPP and at market exchange rates. While it may be possible to offset weaker productivity growth with higher levels of investment, increases in the labour force or low wages, raising productivity is essential if countries are to achieve income levels comparable to those of the G7 economies. In addition, middle-income economies tend to have the most carbon-intensive structures of production (in terms of emissions per unit of GDP).

Historically, episodes of strong growth that are capable of propelling economies to high levels of income have proved difficult to sustain. Fast-growing economies tend to exhaust their drivers of growth after a decade or two, requiring a change of growth model. In some cases, economies manage to adapt to these changing circumstances (as in the case of South Korea, Taipei China and Israel, for instance). In many other cases, however, economies lack the flexibility to do so, and more than 40 per cent of outperformance episodes end in hard landings.

In the case of emerging Europe and Central Asia, the closing of the gap in terms of TFP was a major factor in the strong growth performance that was observed between the mid-1990s and the 2008-09 financial crisis. Moreover, for a number of those economies, the commodities boom also played an important role. In central and south-eastern Europe, the prospect of joining the EU and EU accession itself played a significant role in terms of anchoring structural reforms and facilitating large inflows of FDI and non-FDI capital. In addition, technological changes enabled these economies to become heavily integrated in global supply chains.

Today, the circumstances are different. While growth has slowed across emerging markets, the slow-down in the EBRD region has been sharper than those seen elsewhere. Between 1998 and 2008, average growth in the EBRD region was consistently stronger than that recorded in comparable emerging markets. Since 2009, however, the region has, on average, underperformed similar economies elsewhere in the world. While productivity growth drove the region's growth prior to 2008, fixed capital accumulation has been the main contributor in recent years.

However, in virtually every one of the EBRD's countries of operations, investment has lagged far behind the levels seen in comparator economies. Indeed, the region's capital stock is estimated to be 18 per cent smaller than one would expect on the basis of its level of development. Insufficient infrastructure accounts for around 40 per cent of this gap, with the remainder being accounted for by equipment, buildings and intellectual property.

The economies of the EBRD region are now in search of new sources of growth – a growth model that goes beyond the imitation and importing of technology, and facilitates innovation. Cross-country analysis of past episodes of outperformance points to a number of fairly intuitive factors supporting faster convergence. Investment (including investment in infrastructure) plays by far the most important role in this regard. The quality of economic and political institutions and demographic variables also have considerable explanatory power, as do the development of equity markets and economic openness.

The remaining chapters of this report focus on the particular challenges faced by middle-income economies and several new sources of growth brought about by the new economic order of the 21st century. The second chapter looks at the challenge of raising productivity, basing its analysis on firm-level data, while the third chapter focuses on infrastructure investment, which is particularly attractive given that financing costs are at record lows. Upgrading infrastructure is one way of giving investment a much-needed boost and reinvigorating growth. The subject of Chapter 4 is green growth, which is both an important source of productivity improvements in middle-income economies and key to sustaining growth over the longer term.



### Box 1.1. South Korea's outperformance episode

South Korea boasts one of the five longest outperformance episodes in post-war history.<sup>39</sup> That episode lasted more than four decades, spanning the period from 1961 to 2003, and by the mid 2000s South Korea's output was almost 9.5 times greater than if the country had followed the kind of growth trajectory that was typically experienced by its peers during that period. In recent years, South Korea's economic performance has generally remained strong, despite no longer formally qualifying as a period of outperformance.

South Korea's transition process stands out on account of its balanced growth trajectory. All factors – capital, labour, human capital and TFP – contributed strongly to the country's outperformance. The progress made in terms of human capital (measured by years of schooling) has been particularly impressive from an international perspective. During the early years of the outperformance episode, TFP increased rapidly, facilitating the effective absorption of capital in the economy (see Chart 1.1.1).

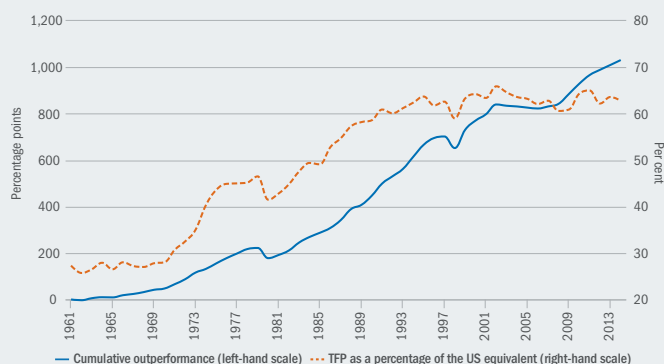
Investment in physical capital remained high throughout the outperformance episode – unlike in Japan, for instance, where it declined sharply. Investment was largely financed using domestic savings. FDI also played a role, but was, if anything, somewhat weaker than one might have expected. South Korea also invested heavily in infrastructure during its outperformance episode and has, for instance, remained a global leader in terms of its average broadband connection speed.

Sectoral shifts in labour and capital – notably away from agriculture – also played an important role. Productivity improvements at sectoral level were something of a mixed picture, with productivity in the service sector rising only slowly. In the early 1960s, manufacturing exports were well below average for a country at that level of development, but they went on to make a significant contribution to growth.

South Korea's exports target a specific niche – the lower end of a number of high-tech sectors (such as computers, electronics and cars) – with high volumes of exports, but relatively low unit values. It has been able to maintain that niche despite lower levels of country-wide productivity growth in more recent years. However, that has involved a gradual transition from the imitation and importing of technology to innovation and the exporting of technology, facilitated by rapid increases in human capital.

The country has not been immune to crises. The economy was hit particularly hard in 1971, 1980, 1991 and 2008, but on each occasion it recovered swiftly and maintained its high investment levels, even though it is common for crises to have a lasting impact on investment levels and suppress growth for three years or more.<sup>40</sup> Today, South Korea's GDP per capita stands at around 48 per cent of the US equivalent at market exchange rates and around 66 per cent of that level at PPP, with income convergence continuing.

Chart 1.1.1. Cumulative outperformance and TFP in South Korea



Source: Penn World Tables, IMF and authors' calculations.

AT THE END OF ITS  
42-YEAR OUTPERFORMANCE  
EPISODE, SOUTH KOREA'S  
OUTPUT WAS ALMOST  
**9.5**  
TIMES LARGER  
THAN IF IT HAD FOLLOWED  
THE SAME GROWTH TRAJECTORY  
AS ITS PEERS

<sup>39</sup> This discussion of developments in South Korea draws heavily on Lee (2016) and Eichengreen et al. (2012).

<sup>40</sup> See Hong and Tornell (2005).

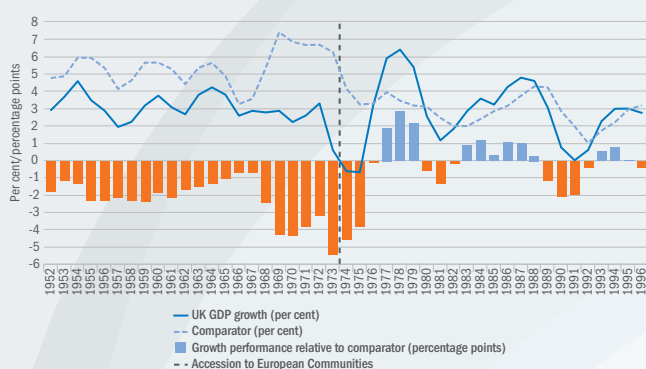
### Box 1.2. The relative performance of the UK economy before and during European Union membership

In order to understand how trends in terms of economies' growth may differ from trends in terms of their performance relative to similar economies, let us consider the case of the United Kingdom. The UK's average annual growth rate between 1951 and 1973, the year of its accession to the European Communities (as the European Union was then known), was 3 per cent, compared with 2.7 per cent in the 20 years following accession. Its growth pattern exhibited no clear trends over this period (see Chart 1.2.1), and average growth was, if anything, somewhat weaker post-accession.

The picture is somewhat different if we look at the UK's growth performance relative to a synthetic comparator calculated as a weighted average of the growth rates achieved by economies with similar income levels and population sizes. In the 1950s and the 1960s, France, Germany and other advanced economies experienced stronger growth on average, reflecting demographic trends, post-war reconstruction and lower initial per capita incomes. During this period, the UK consistently underperformed relative to its synthetic comparator. By 1977, the UK's GDP was around 45 per cent lower than it would have been had the country performed on a par with its peers.

In contrast, from the mid-1970s onwards, the UK's growth performance was broadly in line with that of its comparator. Comparing the UK's performance with those of France and Germany (the two countries with the largest weights in its reference group) yields a similar picture. The turning point in the mid-1970s came shortly after the UK's accession to the European Communities and around the time that it started extracting North Sea oil.<sup>41</sup>

Chart 1.2.1. UK GDP growth and relative growth performance



Source: Penn World Tables, IMF and authors' calculations.

Note: Data represent three-year moving averages.

<sup>41</sup> Campos et al. (2014) use synthetic counterfactuals to make a similar point about the structural break around the time of the UK's accession to the European Communities.

### Box 1.3. The maturity structure of corporate debt in emerging markets

The perceived lack of long-term finance for firms in emerging markets is a major concern for policy-makers. Long-term debt allows firms to pursue investments that take time to pay back. Moreover, a predominance of short-term liabilities – or “short-termism” – in corporate balance sheets can lead to costly financial crises if short-term debt becomes difficult to roll over.

However, there is little data available on the maturities of firms’ liabilities across different stages of economic development. Most empirical evidence is based on a simple comparison of debt with maturities of less than and more than one year. The percentage of debt with a maturity of more than one year is typically lower in developing countries than in developed ones. Recent research sheds new light on the sources of short-termism in emerging markets by looking with greater granularity at the maturity at which firms borrow in primary debt markets (including domestic and international corporate bond and syndicated loan markets).<sup>42</sup>

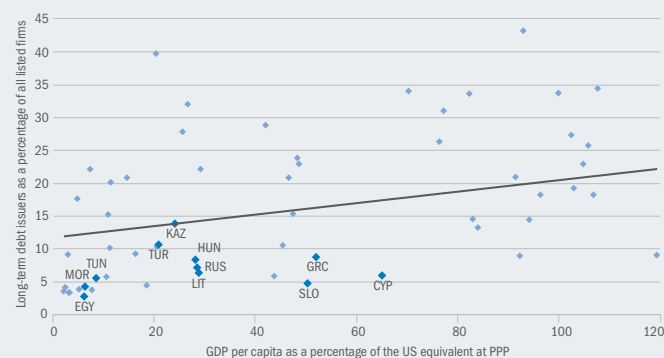
The evidence shows that firms in emerging markets and advanced economies borrow at similar maturities in corporate bond markets and syndicated loan markets. Indeed, the average maturity of debt at issuance is, if anything, shorter in countries with higher GDP per capita and higher private-credit-to-GDP ratios.

This surprising finding is driven by the composition of debt. The maturities of bonds issued domestically in emerging markets are, on average, 2.4 years shorter than those of equivalent bonds in advanced economies. However, domestic bond markets are less important in emerging markets (including the EBRD region),<sup>43</sup> as firms typically raise bond finance abroad and do so at significantly longer maturities. Furthermore, syndicated loans issued to borrowers in emerging markets often have longer maturities than those issued to borrowers in advanced economies. This stems, in part, from the fact that firms in emerging markets tend to borrow more for infrastructure projects, which entail long maturities (see Box 3.1).

Importantly, these long-term borrowing patterns apply mostly to a select group of large corporations that use corporate bond markets and syndicated loan markets. In fact, smaller borrowers in international markets are predominantly from advanced economies, while firms from emerging markets are less common in this segment.

While firms in emerging markets that do borrow in international markets do so at long maturities, the percentage of firms using long-term debt markets is smaller in emerging markets, and this is especially true in the EBRD region (see Chart 1.3.1). This explains some of the differences in the liability structure of firms’ balance sheets. Smaller firms in emerging markets (which make up a larger percentage of total firms, as discussed in Chapter 2) have few options when they need long-term external finance in order to realise investment opportunities. Consequently, they may be forced to rely, at least for a while, on shorter-term instruments such as commercial paper or traditional bank loans.

**Chart 1.3.1.** Long-term debt issuers as a percentage of listed firms and GDP per capita



Source: Cortina et al. (2017).

Note: “Long-term debt issuers” are defined as firms issuing at least one bond or syndicated loan during the period 2003-11.

<sup>42</sup> See Cortina et al. (2017).

<sup>43</sup> See De Haas and van Horen (2017).

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