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Kazakhstan's Policy Options in a Downturn
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Executive Summary

This report assesses the role of fiscal rules for countercyclical economic management in Kazakhstan and simulates the behavior of different types of fiscal rules. The work represents technical assistance to the Ministry of Economy and Budget Planning and has been financed by the Joint Economic Research Program between the government of Kazakhstan and the World Bank. It responds to government demand to assess the following four topics, in line with the terms of reference agreed between the World Bank and the authorities:

- Assessing the cyclicality of the government's economic policy stance over the last 10 years and identifying lessons from this experience.
- Exploring how different global economic scenarios could affect key variables in the Kazakh economy.
- Assessing the expected impacts of alternative fiscal rules on key economic variables.
- Reviewing the literature on countercylical fiscal policy and its relevance for Kazakhstan.

Kazakhstan adopted a fixed fiscal rule in 2010 and introduced changes to it in 2012. The current rule is simple and easy to implement. Its main feature is that each year the National Fund of the Republic of Kazakhstan (national oil fund) transfers the equivalent to $8 billion to the budget. This rule is similar in scope to the permanent income approach, where government spending out of resource revenues is based on the net present value of its estimated wealth and not on the government's varying annual revenues. Transitory changes to resource-related revenues caused by fluctuations in commodity prices or temporary changes to production are not relevant; permanent changes are. By keeping the annual amount transferred from the fund to the budget constant, Kazakhstan's rule is more stringent than pure application of the permanent rule would imply. Under the latter, permanent changes to prices, production, or other relevant factors would result in changes to the transferred amount. The authorities have expressed interest in learning more about the experience of other countries with the use of fiscal rules and the scope for fiscal rules in countercyclical policy.

This report's five chapters outline the advantages of Kazakhstan's current fiscal rule and its performance against other types of rules. Chapter 1 reviews the performance of the Kazakh economy and the policy stance of the authorities over the last 10 years. The analysis focuses on the policies that worked well before and after the recent crisis—and on vulnerabilities that have yet to be addressed. A few good-practice principles on dealing with severe recessions are presented as lessons for the future. Chapter 2 argues that fiscal rules should be simple and transparent, presenting evidence that Kazakhstan's current fiscal rule meets these two criteria. Chapter 3 presents the results of simulations of different global economic scenarios and the expected impacts on key variables in Kazakhstan, considering scenarios as elected in close consultation with

the Kazakh authorities. Chapter 4 uses the results of these simulations to test the performance of different types of fiscal rules. Chapter 5 responds to a government request to review the literature on the use of fiscal and monetary policy for countercyclical economic management.

Kazakhstan's economic policy stance and the global financial crisis

Kazakhstan grew rapidly in the first half of the 2000s, following a conservative fiscal policy that allowed the buildup of sizable fiscal buffers. Annual gross domestic product (GDP) growth averaged 10 percent, and average real incomes more than doubled, transforming Kazakhstan into an upper middle-income economy in a short time. Despite large oil-related revenues, the fiscal stance remained prudent. Total spending averaged 22 percent of GDP for most of the precrisis period, with the nonoil deficit averaging 3 percent of GDP, even as oil prices and revenues rose. Fiscal prudence allowed the authorities to accumulate significant savings in the national oil fund, which reached $27 billion by the end of 2008, equivalent to 21 percent of GDP.

Massive capital inflows complicated macroeconomic management, limiting scope for a decline in inflation, boosting asset prices, and planting the seeds of crisis in Kazakhstan. These inflows were related to soaring real estate prices in Kazakhstan's larger cities and a related boom in housing construction. International creditors supplied larger (private) commercial banks with abundant unsecured credit, expecting that the government would use the national oil fund to prevent failures of these large, systemically important banks. This expectation, combined with soaring commodity and real estate prices and limited banking regulation and supervision, set the stage for a severe financial bubble. Most of this credit flowed to construction and real estate, and the share of such lending amounted to 30 percent of GDP at the end of 2007. As a result, the finance and construction sectors became the major drivers of economic growth.

The onset of the global financial and economic crisis hit the Kazakh economy severely. Export revenues declined, and the current account moved from a surplus of $3.7 billion in the first half of 2008 to a deficit of $3.5 billion in the first half of 2009. The fiscal position deteriorated sharply, with the nonoil fiscal deficit widening to 10.5 percent of GDP in 2008 before peaking at 13.8 percent in 2009. Together with a weak capital account, this placed the tenge under significant pressure, leading the authorities to devalue the currency by 20 percent in February 2009. Commercial banks also lost virtually all access to rollover opportunities in global financial markets.

In response, the authorities implemented a fiscal stimulus program of $21 billion. About $11 billion of the funds were devoted to direct assistance to struggling commercial banks (primarily BTA), while the rest financed anticrisis stimulus measures in various sectors of the economy. As part of the anticrisis program, the government protected social expenditures from budgetary sequestration, insured all pension payments indexed to inflation (including those from private pension funds), extended unemployment benefits from four months to six, and promoted the signing of memoranda between regional authorities and larger enterprises to preserve jobs.

Stepped-up liquidity support for commercial banks and a substantive increase in deposit insurance prevented the collapse of the banking sector. By March 2009, reserve requirements for commercial banks had been progressively reduced from 6.0 percent to 1.5 percent for internal liabilities, and from 8.0 percent to 2.5 percent for external liabilities. The $11 billion that the authorities provided in direct equity and debt financing (10 percent of GDP) helped stabilize credit to the private sector. The interventions succeeded in maintaining depositor confidence in the banking system.

There are five lessons from the global financial crisis. First, the crisis challenged the belief that stable and low inflation was the primary—and many times the exclusive—mandate of central banks. Second, it forced central banks to rethink the conventional principle that monetary policy should be focused on a single instrument: the policy interest rate. Third, it highlighted the limitations of monetary policy and underscored the role of fiscal policy as

an effective tool for macroeconomic management in a severe downturn. Fourth, it changed perceptions of the role of financial regulation, which was largely ignored as a macroeconomic policy tool before 2008 in most countries. And fifth, given that discretionary fiscal measures may come too late to fight a standard recession, the crisis strengthened the need for improving automatic stabilizers.

For Kazakhstan, automatic stabilizers can be a useful complement to monetary and fiscal policies in a downturn. As discussed above, monetary policy may not be effective in a severe economic downturn, and fiscal measures may yield positive results only with a lag. Automatic stabilizers do not suffer from these shortcomings. With large fiscal stabilizers, the impacts in the economy can be felt in a timely and gradual fashion as taxes and expenditures react in a countercyclical manner to changing economic conditions. In addition, automatic stabilizers minimize both the interference of political decisions and implementation lags in the response to the shock. Automaticity also guarantees a timely reversal of a fiscal expansion as the fiscal loosening during bad times is automatically corrected by tightening in good times.

Fiscal rules should be simple and transparent

In the aftermath of the crisis, Kazakhstan adopted a fixed fiscal rule to govern the transfers from the national oil fund to the budget. The fiscal rule rested on two principles. The first set the annual transfer from the fund to the budget at $8 billion in nominal terms (with the exchange rate for setting the amount in tenge fixed over a three-year horizon). The second limited the interest cost of the public debt to 4.5 percent of the fund balance. The national oil fund was modified by the government's Presidential Decree 289 (dated March 16, 2012), changing the transfer of funds to the budget from the previously fixed $8 billion to the flexible amount of $8 billion plus or minus 15 percent ($6.8–$9.2 billion), depending on the cyclical position of the economy. These adjustments will remain valid until the end of 2013, and the budget will receive a transfer of $9.2 billion, keeping the transfers pegged at the upper end of the specified range. Meanwhile, the complementary provisions to prevent government borrowing from "undoing" the fund's savings remain unchanged.

Kazakhstan's fiscal rule performs well against other types of rules. Several criteria can be used to assess the robustness of a given type of fiscal rule, and this report considers those put forward by Kopits and Symansky (1998) to test how well the current set of rules in Kazakhstan performs from a normative point of view. These criteria include several aspects that would be expected in any given fiscal rule, but the most important is that fiscal rules should be simple and transparent for reasons of credibility and enforceability. Kazakhstan does well on both criteria—and on many others.

A comparison with the fiscal rules used in Chile and Norway highlights differences with the approach used in Kazakhstan. These differences do not, however, mean that the Kazakh rule is inferior. Chile's fiscal policy is anchored on a structural balance target that depends on the long-term price of copper—while Norway follows a complex structural deficit rule that depends on the nonoil deficit. While these types of rules have desirable properties in theory, they are very hard to implement and are not entirely transparent. And if they are too difficult to implement, they can undermine the government's credibility in the markets. The Kazakh rule is simple, effective, and transparent—and has been able to deal satisfactorily with transitory shocks.

The bird-in-hand rule would not be a good replacement for the current Kazakh fiscal rule, either. It sets the amount of transfer from the oil fund to the budget equal to the investment returns from the oil fund similarly to what is currently implemented in Norway. Applying the bird-in-hand rule over the life of the extraction cycle implies higher savings and lower transfers to the budget in the earlier years, because the driving principle is the uncertainty about future revenues. Such an approach is appropriate for mature producers such as Norway, with large accumulated financial reserves and an oil extraction cycle close to the end. Current projections for Kazakhstan show that the annual transfers from the oil fund to the budget are expected to surpass

its earned investment income only by 2025. So, adopting this type of rule in Kazakhstan could significantly reduce the nominal amount transferred to the budget until at least 2025.

A fixed transfer rule with an escape clause allows nearly as much gain in welfare as does a theoretically optimal rule. That is, a fixed rule with clear criteria to allow for a deviation from the fixed amount that is supposed to be transferred to the budget every year for a limited period (the escape clause) performs as well as an optimal (and very complex) rule. The countercyclical policy stance adopted to cushion the effects of the 2008–09 economic crisis was a de facto implementation of such a rule. For the future, this approach could be codified. But it would be important to determine the threshold for triggering an escape clause and the number of years such an alternative regime would remain in effect before assuming that the shock is chronic rather than transitory.

The main recommendations for dealing with transitory shocks within the framework of the current fiscal rule can be summed up as follows:

- *First, consider raising the $8 billion base amount, which has not been revised since the introduction of the rule in 2010.* Applying the growth of nonoil GDP since 2010 to this amount would adjust the base amount to about $11 billion. This should preserve the nondistortionary characteristics of the original $8 billion fixed amount while allowing for the greater absorptive capacity of the now-larger domestic economy. For the future, periodic adjustment of the base might be desirable. The adjustments could be made based on trend growth in nonoil GDP, something that could be calculated only over longer periods—at least four to five years, if not longer.
- *Second, add two limiting factors for implementing 15 percent deviations from the rule.* One would be to specify the size of the shock that would trigger such a deviation; the other would impose a time limit for how long such additional transfers could be used (such as two years).
- *Third, implement "automatic stabilizers" to the extent possible.* That is, use the structure of the tax code (by doing such things as making taxes conditional on income or profits) and the structure of expenditure programs (by doing such things as making poverty or other assistance programs conditional on income or employment status) to make countercyclical revenue and expenditure changes as automatic as possible.

How a changing world would affect a changing Kazakhstan

Living standards in the long term crucially depend on the pace of productivity growth, the ability of the economy to create jobs, and the absence of large swings in economic activity. Whether productivity growth averages 2.0 percent a year or 2.5 percent makes a huge difference—under the former assumption, per capita GDP in Kazakhstan could reach as much as $100,000 by 2050; under the latter, $130,000. Larger extraction of natural resources and spending by the government could lead to a pace of capital accumulation that may offset weak productivity growth for a while. But in the absence of productivity growth the sustainability of that high income will be challenging, and job creation can come only at a high cost. Ultimately, the pace of productivity growth in an economy on the cusp of high-income status will depend on the ability of companies to innovate, which will require a well-educated and highly skilled labor force, sound institutions that guarantee property rights, and a good investment climate.

The world economy has been through a turbulent period, and Kazakhstan can be affected by different exogenous shocks. While there is a multitude of such potential shocks, three were chosen to illustrate the possibility for external events to seriously affect Kazakhstan's economic performance: a serious Euro Area crisis resulting from a financial sector breakdown, a United States–centered shock stemming from fiscal paralysis in the U.S. government, and a China-centered shock stemming from a collapse of Chinese investment and thus demand for Kazakh exports. These scenarios, chosen by the authorities, are aimed to illustrate how their materialization in the short term could possibly affect the Kazakh economy over the short and medium terms.

Over the medium term, the effects of these three extreme scenarios on Kazakhstan would

be differentiated. The detailed simulations presented in the background paper on different scenarios for the world economy show that the worst impact would be felt in Kazakhstan if Chinese investments were to collapse. In the event of a 10 percentage point drop in Chinese investments, China's GDP would slow down by 3 percentage points. In the World Bank's global macroeconomic model, this would hurt the world economy and cause spillover effects that could hit Kazakhstan through a reduction in the demand for oil and other commodities. As a result, Kazakhstan's share of oil exports would drop from an estimated 57 percent in the baseline estimate for 2010 to 38 percent by 2050, leading to significantly slower growth in GDP per capita. While Kazakhstan's GDP per capita in the baseline is estimated to reach $105,000 by 2050, the combined impacts of a slowdown in the Chinese economy would mean that Kazakhstan's GDP per capita would reach $98,000 by 2050. This contrasts with the milder effects expected from a deterioration in the Euro Area, which would imply a GDP per capita of just under $105,000, and an intermediate impact from slower growth in the United States, which would bring Kazakhstan's GDP per capita to $101,000 by 2050. The next paragraphs look at the short-term impact of these scenarios on the Kazakh economy.

Kazakhstan's role in the world economy will depend on the policies the authorities implement—and with the right policies, the country could reach the income per capita of the top 30 richest nations by 2050. The baseline scenario for Kazakhstan assumes total factor productivity (TFP) growth of 2.5 percent a year, the stabilization of the international price of oil, and a growing share of the demand for oil coming from developing countries. Given that Kazakhstan's TFP growth averaged 4.5 percent during 1995–2005, but before that a modest 0.5 percent, this report simulates a 0.5 percent increment in TFP growth over the baseline during 2015–19 then gradually tapering off to around 2.0 percent by 2025.

This optimistic assumption for future productivity growth rests on the premise that significant structural changes would be needed to reach the income per capita of the richest nations. These structural changes could be the outcome of policy reforms to improve the quality of education in the country, the business environment, and the institutions that regulate economic activity and the delivery of public services. That would help, much along the lines of the recommendations of the recent World Bank Country Economic Memorandum, *Beyond Oil: Kazakhstan's Path to Greater Prosperity through Diversifying*. If such productivity growth were to materialize, Kazakhstan's income per capita would rise to the level of the 30 richest countries by 2050.

Evaluating the different fiscal rules

The simulations from different global economic scenarios were used as a starting point to compare the performance of Kazakhstan's fiscal rule with other rules. This was particularly useful to evaluate how the different rules behaved in a period of economic contraction and uncertainty about the future. One difficulty associated with the use of fiscal rules as a countercyclical policy instrument is the complexity of identifying in real time where the economy is in the business cycle. This is much more important in the context of an oil-rich country, given the inherent volatility of international oil prices. Countries that try to use a forecast of the structural deficit balance as the target for cyclically adjusted fiscal policy face enormous challenges. The results of the simulations show that the adoption of short-term fiscal rules designed to be countercyclical can create even greater volatility in the presence of forecast errors.

Theoretical considerations about an optimal rule show sizable gains. An optimal rule would entail accumulating savings of about 25 percent of GDP over the next 25 years. But an optimal rule simply is not practical given all the complexities involved with its implementation. Even so, additional simulations show that a simple fixed rule with an escape clause allows nearly as much gain in welfare as a theoretically optimal rule. This is very close to what Kazakhstan is already implementing. The implication of adding an escape clause to a rule that follows the permanent income hypothesis is found to deliver roughly 75 percent of the gains under the optimal rule (that is, a 12.6 percent improvement in national welfare). Additional

evidence suggests that the current fiscal rule in Kazakhstan already performs well compared with other more complex options.

Theoretical considerations for countercyclical policy

The case for strong countercyclical fiscal policy rests on a public stimulus when private demand is weak. According to the literature, the welfare implications of doing this are clearly better than a balanced budget rule, which simply transfers current cyclical ups and downs to the government budget and thus to all affected by it. It is also better than structural surplus rules, which take a longer term view and target a desired long-run government surplus-to-GDP ratio—and respond to cyclically low (high) government surpluses by increasing (reducing) government debt rather than instantaneously changing fiscal instruments. A key insight from this theoretical debate is this: if minimizing business-cycle volatility were instead the main objective of policy, there are significant gains to implementing a much more countercyclical rule through strong automatic stabilizers such as progressive taxation and unemployment insurance.

Monetary policy could also help, but its effectiveness would require an efficient financial sector. Liquidity has to be adequate when monetary policy requires boosting the money supply. And financial development has to be deep enough so that the links between financial markets and instruments and the real economy are developed enough. This is important since it is precisely through such channels that monetary policy must act if it is to be an effective instrument of policy in affecting cycles in the real economy. The fewer the options for private entrepreneurs to access credit or financial markets, the fewer the channels through which economic authorities can expect money and interest rates to provide a stimulus or a brake.

A major impediment to a broadly effective monetary policy in Kazakhstan is the fragility of the banking system. This became particularly important after the 2008–09 world financial crisis and the subsequent end of the Kazakh real estate bubble that accompanied the worldwide boom before the crash. Many banks got into major financial trouble as a result of the crisis, and many were taken over by the state. A pervasive problem for the system as a whole is the high proportion of nonperforming loans carried by banks. While the Kazakh authorities have taken concrete steps to address this problem, Kazakhstan's nonperforming loans remain among the world's highest.

Chapter 1

Kazakhstan's Economic Policy Stance and the Global Financial Crisis

This chapter reviews the policy choices pursued by Kazakhstan during the previous decade and the government's response to the global financial crisis. The analysis starts with a description of the macroeconomic conditions that prevailed in the first half of the decade and identifies the seeds of the crisis and how it hit Kazakhstan. The analysis next focuses on the policy responses of the Kazakh authorities to deal with the effects of the crisis.[1] This involved a fiscal stimulus that topped $21 billion, including targeted measures to help the most vulnerable and the private sector and avoid a collapse of the banking sector. The chapter then briefly discusses the lessons from the 2008–09 crisis on how to use monetary and fiscal policies more effectively in combination with macroprudential regulation and automatic stabilizers to deal with a significant and prolonged economic downturn.

Before the crisis

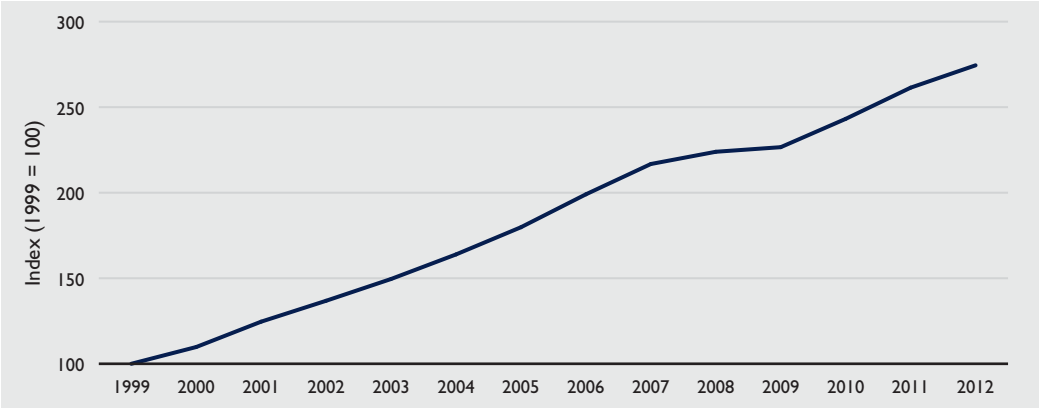
Rapid growth and fiscal discipline could not avoid the crisis

Kazakhstan grew rapidly in the first half of the 2000s and made considerable progress in reducing poverty. The country attracted large inflows of foreign direct investment, privatized small and medium enterprises and housing, and adopted modern public resource management institutions with significant benefits for the economy and its people. Annual GDP growth averaged 10 percent, and average real incomes more than doubled along with GDP, transforming Kazakhstan into an upper middle-income economy in a short time (figure 1.1). The share of the population living below the official poverty line declined from 44.5 percent in 2002 to 12 percent by 2007. Meanwhile, the unemployment rate, as defined by the International Labor Organization, declined from an estimated 13 percent in 2000 to less than 7 percent in 2007.

In the years preceding the crisis, Kazakhstan maintained a prudent macroeconomic policy stance and avoided procyclicality in fiscal spending. Total spending averaged 22 percent of GDP for most of the precrisis period, with the nonoil deficit averaging 3 percent of GDP, even as oil prices and revenues rose. Efforts to resist pressures for major increases in state expenditures during 2000–07 helped to accumulate significant savings in the national oil fund, which reached $27 billion (21 percent of GDP) by the end of 2008 (figure 1.2), and to maintain relatively low inflation for most of this period.

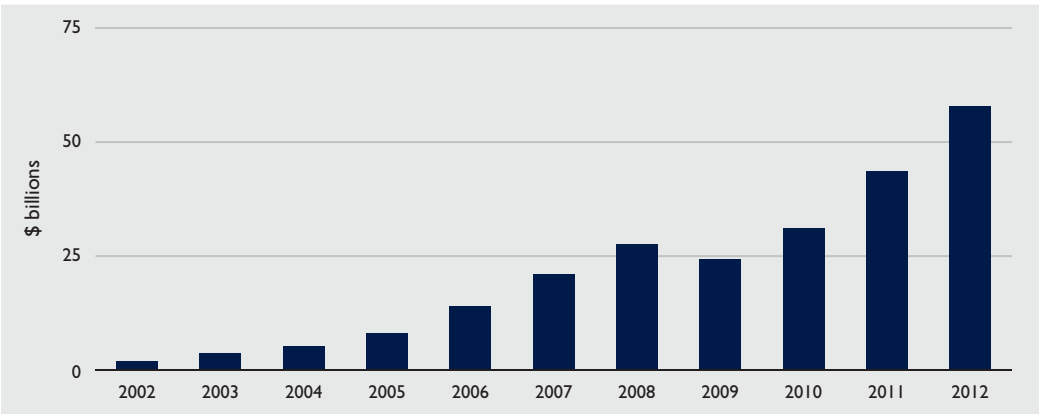
The national oil fund helped prevent excessive real appreciation of the exchange rate. The tenge appreciated in real terms by an estimated 20 percent in 2000–08, but this was less than that in many other resource-exporting countries. This partly reflects the sterilization of a large part of the oil-related inflows through the national oil fund. The fact that a significant share of oil profits were expatriated from Kazakhstan provided another counterbalancing force to the impact of oil prices on the external balance. But the pace of real

Figure 1.1 Kazakhstan real GDP, 1999–2012



Source: Statistical Agency of Kazakhstan; World Bank staff calculations.

Figure 1.2 National oil fund reserves, 2002–12



Source: National Bank of Kazakhstan.

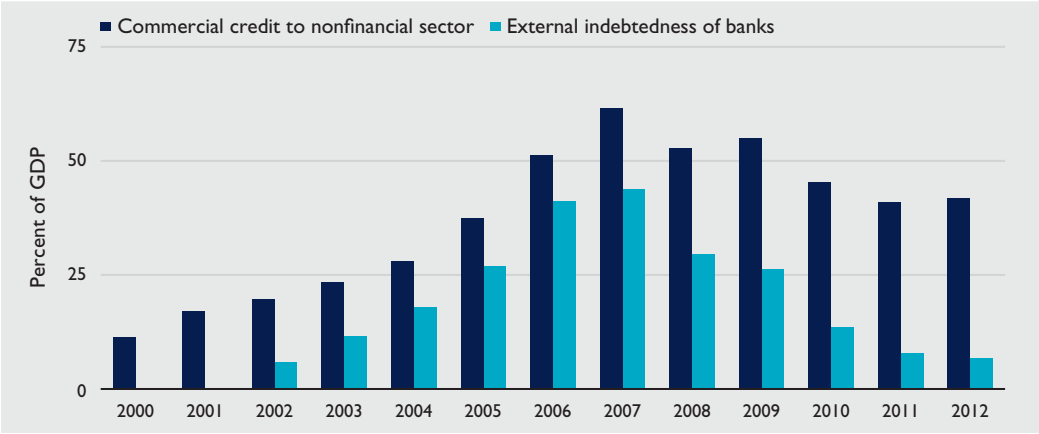
appreciation did pick up considerably in 2006–08 because of substantial unsterilized capital inflows. The tenge appreciated in real terms by 2 percent during 2000–05 but by 18 percent in 2006–08.

The crisis in Kazakhstan was aided by massive capital inflows that were not sterilized in a timely fashion, and the economy overheated. These inflows were related to soaring real estate prices in Kazakhstan's larger cities and a related boom in housing construction. International creditors supplied larger (private) commercial banks with abundant unsecured credit. Creditors largely expected that the government would use national fund resources to prevent failures of these large, systemically important banks. This expectation, combined with soaring commodity and real estate prices and limited banking regulation and supervision capacity, set the stage for a severe financial bubble.

Drowning in foreign exchange

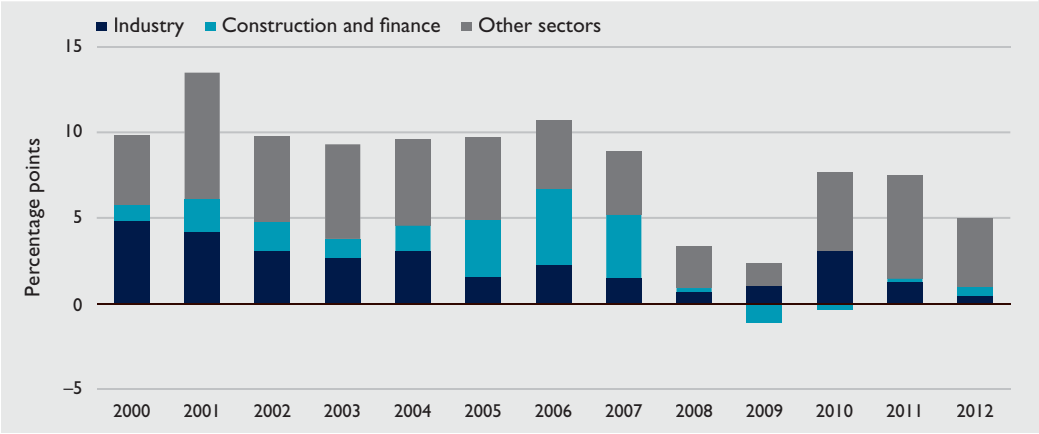
Easy access to foreign borrowing by banks fueled credit and real estate booms. The banking sector's external debt escalated from $8 billion to $46 billion (42 percent of GDP) during 2005–07. The loan-to-deposit ratio reached 2.2 percent, and the nominal value of commercial bank credit to the economy almost doubled (figure 1.3), raising its share from 25 percent of GDP in 2004 to around 56 percent in 2007. Most of this credit flowed to construction and real estate, and the share of such lending was 30 percent of GDP at the end of 2007. The finance and construction sectors became the major drivers of economic growth (figure 1.4).

Figure 1.3 Expansion of credit to the nonfinancial sector and external indebtedness of Kazakh banks, 2000–12



Source: National Bank of Kazakhstan; World Bank staff calculations.

Figure 1.4 Composition of real GDP growth by sector, 2000–12



Source: Statistical Agency of Kazakhstan; World Bank staff calculations.

The government and the regulators were late in taking action to reign in the credit boom. While the prudential position of banks seemed comfortable, macroprudentially there were signs of growing pressures. The surge in real estate prices supported bank comfort, but the heavy exposure to short-term external sources of financing created significant vulnerabilities. The absence of a sound legal framework for resolving weak and troubled banks, insufficient independent monitoring of the conditions of banks to generate early warning signs, and the perception that the government might be willing to bail banks out meant that the banks had few incentives to manage their risks. The porous regulatory framework could not restrain excessive external borrowing or domestic real estate lending, and supervision capacity was inadequate. By the time prudential regulations on foreign borrowing were tightened in early 2007, it was too little too late.

Policy responses to the crisis

The onset of the world economic crisis in the second half of 2008 and associated sharp declines in commodity prices had a severe impact on Kazakhstan. Monthly export revenues fell from $3.5 billion in the first 11 months of 2008 to less than $1.5 billion in December 2008 and in the first quarter of 2009. The current account moved from a surplus of $3.7 billion in the first half of 2008 to a deficit of $3.5 billion in the first six months of 2009. With a weak capital account, this placed the tenge under significant pressure. Kazakh banks also lost virtually all access to rollover

opportunities in global financial markets. Lower commodity prices worsened investment sentiment toward Kazakhstan.

After the country lost $6 billion trying to defend the tenge in January and early February 2009, the National Bank conducted a one-off 20 percent devaluation of the currency. While the devaluation proved effective in relieving pressure on the tenge and stabilizing expectations, a weaker tenge put additional pressure on the banking sector, with roughly half of the domestic loan portfolio denominated in foreign currency.

Kazakhstan's fiscal position deteriorated sharply, and the nonoil fiscal deficit widened to 10.5 percent of GDP in 2008 and hit 13.8 percent in 2009. Consolidated state budgetary revenues dropped by about 4 percent of GDP in 2008 due to the recession, low commodity prices, a lower corporate income tax rate, and the granting of uniform investment credits. Outlays increased from 23 percent of GDP in precrisis years to 27.9 percent in 2009 to finance higher social commitments and off-budget stimulus spending.

The fiscal difficulties highlighted the need for more budget flexibility and more effective targeting of countercyclical fiscal policies. The immediate priority was to make public spending more efficient, budgets more strategic, and budget execution more flexible. The government undertook a major revision of the 2004 Budget Code, and parliament approved its first three-year national budget for 2009–11 based on the strategic plans of government ministries in 2008.

The authorities implemented an anticrisis support program of $21 billion. The majority of this came from the republican budget or the large state corporate conglomerate Samruk-Kazyna. About half the support funds ($11 billion) were devoted to direct assistance to struggling commercial banks (primarily BTA), while the other half (more than $10 billion) financed anticrisis stimulus measures in various sectors of the economy.

Several measures were introduced to alleviate the social consequences of the crisis. The government protected social expenditures from budgetary sequestration, insured all pension payments indexed to inflation (including those from private pension funds), extended unemployment benefits from four months to six, and promoted the signing of memoranda between regional authorities and larger enterprises to preserve jobs. In the spring of 2009, an additional public works program of $1.5 billion (1.5 percent of GDP), called the "Road Map," was set up for job creation, training, and temporary wage subsidies to vulnerable groups at the regional level through special budgetary transfers to local authorities. Public salaries were increased significantly. The share of social spending in the consolidated government budget increased from 52 percent in 2008 to 60 percent in 2009.

The National Bank stepped up its liquidity support for commercial banks in late 2008 and 2009, while deposit insurance increased sevenfold. By March 2009, reserve requirements for commercial banks had been progressively reduced from 6.0 percent to 1.5 percent for internal liabilities, and from 8.0 percent to 2.5 percent for external liabilities. Reverse REPO operations were used for liquidity support ($2.9 billion by the end of the third quarter of 2009). The accounts of a number of state-owned organizations were also shifted from the National Bank to commercial banks. To support depositor confidence, household deposit insurance was increased from 700 thousand tenge to 5 million tenge.

The banking crisis in international perspective

The basic patterns in Kazakhstan are qualitatively similar to those in many other countries that have experienced financial and banking crises. The initial financial instability came from an investor panic and sudden stop in capital inflows that followed rapid foreign borrowing and credit expansion to housing and construction in the context of soaring real estate prices. This is the most common pattern for financial crises in a large number of countries.

Several country-specific factors in Kazakhstan increased the severity of the bubble that burst in August 2007. As in other countries, a primary cause of the initial financial instability was excessively risky behavior by commercial banks and their foreign creditors. This

behavior reflected the expectation that, in the event of failure, a good share of the losses might be passed on to the government. Such distorted incentives can be mitigated to the degree that the government can either commit to limit the extent of such bailouts (enforce hard budget constraints) or enforce prudential regulations that place direct restrictions on the ability of banks to assume risks. As a transition economy, Kazakhstan still had quite limited capacity for the latter, and the rapidly accumulating fiscal oil reserves of the government made the eventual bailout of systemically important distressed banks appear probable to investors. Under these conditions, foreign creditors supplied abundant cheap credit to Kazakh banks with little concern about how the money was used, and many of the banks used this money to finance high-risk strategies in real estate. Foreign borrowing came to account for as much as 40 percent of bank liabilities, while foreign currency lending reaching roughly half of the aggregate credit portfolio.

Managing the banking crisis in Kazakhstan

The government and National Bank developed an effective strategy to manage the crisis. Authorities met the initial instability with extensive liquidity support and a sevenfold increase in deposit insurance for households, and later with a recapitalization plan for the four largest banks. Following a further deterioration of the situation, authorities seized control of two large problem banks in February 2009. By mid-2009, the government and National Bank developed an effective and consistent strategy, including:

- Passing revised legislation in 2009 that allows for the effective resolution of large problem banks, including purchase and assumption powers and problem-bank divisions into "good bank/bad bank."
- Revising the legal framework for bank restructuring.
- Successfully renegotiating the unsecured private credits to BTA and Alliance to write down more than $10 billion of the foreign debts of those banks.
- Increasing the capacity and effectiveness of banking supervision, particularly for larger banks.
- Changing prudential and other regulations to prevent a repetition of the excessive risky borrowing and lending that led to the 2007 instability.

These and other measures prevented a collapse of the banking sector—and have done much to create conditions for the recovery of credit and financial markets under new and healthier principles. Through various programs, the government and state sector injected close to $10 billion into the banking sector during 2007–09, while foreign creditors are financing a similar sum through write-downs of their debts in BTA and Alliance. The fact that Kazakhstan succeeded in leaving a good share of the losses in BTA and Alliance with creditors and shareholders is of primary importance. First, it reduced the direct costs of revitalizing (or shutting down) these banks to the government and taxpayers. Second, it sent a strong signal to financial markets that the government is not implicitly insuring private unsecured foreign credits, a signal that now motivates foreign creditors and investors to devote more attention to ensuring efficient use of their funds in Kazakhstan.

The lessons from the crisis

The global financial crisis challenged some macroeconomic principles that policymakers used to live by. First, it challenged the belief that stable and low inflation was the primary and many times exclusive mandate of central banks. Second, it forced central banks to rethink the conventional principle that monetary policy should focus on a single instrument: the policy interest rate. Third, with low and stable inflation secured, the conventional wisdom was that fiscal policy should have a limited role in macroeconomic management; but this principle also had to be set aside during and after the crisis. Fourth, the crisis urged in a change in perception of financial regulation, which was largely ignored as a macroeconomic policy tool before 2008 in most countries. Fifth, given that discretionary fiscal measures may only come too late to fight a standard recession, the crisis strengthens the need for improving automatic stabilizers.[2]

While stable and low inflation remain valid objectives of macroeconomic policy, they are

no longer considered enough. When the crisis hit, core inflation was stable in most advanced economies. With the benefit of hindsight many have argued that core inflation was not the right measure of inflation, and that the increase in oil or housing prices should have been taken into account. What has emerged as a postcrisis lesson is that while inflation and the output gap may be stable, the behavior of some asset prices and credit aggregates, or the composition of output, may be undesirable (for example, excessively high consumption, housing, or current account deficits) and can potentially trigger major macroeconomic adjustments later.

Monetary policy alone is no longer seen as an effective way to deal with prolonged recessions. When the crisis started in earnest in 2008, many central banks started quickly reducing interest rates to close to zero, but this proved insufficient to revive aggregate demand. They had to extend the scope and scale of their traditional role as lenders of last resort and provide liquidity to the economy more broadly. While it is questionable whether the provision of liquidity should be kept in more tranquil times, due to moral hazard and risk taking by banks, the lesson from the crisis is that monetary policy alone could not bring the economy back from a deep recession. Fiscal policy had a huge role.

Another important lesson from the crisis is that it pays to build fiscal space in good times. Because the use of monetary policy, including credit and quantitative easing, reached a limit, policymakers had no choice but to rely on fiscal policy. With the expectation of a prolonged recession, the fiscal stimulus became the norm in the economies hit hardest by the crisis, like Kazakhstan. But economies that entered the crisis with high levels of debt and large unfunded liabilities had limited ability to use fiscal policy. Similarly, the economies that ran highly procyclical fiscal policies driven by consumption booms were forced to cut spending and increase taxes despite unprecedented recessions. Only those that entered the crisis with lower levels of debt were able to rely on countercyclical fiscal policies to fight the crisis. An associated lesson for the next decade is that, whenever cyclical conditions allow, governments should promote fiscal adjustments to reduce debt-to-GDP ratios rather than finance spending increases or tax cuts.

Financial intermediation is now seen as an important aid to macroeconomic policy. Before the crisis, conventional wisdom was that financial intermediation should focus on individual institutions and markets only—and that it had little or no role as a macroeconomic policy tool. In many countries, there was great enthusiasm for financial deregulation, and prudential regulation for cyclical purposes was considered improper interference in the credit markets. After the crisis, again with the benefit of hindsight, it became common sense to combine monetary policy with macroprudential regulatory tools. While the policy interest rate can be used primarily in response to aggregate demand activity and inflation, macroprudential regulatory instruments can help deal with financing or asset price issues. At the same time, regulatory instruments can help central banks handle excessive leverage or risk taking by banks.

The crisis highlighted the need to develop efficient automatic stabilizers to ease the effects of a deep recession. As discussed, monetary policy may not be effective in a severe economic downturn, and fiscal measures may yield positive results only with a lag. Automatic stabilizers do not suffer from these shortcomings. With large fiscal stabilizers, the impacts in the economy can be felt in a timely and gradual fashion as taxes and expenditures react in a countercyclical manner to changing economic conditions.[3] In addition, automatic stabilizers minimize both the interference of political decisions and the implementation lags in responding to the shock. Automaticity also guarantees a timely reversal of a fiscal expansion as the fiscal loosening during bad times automatically becomes tightening in good times.

Automatic stabilizers can be enhanced through tax and expenditure policy changes without increasing the size of government. This could be done by making tax collections responsive to changes in economic conditions and by raising the share of taxes collected from income-based taxes, which usually have higher income elasticities. In addition, some

expenditure programs, such as unemployment benefits, have a stabilizing impact on disposable household income during economic slowdowns. But these traditional mechanisms are already widely used in most countries and tend to have only limited automatic stabilizing effects in a downturn.[4] To enhance their efficacy, a suggestion is to change tax and expenditure parameters temporarily in response to macroeconomic conditions. This would include, for example, providing temporary time-bound rebates in the personal tax or reductions in value-added taxes or sales taxes during severe recessions; allowing companies to offset corporate tax losses against past profits; scaling up unemployment benefits when unemployment rates exceed a certain threshold; and automating a system of budgetary transfers to states or provinces in prolonged recessions.

Kazakhstan has responded to the crisis in a way consistent with these lessons. While the

Box 1.1 Description of the social safety net programs

State special allowances. State special allowances were introduced in 1999 to replace earlier cash and noncash preferences and discounts designed for various groups of people—for housing maintenance and utilities, fuel, telephones, medicines, glasses, public transportation, periodical subscriptions, and the like. Special state allowances are now paid in cash to those in the following eligible categories: World War II veterans, the disabled, individuals who participated in the liquidation of the Chernobyl catastrophe, families of military persons who died in service, individuals awarded orders or medals, victims of political repression, and mothers and families with many children. There are 17 categories overall, funded from the national budget and with the average $20 per person a month.

State social allowances. This category of allowances comprises disability allowance, survivor allowance, and old-age allowance. Disability allowance is paid in cash on a monthly basis during the disability period. Disability must be certified. Once the disabled beneficiary reaches retirement age and becomes eligible for pension payments, disability allowance is terminated. But if the total of the individual's pay-as-you-go pension and accumulation pension is less than the previously paid monthly disability allowance, the allowance will continue to be paid, its size being equal to the difference between the awarded pension and the earlier disability allowance. Survivor allowance is paid to all eligible family dependents of deceased breadwinners. Survivor allowances are awarded for the period during which the recipients remain unable to work or until they reach retirement age. Old-age allowance is paid to individuals who have reached retirement age but are either ineligible for pension payments or whose pension entitlements are below the minimum. Retirement-age persons who have been making the mandatory contributions to the pension system may also receive an old-age allowance sufficient to bring their income to the minimum monthly pension. These are funded from the national budget, and the average is $50 per person a month.

Targeted social assistance. Targeted social assistance was introduced in 2002. It is a cash payment provided to individuals (or families) with average per capita monthly income below 40 percent of the subsistence minimum of their oblast. The size of the payment for each eligible household member is the estimated difference between the household per capita income and the poverty line in the region. The calculation of income of beneficiaries includes cash income as well as noncash proceeds from the use of assets (such as income from poultry, livestock, and crops).

Housing assistance. The housing subsidy, introduced in 2003, is compensation to low-income and vulnerable groups to cover expenses for housing maintenance, utilities, and leasing. Housing assistance is extended to poor households if their actual housing and utilities expenses exceed a certain percentage of the aggregate household income defined by the local government. Local authorities define the size of and procedure for obtaining housing assistance, as well as the eligibility for it. (The size is determined by local executive bodies and varies from 10 percent to 25 percent.) Local budgets fund this assistance.

Allowances for children under 18 years. Also called "child allowances," this program was introduced in 2006 and comprises birth allowance, child care allowances for children under age 1, and monthly allowance for children under 18 years of age. Eligibility is based on a mix of principles. Childcare allowance is available to caregivers who do not participate in the mandatory formal sector social insurance. Birth allowances and monthly child allowances are available to children of families with a per capita income below 60 percent of the subsistence minimum. The national budget funds these allowances.

Local transfers. Because Kazakhstan law prohibits regional authorities from providing targeted social assistance on a means-test basis, regional budgets, for the most part, provide additional categorical benefits and allowances. Typically, wealthier regions (Atyrau is one of wealthier regions, due to oil extraction there) can afford a broader set of categorical benefits and allowances. In poorer regions, regional legislation often does not establish any additional benefits.

Source: Authors.

roots of the crisis reflected a lack of prudence that contributed to the onset of a deep recession, the response that followed was measured and effective. Aided by good fiscal discipline before the crisis, the authorities built sizable fiscal buffers in the national oil fund, which allowed them to use a fiscal stimulus package that helped the economy recover. Social measures were also used to alleviate the impact of the downturn on the most vulnerable, and targeted measures were implemented to help the private sector cope with the crisis. The response was slower and less effective in dealing with the problems that hit the financial sector hard. Although this is an area where more remains to be done, the strategy adopted by the authorities avoided a collapse of the banking sector. A description of Kazakhstan's current social safety net programs is presented in box 1.1.

The next chapter discusses Kazakhstan's postcrisis fiscal policy and the robustness of its fiscal rule. Having weathered the effects of the global financial crisis fairly well, the authorities are concerned whether Kazakhstan could be affected by another global crisis and whether they would be well equipped to deal with the effects of a new and prolonged recession. The next chapter discusses the effectiveness of the current fiscal rule that governs the transfers from the national oil fund to the budget against different robustness criteria and the ability to deal with transitory shocks.

Chapter 2

Fiscal Rules Should Be Simple and Transparent

This chapter tests the robustness of the current set of fiscal rules in Kazakhstan and compares its main features with those of other popular rule-based approaches. Building on an earlier assessment prepared by the World Bank in 2012 that discussed the virtues and pitfalls of different options for the rules governing the transfers from the oil fund to the budget, this chapter advances the main conclusion from this report to avoid introducing drastic changes to a mechanism that has worked well. The first section discusses the main features of Kazakhstan's existing fiscal rules. The second describes what other countries have done and focuses in particular on the cases of Chile and Norway. The third considers the merits of the bird-in-hand approach, and the fourth compares the main features of Kazakhstan's current fiscal rule with the permanent income rule, the bird-in-hand rule, and a countercyclical policy that would allow expenditures to rise in downturns. This is done by using the criteria put forward by Kopits and Symansky (1998). The fifth section discusses why there seems to be no case to significantly change the current fiscal arrangements in Kazakhstan.

Main features of the Kazakh fiscal rules

In 2012, the World Bank prepared a technical note that assessed the fiscal management of its natural resource flows.[5] The main finding from that study was that fiscal management has been responsible and that the rules governing the accumulation of savings in the national oil fund and the transfers from the oil fund to the budget have been adequate. As a result of this adequate fiscal stance, when growth stalled in the global economic crisis of 2008 (which hit Kazakhstan through falling real estate prices and insolvency in the banking sector), the government was able to use a discretionary fiscal expansion, largely financed with oil funds, to reduce the welfare impact of the crisis.

Current fiscal policy is governed by a set of rules originally adopted in 2010 and further modified in 2012. The main features of these rules are an annual transfer from the oil fund to the budget of $8 billion in nominal terms (the exchange rate for setting the amount in tenge is fixed over a three-year horizon), and a limit to the interest cost of the public debt to 4.5 percent of the oil fund's balance. The main features of the current rules are as follows:

- Fixed annual guaranteed transfer (made in monthly or quarterly installments) to the budget of $8 billion starting in 2011.
- Minimum oil fund balance of 20 percent of projected GDP at end of the respective fiscal year. (The guaranteed annual transfer will be reduced if the expected balance falls short of this minimum.)
- Annual expenditures on public debt service, however defined, not to exceed 4.5 percent of the imputed fixed investment return on the fund. (It remains unstated whether the fund balance is projected at the end of the respective fiscal year, the average over some period, or the actual balance prior year.)
- Average cost of service and repayment of public debt over 10 years not to exceed

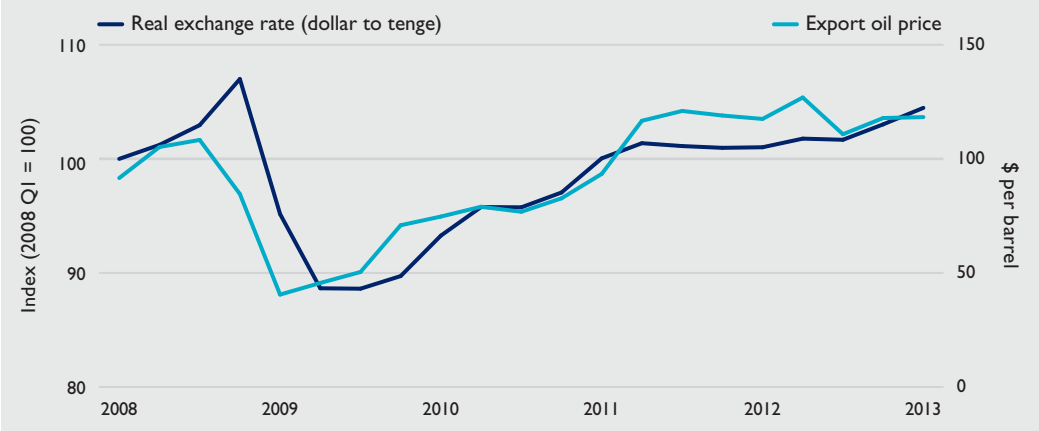
15 percent of total budget receipts including cash transfer from the fund.

- Target nonoil deficit of 3 percent of GDP by 2020.
- No off-budget financing—that is, no guarantees or lending for domestic activity including Samruk-Kazyna and KazAgro.

There were further changes in 2012, and the government is considering whether it would be wise to introduce yet additional changes in the fiscal rule governing transfers from the oil fund to the budget. The oil fund was modified by government's Presidential Decree 289 (March 16, 2012). The annual transfer of funds to the budget was changed from the previously fixed amount of $8 billion to the flexible amount of $8 billion plus or minus 15 percent ($6.8–$9.2 billion), depending on the cyclical position of the economy. These adjustments will remain valid until the end of 2013, and the budget will receive a transfer of $9.2 billion, keeping the transfers pegged at the upper end of the range specified. Meanwhile, the complementary provisions to prevent government borrowing from "undoing" the oil fund's savings remain unchanged.

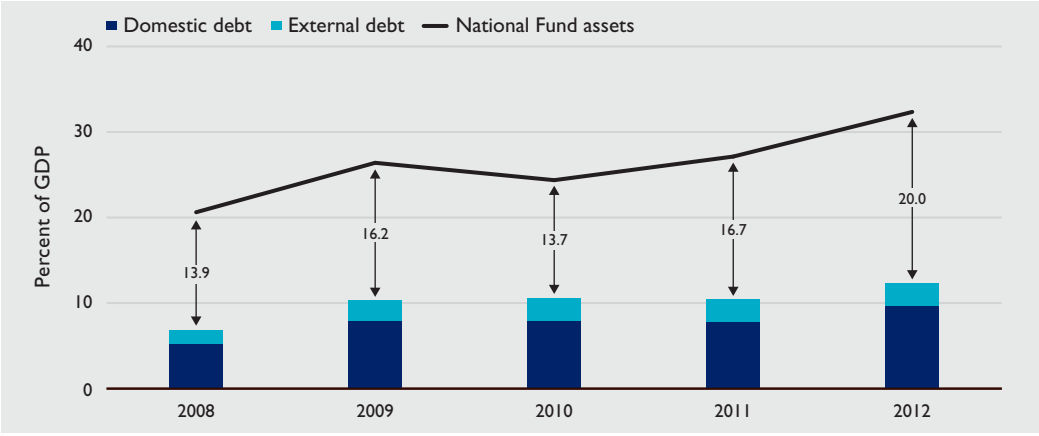
The oil fund has accumulated significant savings and helped build sizable fiscal buffers while avoiding volatility in the exchange rate. Despite more abrupt variations in oil prices, the exchange rate has been kept flat (figure 2.1). Oil fund assets rose to more than $64 billion at the end of 2012, helping Kazakhstan accumulate fiscal buffers in excess of 32 percent of GDP, the highest ever (figure 2.2). With oil prices remaining largely volatile and unpredictable, preventing the transmission of huge swings to the Kazakh economy is paramount.

Figure 2.1 The real exchange rate was kept almost flat, despite some fluctuations in oil prices



Source: National Bank of Kazakhstan; World Bank staff calculations.

Figure 2.2 Oil revenue savings exceeded 32 percent of GDP, the biggest fiscal buffer ever



Source: Finance Ministry of Kazakhstan; World Bank staff calculations.

The $8 billion rule governing transfers from the oil fund to the budget is consistent with the permanent income approach. Using historical data for the main parameters, a range of annuity values for Kazakhstan's oil stock was calculated in line with the permanent income approach (table 2.1). Under the base case for oil reserves (which uses estimates of the main industry participants), and using the approximate mean Brent crude price over 40 years (1970–2010) and a 3 percent long-run financial rate of return, the implied annuity value is about $8.4 billion (figure 2.3).

Fiscal rules in Chile and Norway

Other countries can serve as a benchmark for the adequacy of Kazakhstan's fiscal rules. A further feature of fiscal rules adopted in some countries is the ability to maintain or increase spending in economic downturns, financed through a tighter fiscal stance during booms. Take Chile's fiscal rule, which rather than set a target for the actual budget surplus targets the structural budget balance. Similarly Norway's parliamentary budget approval process targets a structurally adjusted measure of the budget balance.

Chile's structural balance target

Chile's fiscal policy is anchored by a structural balance target for the central government. This feature was institutionalized in the 2006 Fiscal Responsibility Law. The framework is designed to ensure long-term fiscal sustainability while avoiding cyclical policies and allowing the full operation of automatic stabilizers, mostly on the revenue side. Under the structural balance rule, government expenditures are budgeted in line with structural revenues. Those are the revenues that would be achieved if the economy were operating at full potential, the prices of copper and molybdenum—Chile's major exports—were at their (assumed) long-term levels, and, more recently, the return on accrued financial assets were in line with the (assumed) long-term interest rate.

Two sovereign wealth funds support the Chilean fiscal framework. The Pension Reserve

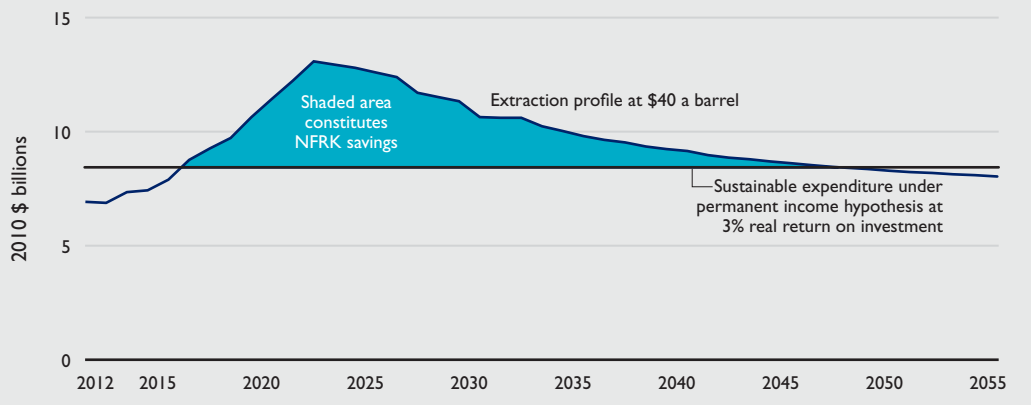
Table 2.1 Permanent income annuity values of oil

(Under certainty about future revenues, prices in millions of dollars)

	Amount	Price		Rate of return (3%)
Low case	3.3 billion tons (24.8 billion barrels)	Approx. 40-year mean	$40	$6,306
		Mean+approx. ½ std. dev.	$60	$8,927
Best case	4.0 billion tons (35.5 billion barrels)	Approx. 40-year mean	$40	$8,434
		Mean+approx. ½ std. dev	$60	$12,121

Source: World Bank staff calculations.

Figure 2.3 Permanent income-based annuity and projected revenue profile for Kazakhstan



NFRK is National Fund of the Republic of Kazakhstan.
Source: World Bank staff calculations.

Fund accumulates and invests fiscal savings to cover long-term pension liabilities (related to Chile's aging population). The minimum annual amount paid into the pension fund is 0.2 percent of the previous year's GDP, but if the effective fiscal surplus exceeds this amount, the contribution can rise to a maximum of 0.5 percent of the previous year's GDP. The Economic and Social Stabilization Fund is financed from the remainder of the effective fiscal surplus after payments into the pension fund. Withdrawals from the stabilization fund can finance fiscal deficits during periods of weak growth or low copper prices; they can pay down public debt or finance the pension fund. Both funds may invest only in assets abroad, and under current investment policies are limited to fixed income and money market instruments.

Structural balance targets have desirable properties in theory, but they are complex to implement. Their advantages may thus come at a cost of reduced transparency. If they are viewed as too difficult for a government to execute properly, they may also undermine credibility in the markets. Strong institutions are needed for successful implementation. Chile's approach involves using outside, independent expert panels to set key parameters and recommend policy to government.

Norway's structural deficit rule

In Norway, withdrawals from the oil revenues finance the nonoil deficit, determined each year during the annual budget process. Since 2001, fiscal policy has been anchored by a structural deficit rule requiring the structural nonoil deficit to equal the imputed real return on the assets in the pension fund (currently 4 percent). The rule ensures that fiscal policy does not deviate over time from a sustainable path—by constraining government expenditures to long-term government revenues minus the structural balance target.

The Norwegian rule allows for deficits to exceed the 4 percent target during economic downturns. It also enforces lower deficits during boom periods, reducing pressures on aggregate demand and stabilizing economic activity. For example, during a severe recession in the early 1990s, Norway used its entire oil revenue receipts to finance increased nonoil deficits, as nonoil revenues were depressed and expenditures rose as a result of higher unemployment and other recession-related spending. Conversely, from 1996 onward, and through the 2000s commodity boom, substantial reserves were accumulated. During the recent global crisis, the realized (not structural) deficit once again exceeded the 4 percent target.

Norway also operates two separate sovereign wealth funds with different funding sources, management arrangements, and investment policies. The Government Pension Fund Global (formerly the Petroleum Fund) is financed with surplus oil revenue (net of the annual transfer to the budget, explained above). Serving savings and stabilization purposes, it is required to invest its capital abroad, to avoid overheating the economy and to shield it from oil price fluctuations. The diversified investment portfolio comprises international equity, fixed-income, and real estate assets, with the aim of maximizing the risk-adjusted rate of return within the investment policy set by the Ministry of Finance. The Government Pension Fund Norway (formerly the National Social Insurance Fund) is a separate fund, financed from surpluses in the social insurance scheme (social security contribution minus payments). Since its revenue originates from domestic sources, the fund is permitted to invest in equity and fixed income instruments in regulated markets in Denmark, Finland, Norway, and Sweden.

A bird-in-hand?

The Kazakh authorities are also interested in the bird-in-hand rule, transferring the investment returns from the national oil fund to the budget annually. Norway currently pursues a version of this approach, setting its structural deficit spending to a "smoothed" estimate (using a 4 percent rate of return) of the returns to its global fund. Norway, however, is toward the end of its extraction cycle: it has already allowed its fund to accumulate more than 100 percent of GDP. Current projections for Kazakhstan envisage the annual transfer from the national oil fund to reach or surpass its investment earned income only by 2025.

One objection to this approach is that it would severely constrain current spending.

Applying the bird-in-hand rule over the life of the extraction cycle implies higher savings and lower transfers to the budget in the earlier years because the driving principle is uncertainty about future revenues (only today's fund balances can be counted on for returns). This policy is appropriate for mature producers, such as Norway, with large accumulated financial reserves. In Kazakhstan, at an earlier stage in the extraction cycle, disregarding future oil revenues would imply a contraction in current consumption. This may be viewed as incompatible with the principles of intergenerational fairness underlying the permanent income approach.

A further objection to bird-in-hand is that the shift is only in the quite distant future. In one scenario, the switch from an annuity to bird-in-hand would occur in 2025. Setting fiscal rules so far in the future is not credible. More advisable would be rules governing the present (and near future) that are consistent with longer term principles of fairness and prudent economic management.

The Kazakh fiscal rule and the Kopits and Symansky criteria

An analysis of how the current fiscal rule in Kazakhstan compares with the two leading rule-based approaches under different criteria shows a robust performance. A useful framework for evaluating fiscal rules is in Kopits and Symansky (1998). The following discussion takes each of their criteria in turn. It compares the current fixed rule with the permanent income hypothesis, which depends on the present value of the wealth represented by the country's resource base and national savings. The bird-in-hand approach allows consumption to be based only on already-extracted resource wealth (on the value of the national savings fund alone and not on the value of oil still in the ground). And with a countercyclical policy, which would allow expenditures to increase in downturns, as with the Chilean copper fund rule based on a structural deficit estimate.

Some of these rules might make sense in particular circumstances, but the real question here is whether one of them is clearly superior to the Kazakh rule. Their characteristics must also be clearly mapped to the institutional structure of the country. That is, which organ of the government (central bank, ministry of finance, ministry of economy) should be responsible for these functions? Who will ensure compliance and impose enforcement mechanisms when needed? Perhaps the most sensitive area is to determine under what circumstances "escape clauses" would be invoked and by whom. Insulation from ordinary political processes is especially important, given the normal tendency of politicians to take a short-term view of matters involving expenditures as well as the history of politically motivated "escapes" from fiscal rules in numerous other countries.

Well defined: The target variable should be clearly defined, as should the institutions for and the coverage of the rule

The Kazakh rule is well defined and transparently defined. If the size of fiscal transfers to the national budget is the target variable, the government has clearly done a good job defining it under any of the fiscal rules under consideration. All mineral revenues accrue to the fund, which is the sole conduit for transfers to the national budget. This allows for no ambiguity or lack of definition. Under any variant of a fixed amount transfer rule, the target is similarly well defined—the amount of the transfer is clear, and there is no attempt to influence any other outcome.

Under the bird-in-hand rule, there is similarly little scope for ambiguity—the limit on transfers relates to "money in the bank." As long as this is a publicly known amount (there are no hidden or secret accounts and no use of contingencies such as futures or options), a rule such as one limiting transfers to a fixed percentage of the wealth on hand is difficult to game or misunderstand.

Under a permanent income rule, there is some scope for differing opinions on such matters as the discount rate and the value of oil in the ground. But it should be possible to generate a range of plausible values using different assumptions for these values, allowing the authorities to choose between, say, the most conservative and least conservative values that can be derived.

But if the variable to be targeted is some measure of budgetary surplus or deficit, as

with a countercyclical policy rule, the problem becomes more complicated. While a variety of fiscal balance concepts could be targeted, even if there is a consensus that a well-known balance such as the nonoil primary deficit should be used, it is difficult to know in real time exactly where that balance lies. Similarly, there are enough judgment calls involved in computing the target variable that it is quite possible for substantial disagreements or simple measurement errors to persist for long periods. That makes achieving a consensus difficult or allows political interests to dominate debate. Indeed, these issues pose most of the problems in countries often pointed to as "best cases" using independent boards of experts to determine these variables such as the Chilean Copper Fund.

Transparency: The operation of the rule and the actions to ensure compliance should be clear and visible to all observers

Many of the issues under this criterion are related to those under the first criterion. While any of the proposed arrangements for fiscal rules can be made transparent, the simpler rules are much easier to make clear to the public and, for those not versed in economic concepts, to understand and report on. For example, while fixed amount rules are quite obvious to all, as are rules involving fixed percentages of accounts owned by the government, rules involving concepts like present discounted value (as in permanent income) will not be readily understood by the general public. Countercyclical policies may be understood in the abstract ("we will increase transfers when oil prices are low") but may be more difficult to explain.

Adequacy: The mechanisms envisioned in the rule should be capable of achieving the desired level of the target variable

If the goal is to prevent transmission of oil price fluctuations to the national budget, any variant of a fixed transfer rule is a good way to achieve this. In fact, the performance of the government to date in achieving this goal could well be regarded as a model of how to do this in an effective and sustained way. Rules such as the permanent income or bird-in-hand, which depend directly on the value of the oil wealth as calculated on the basis of market prices, can generate procyclical outcomes and are not preferred policies if the goal is to smooth shocks to current income and output rather than to smooth transfers themselves. Countercyclical policies can indeed accomplish some degree of output or income smoothing, but the extent to which this can be achieved is not likely to be perfect. Not only is it virtually impossible to know in real time what degree of countercyclical policy is truly necessary, but the tools to achieve this goal are less than perfect even in the best of cases. So, while the goals of such a policy may be laudable, the best that can be expected is that government policy would "lean against the wind" of economic cycles and at worst could even exacerbate them where measurements of variables or expectations of future developments are mistaken.

Consistency: The rule should be both internally consistent and consistent with other policies and goals of economic policy

Evaluation of this criterion is quite similar to that for the "adequacy" criterion above. If fixed transfers are chosen, there is little chance for inconsistency with other policies as there is no variation to generate any lack of synchronicity. In contrast, policies such as bird-in-hand and permanent income, capable of generating procyclical results, can easily generate outcomes at odds with the government's legitimate desire to smooth fluctuations in output and income. While countercyclical policies are in theory a remedy to this problem, the difficulties in implementation and measurement mean that these rules can at times be consistent with other policies and goals and at times not. Worse, this may not be clearly known until well after the fact.

Simplicity: The rule should be easily stated and easily understood

The simplicity of fixed transfer rules is obvious. The bird-in-hand and permanent income rules are less simple but still easily stated and understood. Countercyclical rules are much less clear in practice though they can work quite well in theory.

Flexibility: The rule should be flexible enough to deal with changing economic circumstances by containing adequate escape or emergency clauses

Fixed transfer rules are by their very nature not flexible. It is certainly possible to alter the fixed amount to be transferred in light of changing economic circumstances but only at the cost of losing the positive attributes of a fixed transfer rule. Periodic reviews of the amount to be transferred in light of economic growth and changing oil markets and production would seem reasonable. But the reputational benefits of adhering to a fixed rule would be lost in direct proportion to the extent that it is subject to frequent revision.

Bird-in-hand and permanent income rules are certainly flexible in that they would generate different transfer amounts in response to different oil market conditions. But their flexibility is the opposite of what the government is seeking in its investigation of countercyclical policies.

Countercyclical rules are flexible and in the "right" direction, but this flexibility carries the risks noted above. Only in theory can a countercyclical rule be counted on to perform as desired. In practice it will be less than perfect (and at times far less than perfect) in its performance.

Enforceability: The mechanisms to enforce compliance must be clear

All of the fixed transfer, permanent income, and bird-in-hand rules can be enforced by the managers of the sovereign wealth fund, as in past years. There is no reason to try to alter these arrangements given the past performance. A countercyclical rule, by contrast, would require a mechanism to specify the state of the business cycle and the structural budget deficit, difficult in the best of circumstances, as shown by the numerical exercises comparing output forecasts with actual outcomes in chapter 3.

"If it ain't broke, don't fix it"

There is a famous saying in the United States about the usually well-intended action by policymakers to introduce reforms that in some cases may not be necessary. In May 1977, Thomas Bertram Lance, the Director of the Office of Management and Budget in Jimmy Carter's 1977 administration, was quoted in the newsletter of the U.S. Chamber of Commerce, *Nation's Business:*

> Bert Lance believes he can save Uncle Sam billions if he can get the government to adopt a simple motto: "If it ain't broke, don't fix it." He explains: "That's the trouble with government: Fixing things that aren't broken and not fixing things that are broken."

The various alternatives for fiscal rules under consideration in Kazakhstan all have merit in theory but generate quite different results when subject to actual numerical simulation. In particular, the proposal to use transfers from the sovereign wealth fund in a countercyclical manner seems attractive but suffers in practice from the near impossibility of identifying cycles in the national economy, the national budget, or international oil prices in a time frame that would allow implementing such a policy. While long-run values for trends in GDP or for international equilibrium prices may be estimated, the confidence in such estimates, given the history of past projections and the performance of the oil price, should not be overestimated. Accordingly, rules that depend on such forecasts or estimates are likely to run into trouble in very short order. In all cases analyzed in this report, rules that allow for short-term flexibility in budgetary transfers generate more volatility rather than less due to the inevitable forecast errors in even the best of cases.

Some of the proposals have the potential to seriously change the way the oil fund is managed and how it relates both to containing demand pressures and smoothing economic cycles. In particular, proposals to allow investment in domestic assets, though perhaps reasonable in some cases, have the potential to undermine one of the most important successes of macro policy management over the past decade: insulating the domestic economy from the overheating caused by a too-rapid expansion fueled by oil revenue. In fact, avoiding doing exactly this is why sovereign wealth

funds are so important in the first place. Undermining the rationale for the national oil fund cannot be defended on economic grounds and should be avoided if at all possible. In addition, the political pitfalls of government asset purchases in the domestic market could well be difficult to avoid as the government assumes the role of choosing where and where not to invest.

Theoretical considerations discussed in the next chapters show that a simple fixed transfer rule with an escape clause allows nearly as much gain in welfare as a theoretically optimal rule. The use of the oil fund to cushion the effects of the 2008–09 economic crisis was a de facto implementation of a fixed rule with an escape clause, something that could be readily codified in the future. Important values to be fixed in any such codification would be the threshold for triggering an escape clause and the number of years such an alternate regime could be continued before assuming that the shock is chronic rather than transitory (that the "cycle" is in reality the new "normal").

The oil fund as currently constituted has been able to deal with transitory shocks. As the next chapter will show, even a "meltdown" of the European Union does not produce a short-run shock larger than can be smoothed today. Longer run simulations show that the most important factor for the government is to ensure the efficiency of investment expenditures at the present time since even modest success has the potential to create very large increases in welfare. But the danger that a prolonged shock might be mistakenly perceived as transitory is a problem inherent in any attempt to use the oil fund to smooth economic fluctuations.

The main recommendations to deal with transitory shocks within the framework of the current fiscal rule can be summed up as follows:

- *First, consider raising the $8 billion base amount, which has not been revised since the introduction of the rule in 2010.* Applying the growth of nonoil GDP since 2010 to this amount would adjust the base amount to about $11 billion. This should preserve the nondistortionary characteristics of the original $8 billion fixed amount while allowing for the greater absorptive capacity of the now-larger domestic economy. For the future, periodic adjustment of the base might be desirable. The adjustments could be made based on trend growth in nonoil GDP, something that could be calculated only over longer periods—at least four to five years, if not longer.
- *Second, add two limiting factors for implementing 15 percent deviations from the rule.* One would be to specify the size of the shock that would trigger such a deviation; the other would impose a time limit for how long such additional transfers could be used (such as two years).
- *Third, implement "automatic stabilizers" to the extent possible.* That is, use the structure of the tax code (by doing such things as making taxes conditional on income or profits) and the structure of expenditure programs (by doing such things as making poverty or other assistance programs conditional on income or employment status) to make countercyclical revenue and expenditure changes as automatic as possible.

Such a rule would retain the base amount at a level consistent with current GDP, oil revenue, and fund total holdings—at $9.2 billion a year—but would allow an increased amount of, say, 15 percent if GDP growth falls below a specified level. The two-year limit is in effect an "escape from the escape clause." Other mechanisms could be envisioned, but the idea is to avoid triggering an escape clause in a repeated sequential fashion.

Bear in mind that simplicity is a great virtue in rules of this type. The discussion of the Kopits–Symanski criteria for evaluating fiscal rules highlights the desirable qualities of the current fixed rule and gives reason to question the practical ability of implementing a more complicated structural surplus rule. In fact, the excellent performance of the current rule is itself an argument for making only modest modifications. That is the main recommendation of this report.

Chapter 3

How a Changing World Would Affect a Changing Kazakhstan

This chapter simulates different global economic scenarios and how they might affect key variables in the Kazakh economy. Section one describes the baseline scenario, with total factor productivity (TFP) expected to grow steadily at 2.5 percent a year, the oil price to stabilize, and developing countries to constitute a growing share of the oil market. Section two presents three extreme shocks: continuing deterioration in the Euro Area, prolonged fiscal uncertainty in the United States, and declines in China's investment rates and commodity prices. Section three presents long-term scenarios for the Kazakh economy, considering how key strategic macroeconomic variables would behave under an optimal resource management strategy.[6]

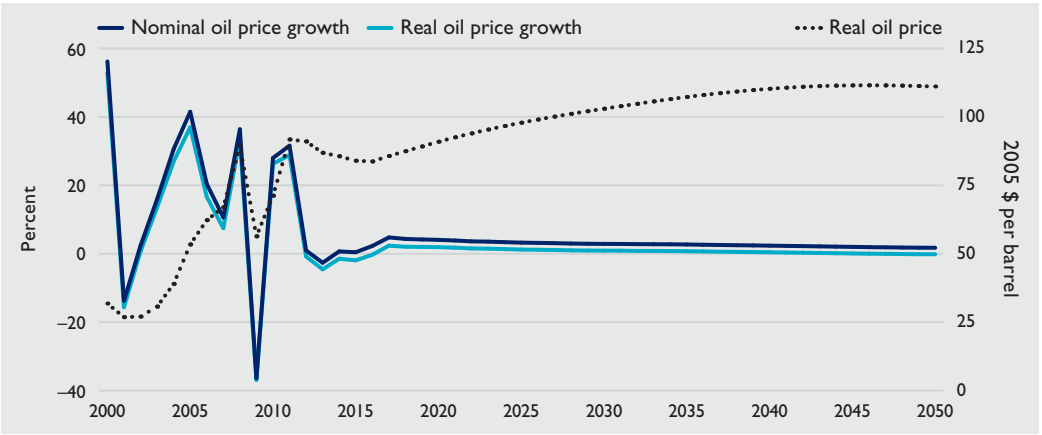
The baseline scenario

Living standards in the long term depend on the pace of productivity growth, the ability of the economy to create jobs, and the absence of large swings in economic activity. Whether productivity growth averages 2.0 percent a year or 2.5 percent makes a huge difference—under the first assumption, per capita GDP in Kazakhstan could reach as much as $100,000 by 2050; under the second, $130,000.[7] Larger extraction of natural resources and higher government spending could lead to a pace of capital accumulation that for a while may offset weak productivity growth. But in the absence of productivity growth, sustaining high income will be a challenge, and job creation would come only at a high cost. Productivity growth in an economy on the cusp of high-income status will depend on the ability of companies to innovate, which requires a well-educated and highly skilled labor force, sound institutions that guarantee property rights, and a good investment climate.

To construct the baseline, assumptions about the rest of the world can strongly influence Kazakhstan's export earnings and domestic economic conditions. Overall, we assume that the real price of oil will stabilize in the long run as the current massive increases in demand from major consumers, like China and India, stabilize as they too attain higher per capita incomes. Even so, developing countries will constitute an increasing share of the world oil market. Developing country oil demand is expected to exceed that of high-income countries by 2023 and account for 60 percent of global oil demand by 2050 (figures 3.1 and 3.2). China and India together are expected to account for nearly half the world oil demand in 2050.

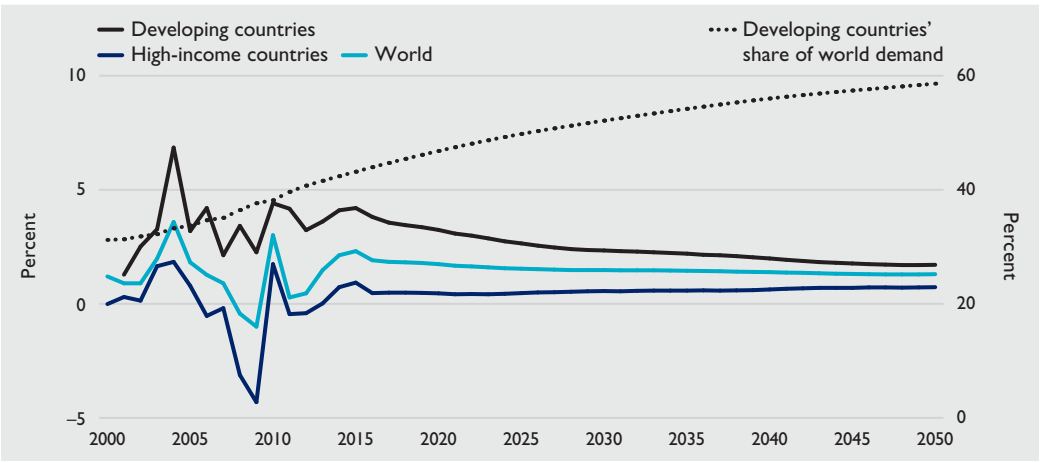
In the baseline, TFP is assumed to grow steadily at 2.5 percent a year over the next six years and then decline gradually to 2.0 percent from 2025 onward. Prior to 1995, TFP growth in Kazakhstan averaged 0.5 percent a year. It then increased to 4.5 percent over 1995–2005. The baseline used in the simulations assumes an average for these two distinct periods. This is an optimistic assumption compared with the past, but not out of line with what might be reasonably expected in a post-Soviet environment where investment can be expected

Figure 3.1 Real price of oil to stabilize in the long run



Source: World Bank staff calculations.

Figure 3.2 Strongest growth in oil demand to come from developing countries



Source: World Bank staff calculations.

to be more productive than it was during the immediate pre- and post-independence years. At 2.0–2.5 percent, TFP growth is on par with the average for developing countries (including China), but is higher than the average 1 percent for the six oil-exporting countries from the Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates).[8] For Malaysia, TFP grew on average 4 percent a year between 1995 and 2004.[9] Research on the G7 countries over 1960–95 shows that their TFP growth was higher in the 1960s (at close to 3 percent a year) when they invested more in new technologies. For the United States, TFP responded positively not only to investments in new technologies but also to the entrance of baby boomers in the labor market in the 1960s and 1970s. TFP growth in the G7 countries has slowed significantly since the 1990s and remains close to 0.5 percent a year.[10]

The optimistic assumption for the baseline can be realized only if investment remains high in Kazakhstan and is complemented by structural reforms likely to increase TFP growth in the medium to long term.[11] Evidence on the main determinants of TFP growth suggests that the factors that matter the most in oil-producing countries include a high initial income per capita, the quality of education, the size of the government (the smaller the better), macroeconomic stability, trade openness, positive terms of trade, and good institutions.[12] These factors are closely related to the recommendations of the Kazakhstan Country Economic Memorandum, which postulates that Kazakhstan's path to greater prosperity and diversification will be paved by reforms

that reduce volatility in the economy, improve the quality of education (and thus contribute to productivity growth), and promote improvements in the quality of institutions and in the provision of public services.[13]

With rising and then stabilizing world oil prices, the oil sector will remain a reliable source of revenue. Kazakhstan is projected to see some moderation of growth but with continuing heavy reliance on oil (figure 3.3). Kazakh oil production now contributes about 21 percent of GDP, and nonoil production 79 percent. Through 2020, oil production is expected to rise 6.8 percent a year and then 3.0 percent a year. The remainder of the economy is projected to grow by 4.4 percent a year. With real oil prices broadly stable, oil's share in the real economy is forecast to decline gradually from 21.3 percent in 2013 to 19.5 percent in 2050.

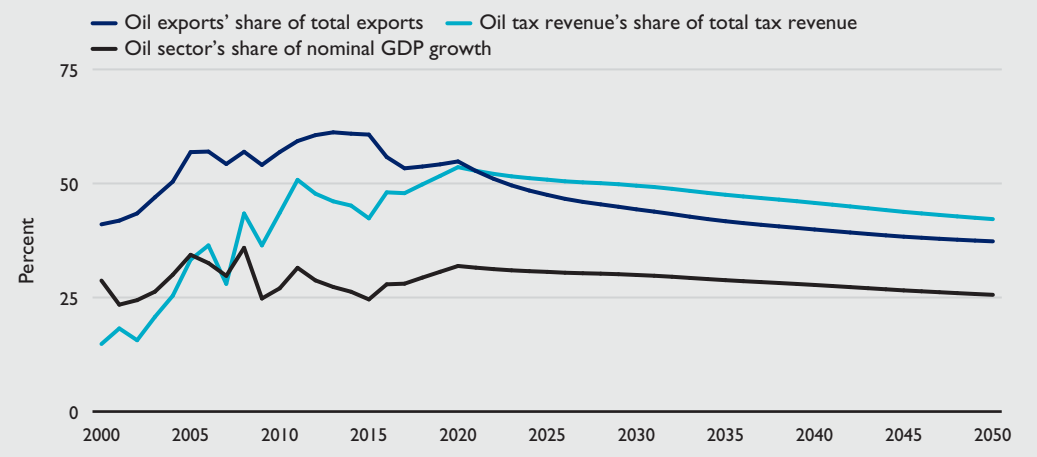
Achieving this fairly optimistic baseline forecast is not guaranteed. Its success is predicated on several assumptions:

- The United Nations population and labor force growth rates suggest that the 15–64 age cohort will grow by 0.9 percent a year.
- The capital stock expands by 4.2 percent a year, requiring real growth of some 4.7 percent in real fixed investment, substantially below the 12.5 percent a year in the 10 years ending in 2011.
- Strong productivity growth and oil sector performance are the main factors likely to improve Kazakhstan's economic prospects.

Kazakhstan's real GDP per capita is forecast to increase from $12,500 in 2013 to $23,000 by 2023, reaching $105,000 by 2050.[14] Kazakhstan's GDP per capita is now about 30 percent of the per capita income in high-income countries, but is forecast to rise to 41.3 percent in 2025 and to 70 percent by 2050. As a share of the per capita income in high-income countries in 2012, it rises to 46.5 percent by 2023 and to almost 83.8 percent by 2030. Even though most of the growth will be from the nonoil sector, oil will continue to play a major role in economic activity and exports and as a source of tax revenues. By 2050, the share of oil in nominal GDP would decline by only 4.4 percentage points (from 25.4 percent of GDP in 2013 to 21.0 percent). The tax ratio would be off the highs of 58 percent in 2020, but at 49.5 percent in 2050, still higher than it is today (45.9 percent).

Continuing reliance on oil exposes the country to vulnerabilities that cannot be forecast with precision. Maintaining a budget surplus of about 1.5 percent of GDP over the long term would allow total government expenditure to rise 13.5–14.5 percent a year (or between 4.5 percent and 6.0 percent in real terms). The direct contribution (ignoring second round multipliers) of government outlays to GDP growth is estimated at more than 20 percent (or almost 1 percentage point of the 4.2 percent average growth expected over 2013–50). This continuing heavy reliance on oil not only makes the country vulnerable to adverse developments in the oil market but also

Figure 3.3 **The baseline forecast suggests continuing (but declining) reliance on the oil sector**



Source: World Bank staff calculations.

increases the local economy's dependence on government—something unsustainable in the long run.

Three extreme negative shocks

The world economy has been through a turbulent period, and Kazakhstan is exposed to exogenous shocks. Three were chosen to illustrate the possibility for external events to seriously affect Kazakhstan's economic performance: a serious Euro Area crisis resulting from a financial breakdown, a United States–centered shock stemming from fiscal paralysis in the U.S. government, and a China-centered shock stemming from a collapse of Chinese investment and thus demand for Kazakh exports. These scenarios, chosen by the authorities, are aimed to illustrate how their materialization in the short term could possibly affect the Kazakh economy over the short and medium terms.

Over the medium term, the effects of these three extreme scenarios on Kazakhstan would be different. The detailed simulations in the background paper on different scenarios for the world economy show that the worst impact would be felt in Kazakhstan if Chinese investments were to collapse. In the event of a slowdown in the Chinese economy accompanied by a 10 percent drop in investments, China's GDP growth would slow by 3 percentage points. In the World Bank's global macroeconomic model, this would hurt the world economy and cause spillover effects that could hit Kazakhstan through a reduction in the demand for oil and other commodities. As a result, Kazakhstan's share of oil exports would drop from an estimated 57 percent in the baseline estimate for 2010 to 38 percent by 2050 leading to a significantly slower growth in GDP per capita. While in the baseline Kazakhstan's GDP per capita is estimated to reach $105,000 by 2050, the combined impacts of a slowdown in the Chinese economy would mean that by 2050 Kazakhstan's GDP per capita would reach $98,000. This contrasts with the milder effects expected from a deterioration in the Euro Area, which would imply in GDP per capita of just under $105,000—and an intermediate impact from slower growth in the United States, which would bring Kazakhstan's GDP per capita to $101,000 by 2050.[15]

Impact of a deterioration of conditions in the Euro Area

A major Euro Area crisis could hurt Kazakhstan in different ways. Measures over the past several years, including those by the European Central Bank, have restored confidence in the Euro Area and reduce the likelihood of a serious deterioration. But the recent Cypriot bank bailout shows a significant deterioration remains possible.

The Euro Area scenario illustrates the impacts on global growth of a deterioration that freezes two smaller Euro Area economies out of international capital markets. This in turn forces a sharp decline in government and business investment spending (equal to around 9 percent of the GDP of each country). The shock is spread over two years, with three-quarters of it felt in 2013 and a quarter in 2014. That reduces average growth in developing countries by 1.1 percentage points in 2013. As economies gradually recover, the overall impact declines—but developing country GDP would still be 0.3 percent lower than in the baseline even two years after the simulated crisis begins. Important transmission mechanisms and some of the vulnerabilities of developing countries include:

- *Remittances* to developing countries could decline by 1.7 percent or more, representing as much as 1.4 percent of GDP for countries heavily dependent on remittances.
- *Tourism,* especially from high-income Europe, would be reduced, with significant implications for countries in the Caribbean and North Africa.
- *Short-term debt* for many developing countries has come down, in part because of Euro Area deleveraging. But countries with high levels of debt could be forced to cut into government and private spending if financial flows to riskier borrowers become scarcer.
- *Commodity prices.* The weakening of global growth in the Euro Area causes a 7.5 percent decline in oil prices and a 7.4 percent decline in metal prices. Such declines are likely to cut into government revenues and incomes for oil and metal exporters, but cushion the blow for oil importers.
- *Banking sector deleveraging.* A crisis could accelerate bank deleveraging in Europe,

with economies in Europe and Central Asia most likely (among developing countries) to be affected.

Kazakhstan's GDP would decline 2.5 percent in 2013 and 1.6 percent in 2014—relative to baseline—with its current account deteriorating by 1.5 percent in 2013 (and its fiscal balances by 0 percent) and 1.4 percent in 2014. Real activity in Kazakhstan is principally hit by a lack of confidence, as domestic households cut back on spending, while business delays investment. Nearly 75 percent of the 2.5 percent decline in real GDP in 2013 (1.9 percent) comes from the decline in confidence. With global activity and import demand falling, Kazakhstan's exports also come under pressure. In this context, trade contributes about 0.3 percentage point to the overall decline in GDP. Lower global growth also reduces the demand for commodities, exerting downward pressure on commodity prices, which also reduces Kazakhstan growth by 0.3 percentage point in 2013 and 0.2 in 2014. For the current account, the commodity price impact dominates, and for the fiscal balance, the deterioration is caused almost equally by falling commodity prices and the domestic loss of confidence (table 3.1).

Impact of continuing fiscal uncertainty in the United States

Prolonged uncertainty about the size and length of the U.S. fiscal adjustment could dampen the world economy. Although the January 2013 fiscal deal resolved most of the tax side (the larger portion) of the fiscal cliff, the spending portion of the fiscal cliff was not resolved. The sequester was adopted at the end of February 2013 as Congress was unable to reach agreement on expenditure cuts. The fiscal compression (about 1.8 percent of GDP) forms part of the baseline and helps explain why, despite a strengthening private sector, U.S. growth is projected to remain just below 2.0 percent in 2013. While this is the most likely outcome, the uncertainties generated by failure to agree on a medium-term plan and the kicking in of debt-ceiling legislation could have significant additional downside effects. In a worst case scenario, where debt is downgraded again, such uncertainties could weigh heavily on investment and consumer durable spending in the United States.

Table 3.1 Impact of Euro Area crisis

	Real GDP (percent change in level)		Current account balance (change, in percent of GDP)		Fiscal balance (change, in percent of GDP)	
	2013	2014	2013	2014	2013	2014
Euro Area	–2.3	–1.4	1.3	0.4	–1.0	–0.8
World	–1.3	–0.8	0.0	0.0	–0.7	–0.5
High-income countries	–1.4	–0.9	0.1	0.0	–0.8	–0.6
United States	–1.0	–0.6	0.0	0.0	–0.6	–0.4
Developing countries	–1.1	–0.7	–0.2	0.0	–0.5	–0.3
Low-income countries	–0.6	–0.4	–0.2	–0.1	–0.1	–0.1
Middle-income countries	–1.1	–0.7	–0.2	0.0	–0.5	–0.3
Developing oil exporters	–1.3	–0.9	–0.9	–0.2	–1.0	–0.7
Developing oil importers	–0.9	–0.6	0.2	0.1	–0.2	–0.2
East Asia and Pacific	–1.0	–0.7	0.2	0.1	–0.1	–0.1
Europe and Central Asia	–1.3	–0.9	–1.0	–0.3	–1.1	–0.8
Latin America and Caribbean	–1.2	–0.8	–0.2	0.0	–0.7	–0.4
Middle East and North Africa	–1.0	–0.7	–0.9	–0.3	–1.4	–0.9
South Asia	–0.5	–0.3	0.5	0.1	0.0	0.0
Sub-Saharan Africa	–1.0	–0.7	–1.2	–0.4	–0.8	–0.6
Kazakhstan	–2.5	–1.6	–1.5	0.0	–1.4	–1.1
Commodity effect	–0.3	–0.3	–1.6	–0.3	–0.7	–0.3
Confidence effect	–1.9	–1.1	0.1	0.3	–0.6	–0.7
Slowdown in Portugal and Spain	–0.3	–0.2	–0.1	0.0	–0.1	–0.1

Source: World Bank staff calculations.

In an unlikely scenario where repeated failures to set U.S. fiscal policy on a sustainable path result in a downgrading of debt, growth in the United States could slow by some 2.3 percentage points—pushing it into recession. The Euro Area would be pushed into a deep recession, potentially increasing the risk of a second crisis there, and developing country GDP would decline by 1 percent, relative to baseline. The bulk of these effects come from an assumed increase in precautionary savings of U.S. business and consumers of 1.0 and 2.0 percentage points, of firms and households in other high-income countries of 0.5 and 1.0 percentage point, and of 0.3 and 0.7 percentage point in developing countries (table 3.2).

Under this scenario, Kazakhstan's GDP will decline by 1.9 percent in 2013 and 1.7 percent in 2014, while its current account balance will deteriorate by 1.5 percent of GDP in 2013 and 0.5 percent in 2014, and its fiscal balance by 1.2 percent of GDP in both 2013 and 2014. The major transmission mechanism to Kazakhstan's output is the "confidence" channel, as domestic households cut back on expenditure and businesses postpone investment. It contributes 1.6 percent in 2013 and 1.2 percent in 2014 to the decline in real GDP. Lower global growth also reduces the demand for commodities, which puts downward pressure on commodity prices, reducing Kazakhstan's growth by 0.3 percent in 2013 and 0.4 percent in 2014. For the current account, the commodity price impact again dominates, contributing nearly 1 percent to the overall deterioration in both 2013 and 2014.

Impact of an abrupt fall in China's investment rates and commodity prices

An ever-growing fear is that the Chinese economy might lose steam and bring commodity prices down. China has, on average, recorded close to 10.0 percent annual growth for more than 30 years and 10.3 percent growth during the first decade of this millennium, with growth as high as 14.2 percent in 2007. During most of this high-growth period, investments (and savings) were at a high 30–35 percent of Chinese GDP. In the 2000s, investment rates jumped initially to 40 percent of GDP (partly in reaction to the low cost of international capital) and then again to 45 percent of GDP, because

Table 3.2 Impact of U.S. fiscal paralysis

	Real GDP (percent change in level)		Current account balance (change, in percent of GDP)		Fiscal balance (change, in percent of GDP)	
	2013	2014	2013	2014	2013	2014
United States	–2.0	–2.0	0.5	0.5	–0.4	–0.7
World	–1.3	–1.2	0.0	0.0	–0.5	–0.6
High-income countries	–1.4	–1.4	0.1	0.1	–0.6	–0.7
Euro Area	–1.1	–1.0	0.2	0.0	–0.4	–0.5
Developing countries	–1.0	–0.9	–0.1	0.0	–0.4	–0.4
Low-income countries	–0.7	–0.5	0.1	0.0	–0.2	–0.2
Middle-income countries	–1.0	–0.9	–0.1	0.0	–0.4	–0.4
Developing oil exporters	–1.1	–1.1	–1.0	–0.6	–0.9	–0.9
Developing oil importers	–0.9	–0.8	0.3	0.2	–0.2	–0.2
East Asia and Pacific	–1.1	–1.0	0.4	0.3	–0.2	–0.2
Europe and Central Asia	–0.9	–0.8	–0.9	–0.6	–0.8	–0.8
Latin America and Caribbean	–1.1	–1.0	–0.3	–0.2	–0.6	–0.5
Middle East and North Africa	–0.7	–0.7	–0.7	–0.4	–1.3	–1.2
South Asia	–0.4	–0.4	0.6	0.2	0.0	0.0
Sub-Saharan Africa	–0.8	–0.8	–1.1	–0.8	–0.7	–0.7
Kazakhstan	–1.9	–1.7	–1.5	–0.5	–1.2	–1.2
Commodity effect	–0.3	–0.4	–1.5	–0.8	–0.7	–0.5
Confidence effect	–1.6	–1.2	0.0	0.2	–0.5	–0.6
Fiscal cliff	–0.1	–0.1	0.0	0.0	0.0	0.0

Source: World Bank staff calculations.

of China's fiscal and monetary stimulus during the global financial crisis. As a result, the contribution of investment to Chinese growth rose from 2.3 percentage points during the 1980s and 1990s to around 5.0 percentage points in the 2000s. And China's capital-output ratio, which for an economy in a steady-state growth equilibrium will be broadly stable, has increased since 2000 by 20 percent and is still rising rapidly.

High investment rates are required to sustain the capital stock in a fast growing economy like China's. But such high investment-to-GDP ratios are unprecedented. Neither Japan nor Korea—two countries that also enjoyed long periods of high growth—ever saw investment rates exceed 40 percent. A level of 35 percent of GDP is seen to be more sustainable and consistent with underlying productivity growth and population growth.

China's authorities have identified the need for a more balanced pattern of investment. This would require not just a lower investment rate, but also higher investments and expenditures in services and in such intangible assets as human capital. This can be achieved, in part, by reducing implicit subsidies that favor capital investments over investment in labor. The gradual rebalancing and reduction in physical capital investment rates is expected to be compensated by faster consumption growth over an extended period. China's economic history suggests that it has the instruments, perhaps more than any other country, to achieve such a transformation. But orchestrating such a transition should not be underestimated. Many other countries have failed to smoothly adjust their investment profiles.

While a smooth transition is the most likely outcome and the one retained in the baseline scenario, the risks are considerable. For example, the transition to a lower investment rate could be abrupt, perhaps provoked by a failure of a significant share of new investments to realize hoped-for profits, resulting in a spike in unpaid loans and a rapid tightening of credit. In such a scenario, investment growth would likely come under significant pressure.

Given China's much increased weight in the global economy and its role as an engine of global growth, a sharp decline in investment would likely have serious consequences worldwide. Simulations suggest that a 10 percentage point drop in Chinese investment would slow Chinese GDP growth by about 3 percentage points. The high import content of investment implies that a significant share of the slowdown leaks out as reduced imports—reducing the impact on China but extending it to the rest of the world.

Such a strong decline in investment rates is, however, unlikely. An abrupt deterioration in the investment climate would likely elicit a strong policy response. A 5 percentage point decline in Chinese investment growth would result in a 6.0 percent decline in Chinese imports and a 1.4 percent decline in GDP relative to baseline (table 3.3). Lower Chinese imports in turn reduce global exports, and world GDP declines 0.5 percent from 2013 baseline and 0.3 percent for developing countries excluding China. Reflecting the composition of Chinese import demand, high- and middle-income countries are hit harder than low-income countries.

Under this scenario, Kazakhstan's GDP would decline by 0.9 percent in 2013 and 0.7 percent in 2014. Its current account would deteriorate by 0.8 percent of GDP in 2013 and 0.5 percent in 2014, and its fiscal balance by 0.5 percent of GDP in 2013 and in 2014. Although China is a larger direct trade partner of Kazakhstan than the United States and European Union are, the impact of a Chinese slowdown on Kazakhstan is smaller due to the smaller role of China in the global economy than of the United States and European Union. The transmission channel is the demand for and the price of oil. As the United States and European Union are major global consumers of oil, when their economies come under pressure, this has a larger impact on the price of oil. The lower oil prices, in turn, have a big impact for Kazakhstan through lower domestic income and private consumption spending.

Scenarios for optimal resource management

A general equilibrium model analyzes the dynamic consequences of the anticipation and realization of oil wealth in Kazakhstan. Different scenarios take into account the uncertainty

Table 3.3 **Impact of an abrupt fall in Chinese investment**

	Real GDP (percent change in level)		Current account balance (change, in percent of GDP)		Fiscal balance (change, in percent of GDP)	
	2013	2014	2013	2014	2013	2014
China	−1.4	−0.1	1.7	0.9	−0.3	−0.2
East Asia and Pacific	−1.3	−0.9	1.3	0.7	−0.3	−0.2
East Asia and Pacific (excluding China)	−0.6	−0.5	0.0	0.0	0.0	0.0
World	−0.5	−0.4	0.0	0.0	−0.2	−0.2
High-income countries	−0.4	−0.3	−0.2	−0.1	−0.2	−0.2
Euro Area	−0.4	−0.3	−0.1	−0.1	−0.1	−0.2
Developing countries	−0.7	−0.5	0.4	0.2	−0.3	−0.2
Developing countries (excluding China)	−0.3	−0.3	−0.3	−0.1	−0.2	−0.2
Low-income countries	−0.3	−0.2	−0.2	−0.2	−0.1	−0.1
Middle-income countries	−0.7	−0.5	0.4	0.2	−0.3	−0.2
Developing oil exporters	−0.4	−0.4	−0.5	−0.2	−0.3	−0.3
Developing oil importers	−0.8	−0.6	0.8	0.4	−0.2	−0.2
Europe and Central Asia	−0.3	−0.3	−0.5	−0.2	−0.3	−0.3
Latin America and Caribbean	−0.3	−0.3	−0.2	−0.1	−0.2	−0.1
Middle East and North Africa	−0.3	−0.2	−0.4	−0.2	−0.5	−0.4
South Asia	−0.2	−0.2	0.0	0.0	0.0	0.0
Sub-Saharan Africa	−0.3	−0.3	−0.6	−0.3	−0.3	−0.3
Kazakhstan	−0.9	−0.7	−0.8	−0.2	−0.5	−0.5

Source: World Bank staff calculations.

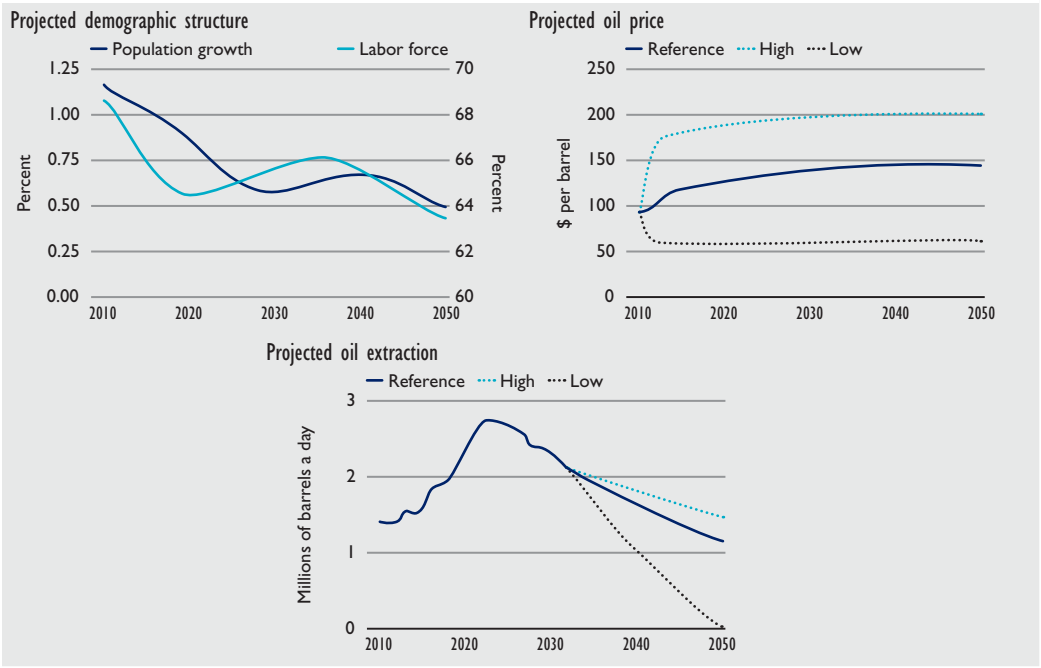
about Kazakhstan's oil extraction capacity and the international price of oil.[16] Oil enters the model as both an input of production and as an internationally tradable commodity. It is owned by both the government and households. The role of government is essential in the structure of the model that assumes that the government is benevolent, in the sense that it is interested in maximizing social welfare subject to resource constraints. The government affects social welfare in three interrelated ways. The first is the provision of public consumption goods (such as security and justice services, as well as targeted assistance for education, nutrition, and health). The second is the supply of public capital (such as transport and communication infrastructure) to complement private capital production. The third is managing and servicing the public debt, which can influence directly the cost of capital and resource constraints for both the public and the private sectors.

The model is calibrated to fit key characteristics of the Kazakh economy. This includes demographic projections to simulate the path of various macroeconomic variables for alternative projections of the future evolution of the oil price and the country's oil extraction (figure 3.4). The simulations allow for assessing how macroeconomic variables would evolve in the long run under various scenarios related to the size and long-term value of future oil discoveries. This is particularly important for fiscal policy and public debt, highlighting the risks related to the uncertainty of the size of these oil discoveries (figure 3.5).

Simulation results

The growth of GDP per capita fluctuates substantially under the three price scenarios. While it is lower under the baseline price relative to the low and high price scenarios until 2015, it is highest under the baseline scenario during the 2020s. Under the reference oil price scenario, it is projected to peak at 4.1 percent by 2017 and again at 4.3 percent by 2020 (see figure 3.5). GDP is highly sensitive to oil projections because the oil sector is extremely important in Kazakhstan's economy, especially if measured in per capita terms. This becomes clear when comparing the evolution of GDP per capita with that of nonoil GDP per capita (see figure 3.5), which grows faster in the low oil price scenario because the economy needs

Figure 3.4 **Assumptions for long-term simulations**



Source: Hevia (2012).

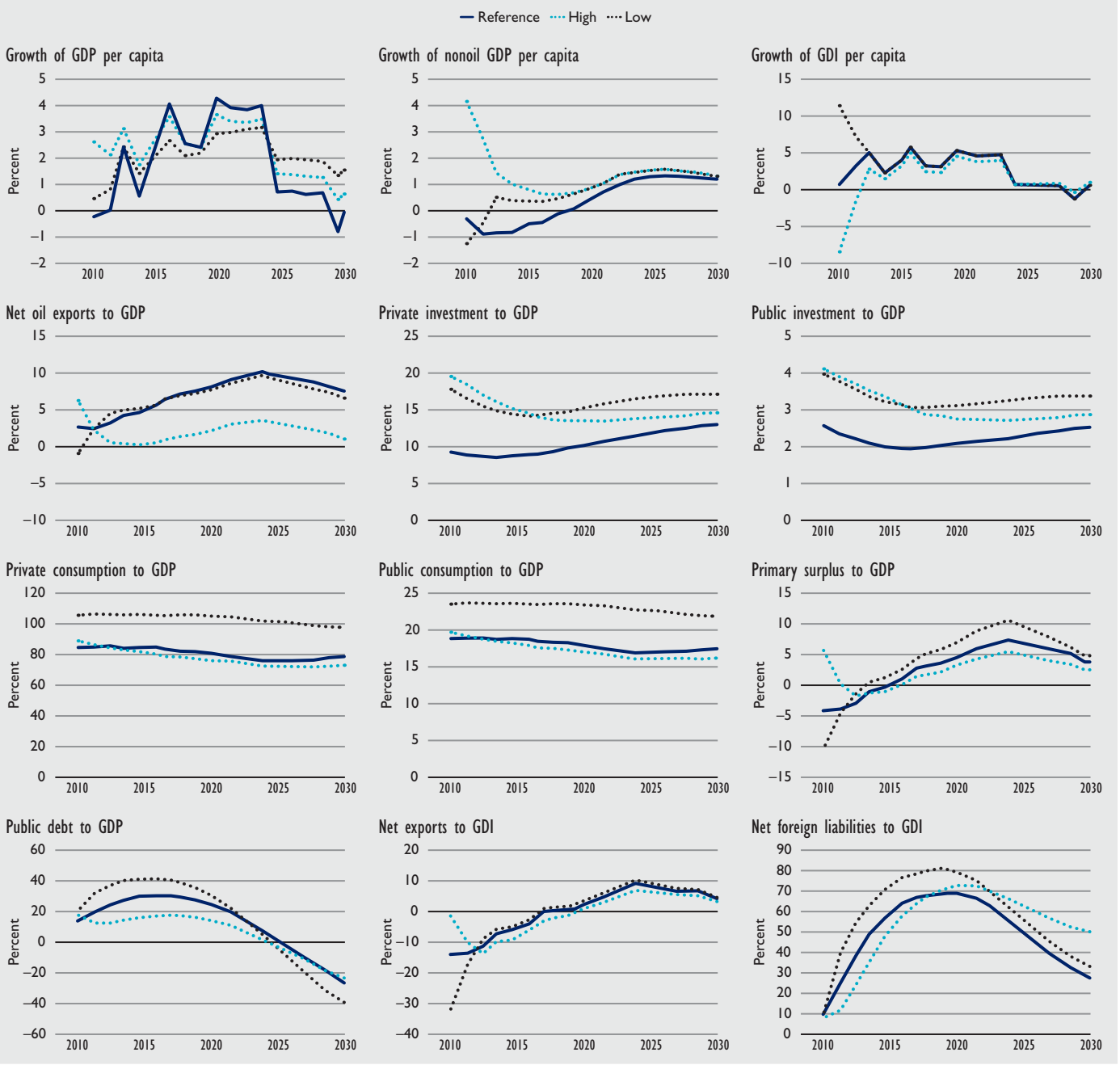
to compensate for the lower expected oil wealth by investing more and importing less, relative to the other scenarios.

Private and public investments (as ratios to GDP) are also quite sensitive to different oil price scenarios. Along with the behavior of net oil exports, the pattern of private and public investments helps explain the substantial difference in nonoil production across different oil price scenarios. Wealth and substitution effects imply that public investment remains larger than private investment when oil prices are higher or lower than the reference price. The investment effort is thus weaker under the reference oil price. Higher oil prices lead to a decline in the use of oil for domestic production in favor of oil exports (substitution), lowering demand for capital as a complementary factor of production. In addition, higher projected oil prices imply larger expected wealth for domestic residents, expanding consumption relative to investment.

Both private and public consumption (as ratios to GDP) are projected to remain roughly constant. Under the reference and low oil price scenarios, private consumption is expected to be around 80 percent of GDP. Under the high oil price scenario, it is more than 100 percent of GDP. Public consumption, under the reference and low oil price scenarios, is projected to be about 18 percentage points of GDP (though gradually declining), while under the high oil price scenario, public consumption is about 23 percent of GDP. These extremely high consumption rates reflect the extraordinary wealth from oil exports. Indeed, the income effect due to oil wealth is so large that total consumption (private plus public) is more than 100 percent of GDP.

The fiscal and public debt dynamics under the three scenarios are particularly interesting from a policy viewpoint. If the price of oil is very high, it is optimal for the public sector to run fiscal deficits in the early years, thus also raising public debt as a share of GDP. This is due to the public sector's realization that lower taxes are optimal under more optimistic oil windfall scenarios, because tax revenues are no longer needed to fund current consumption and investment because the government can borrow against its newfound oil wealth. Fiscal outcomes tend to improve as the oil windfall is realized over time. Debt dynamics are driven by the fiscal outcomes. Under the most optimistic oil price scenario, public debt increases as a share of GDP in the initial years,

Figure 3.5 **Macroeconomic projections under different oil price scenarios**



GDI is gross domestic income.
Source: Hevia (2012).

but stabilizes in the later years. In contrast, if the price of oil is low, the debt burden declines because the public sector has an incentive to maintain higher fiscal surpluses. It is noteworthy that the high price scenario corresponds to a price that reaches about $200 per barrel by 2030, but remains between $80 and $150 over 2010–15. That is, what matters for the optimal fiscal and debt dynamics are the expectations about the long-run price of oil as long as the reserves last.

Given uncertainty over the future trajectory of both oil prices and oil reserves, smart savings and public investment policies should be advocated. Consider the risks of pursuing apparently optimal fiscal and debt policies based on specific expectations about these two variables. If the expectations are

inflated, the government might be tempted to pursue overly expansionary public consumption in the initial years, before realizing of the oil windfalls. This would lead to potential increases in public debt. But if the windfalls turn out to be smaller than expected, the necessary fiscal adjustments down the road might be severe. Further, this adjustment would be needed when the economy's productive capacity would have been diminished due to seemingly optimal public and private sector increases in consumption. Thus, in the face of uncertainty, it might be prudent to act under the most conservative expectations for the future price of oil and the size of Kazakhstan's oil reserves. And to prevent excessive retrenchment of the private investment, a prudent public sector could take measures to save and invest more than it would under optimistic scenarios.

Chapter 4

Evaluating the Different Fiscal Rules

Using fiscal policies to mitigate the cyclical fluctuations of the economy is desirable in theory. But in practice there are limits on successful implementation of these policies because there are limits on establishing the cyclical position of the economy in real time. Section one briefly discussed problems associated with forecasting the business cycle. Section two then presents the results of simulations of the performance of different fiscal rules in the presence of forecast errors and concludes that flexible rules perform worse than fixed rules. Section three explores the results of original work commissioned for this report that looks into the expected welfare gains to the economy as a whole of adopting different types of rules derived from the permanent income approach. The main conclusion: a fixed rule with an escape clause for countercyclical response, in the same fashion as the one that Kazakhstan is already implementing, generates welfare gains close to those generated by an optimal fiscal rule.

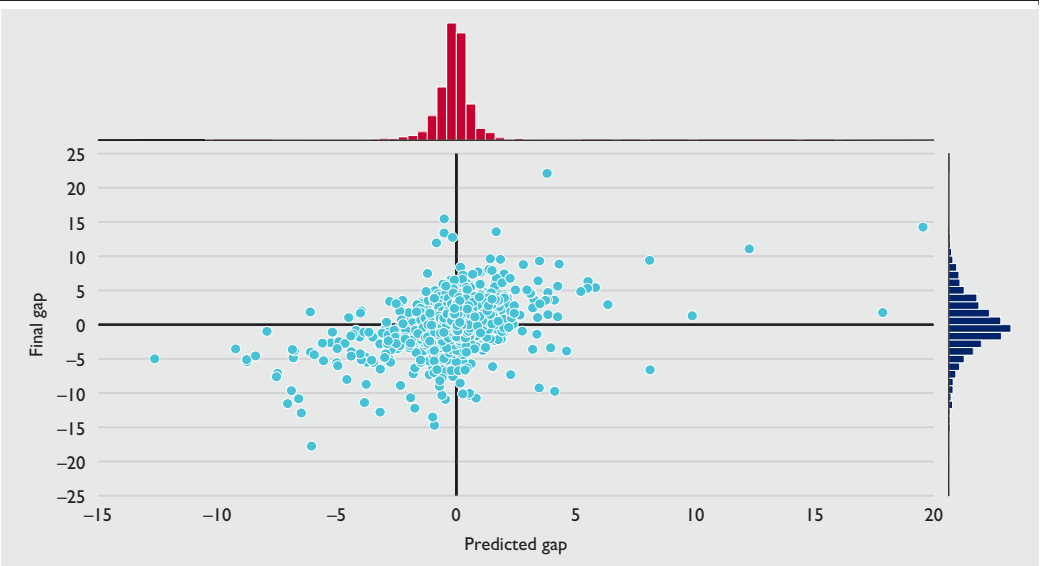
Forecasting problems

One major unknown in any countercyclical policy is the extent to which cycles may indeed be cycles. Volatility in world oil markets has become more marked in recent years. But how long would a cycle have to be before Kazakh authorities should start to regard the changes as permanent rather than merely temporary? And could such a cycle be accurately identified in time for appropriate policies to be implemented in a timely fashion? Unfortunately, the economics profession is quite bad at estimating business cycle conditions in real time (and therefore bad at estimating structural deficit gaps) and equally bad at predicting oil price behavior (the main underlying causal factor in Kazakh economic cycles).

Onder and Ley (2013) provide an excellent example of the difficulty in estimating business cycle conditions. They demonstrate that assessing the cyclical position of the nonmineral economy is very challenging by contrasting best-practice predictions of output growth in a cross-section of countries with the final data for the output gap and growth projections. They use International Monetary Fund (IMF) data, which covers more than two decades. For each year, the predictions correspond to the projections in the previous year's fall *World Economic Outlook*. These get subsequently revised, and the final numbers correspond to the most recent vintage in the dataset.[17]

A comparison of predicted output gaps with the final estimates of the same output gaps reveals the difficulties in making accurate forecasts. Figure 4.1 shows that assessing the cyclical position of a nonmineral economy is very challenging. This difficulty is evident when the real-time predictions of the output gap are contrasted with the final data. If predictions were reasonably good, the scatter plot should lie along the diagonal, however, as figure 4.1 shows, the dispersion is very large. The horizontal axis shows the prediction of the output gap in real time. This prediction is from the fall *World Economic Outlook* for the following year (close to budget preparation time).

Figure 4.1 **Predicted output gap and final output gap for 175 countries, 1990–2011**



Note: The blue plots to the right of the figure show the distribution of the actual output gaps. It is useful to see that they are symmetrically distributed around zero (which means that when one considers all countries and all years, there were both positive and negative output gaps, more or less in the same amount). The red plot on the top shows the distribution of the predicted gaps. This is also reasonably symmetric, showing that government's measurement errors are not too biased negatively (pessimist) or positively (optimist). Data for this scatter plot come from the International Monetary Fund's *World Economic Outlook* and consist of output data from 1966 to 2011 from 175 countries. The dataset contains output figures released biannually, in spring and fall, from 1990 to 2011. Thus, the dataset comprises real-time output figures from 22 different vintages where we consider the one from fall 2011 as the one that contains final figures (with some exceptions).
Source: Onder and Ley (2013).

For example, 5 percent on the horizontal axis means that the government expects a 5 percent output gap next year. The vertical axis shows the output gap actually realized for the corresponding year. If there is a 2 percent value on the vertical axis, this means that the actual output gap was 2 percent. If a specific country predicted the output gap at 5 percent (horizontal axis) but the actual output gap was 2 percent (vertical axis), this means that the government made a measurement error of 3 percentage points. That point would lay off the 45-degree line because the horizontal and vertical axes have different values.

These results indicate that trying to use a forecast structural deficit balance as the target for a cyclically adjusted fiscal policy provides a very uncertain anchor for the public finances. While it has conceptual appeal, in practice it cannot be done with the precision needed. The observation of Martin Wolf in the *Financial Times* (March 6, 2012) seems appropriate:

> It does make economic sense to target cyclically adjusted rather than actual deficits. But the improvement in economics is at the cost of a reduction in precision. Nobody knows what a structural deficit is.

Flexible rules perform worse than fixed rules

Simulations show that short-term flexible fiscal rules designed to be countercyclical can create greater volatility in the presence of forecast errors. Onder and Ley (2013) explicitly simulate how alternative types of fiscal rules in Kazakhstan would perform if the country suffered shocks of the size of those discussed in the previous section. Specifically, they look at both fixed rules and rules allowing some flexibility. They analyze each of the alternatives for its performance smoothing economic volatility and in maintaining the value of the national oil fund over the long run. Their results are quite striking and very important for the management of the fund. It is worth quoting directly from this paper:

> In conclusion, short-term flexible fiscal rules which are designed to be countercyclical are found to be destabilizing in almost all cases under consideration. The main reason for this is the inability of the fiscal authority to determine with enough precision as to where in the business cycle the economy finds itself. Given the inevitability of the contemporaneous

> forecast errors, fiscal policies intended to smooth the business cycle give rise to more volatility on average than delivered by adherence to a fixed long-term fiscal rule. Another consequence of the forecast errors that lead to destabilizing fiscal policy is that the present discounted value of the GDP under the flexible rules is less than the one generated by the fixed rules. A final shortcoming of short-term fiscal rules is that they cost too much relative to the fixed ones: they withdraw more from the oil fund on average and leave behind a smaller stock of assets in the [National Fund of the Republic of Kazakhstan] at the terminal planning period.

While short-run flexibility is theoretically beneficial, in reality it cannot deliver the results promised. Indeed, active countercyclical policy is likely to make volatility worse rather than better. In addition, they would be very likely to deplete the oil fund relative to what can be expected from a fixed transfer rule. These findings are illustrated in the simulations presented in appendixes 5 and 6. Among other results analyzed by Onder and Ley is the importance of the size of fiscal multipliers in the performance of flexible fiscal rules. Somewhat paradoxically, they find that smaller fiscal multipliers can result in higher volatility when countercyclical policies are attempted. The reason for this stems both from the countercyclical nature of the spending and the problem of inaccurate forecasting of business cycle conditions. When multipliers are smaller it is necessary to use larger amounts of spending to get a given countercyclical effect. But if those countercyclical effects are themselves inaccurately targeted due to inaccurate business cycle forecasting, greater instability can be the result (box 4.1).

Simulating welfare gains from different fiscal rules

The main gains from fiscal rules for oil revenues would come from a countercyclical component. Engel and Montecinos (2013) report the welfare gains for Kazakhstan from following four different types of fiscal rules associated with oil revenues. They wrote, "to be useful, [fiscal] rules need to be easily replicable in terms of their calculation." Their optimal rule is indeed complicated, as it would depend on a variety of factors, including the volatility of oil revenues, the volatility of private incomes, the persistence of oil revenues, the public sector's targeting efficiency, and several household characteristics such as risk aversion, discount factors (measuring the extent to which households value consumption today relative to consumption in the future), and their minimum subsistence level of consumption. The authors compared the welfare gains under the optimal fiscal rule with those under more tractable alternatives.

The optimal fiscal rule would be complex, as the savings and spending decisions would depend on many economic and social factors. For example, it would depend on household "discount factors" (Engel and Montecinos use 6 percent) that reflect households preference for consuming today instead of in the future; risk aversion; the income of the poorest households relative to subsistence; the volatility of oil revenues and private income (Engel and Montecinos use 0.41 and 0.13, respectively); the persistence of oil revenues (Engel and Montecinos use 0.57, based on statistical analysis of Kazakhstani data); the probability of facing a deep depression in consumption (based on international evidence, the authors use a 5 percent probability of facing a 30 percent decline in private incomes); and the targeting efficiency of social transfers, which measures the share of public social expenditures across the distribution of household incomes. Clearly, such a rule would be unlikely to be implemented in practice, partly because of its complexity. Still, the welfare gains of implementing such a complex rule could be substantial.

The rules considered for the simulations were variations of the permanent income approach. They were the Friedman permanent income rule (Friedman I) and two variations of the latter allowing respectively for optimal marginal propensities to spend out of permanent government income and the interest on government assets (Friedman II) and for an "exit clause" through which those parameters switch

Box 4.1 Current practice in other resource-exporting countries

In discussing the possibilities for modifying Kazakhstan's current rule for transfers from the oil fund to the national budget, it is useful to look at the experience of other resource-rich developing countries and draw some comparisons. Baunsgaard and others (2012) contains a summary of the current state of the debate along with a description of current practice in a selection of resource-rich countries.

The paper also surveys the advice given to each of these countries and highlights the somewhat surprising result that permanent income–based rules have played a lesser role in practice than might have been expected given the importance of preservation of wealth for future generations in much of the discussion in academic and policy circles. Rules based on this goal have accordingly been much analyzed but were implemented in only 6 of 17 countries (developed and developing) surveyed, though they were discussed in two others.

Dissatisfaction with permanent income–based rules has arisen in some quarters based on the desire of governments to increase capital formation in capital poor countries. Accordingly, efforts to define alternatives that would allow increased investment in current periods have been investigated, though in most countries there remain limits (at least in theory) on the amounts that can be transferred, primarily to prevent economic management problems in terms of overheating the economy, real exchange rate appreciation, and the like.

The table in appendix 3 surveys 11 resource-rich countries and specifies the type of rule followed and the rules for transfers from the sovereign wealth fund to the national budget. Of these 11, only 4 have permanent income–based rules, and of these only Norway has adhered strictly to its rule as written. Azerbaijan, Russian Federation, and Timor-Leste have either suspended their rules or simply exceeded the amounts indicated in practice.

Of the countries with a resource fund, only three (Costa Rica, Norway, and Timor-Leste) have a flexible rule based on the structural fiscal balance. The remainder has some form of revenue sharing or threshold value rule that does not depend on estimates of the fiscal situation or the business cycle. Even these have not been honored in all cases. While Baunsgaard and others (2012) do not survey the macroeconomic outcomes generated by this fact, the long literature on Dutch disease and related issues points to the potential problems. To the extent that volatility in transfers as well as real exchange rate appreciation can be avoided, there is a case for bringing investment expenditures forward in time to allow capital formation to benefit current generations as well as future ones.

Kopits (2004) contains a collection of papers with a variety of "lessons learned" from the experience of other countries:

- *Fiscal rules need the support of the electorate.* In the Kazakh case, it is hard to judge the extent to which the public understands the nuances of fiscal rules or resource management, but support of the legislature is important in legitimizing the decisions made.
- *It is best to have rules written into the constitution, but even informal rules can work if they are generally accepted.* Here the Kazakh case presents a "best case" example but also some retreat in the last year. While the original fixed rule was written into law and well understood, the subsequent loosening of the rule to allow 15 percent deviations was less formal. Regularizing whatever is adopted next will be important.
- *A fiscal rule works only if there are good procedural rules (accountability and transparency).* Here the Kazakh case is exemplary in that there is one sole recipient of oil funds—the National Fund of the Republic of Kazakhstan—and the amounts to be transferred are clearly seen by all.
- *Emerging markets have lower tolerance for high debt-to-GDP ratios than do developed countries.* This is an important consideration for the future and the Kazakh authorities have clearly focused on this in their rules regarding the limits on debt issuance by the government.
- *There is more volatility in emerging markets, and this needs to be taken into account.* Indeed, this is the rationale for the current exercise.
- *Commodity stabilization funds are good for resource economies where the resource is nonrenewable.* The Kazakh use of the oil fund is exemplary in this regard.
- *Fiscal decentralization needs careful attention to rules.* The Kazakh case is not highly decentralized at the present time, making this consideration somewhat less directly relevant.

Overall it seems clear that the Kazakh performance to date has been reasonable among resource exporters. So, the need for careful consideration of any proposed changes is obvious.

Source: Authors.

when private income is below a certain threshold (Friedman III). By definition, Friedman I and Friedman II are not countercyclical rules because savings and expenditures are determined entirely with respect to fluctuations in public oil revenues (for example, due to price fluctuations).

The comparative results show the gains with each of the different types of rules. Table 4.1 shows the gains under a "balanced-budget rule" whereby all oil (annual) revenues would be spent. The table also reports the gains associated with the introduction of countercyclicality, defined as a measure of the extent to which

Table 4.1 **Simple rules**

(Percent)

Rule	Welfare gain	Countercyclicality
Optimal	16.4	13.8
Friedman I	5.2	0.0
Friedman II	7.9	0.0
Friedman III	12.6	11.0

Source: Engel and Montecinos (2013).

oil-financed transfers are countercyclical with respect to private incomes. All rules of Milton Friedman are labeled in honor of the Nobel-prize winning economist who invented the permanent income hypothesis, in wide use today. Friedman I is the classic permanent income rule, whereby savings and transfers are a linear function of both oil revenues and returns on previously saved assets. Friedman II determines savings and transfers as a function of a linear function of both oil revenues and asset returns but with different coefficients on each. Friedman III provides some discretion for the government to fund transfers out of current oil revenues and returns to assets when private households face a large negative income shock, thus introducing some countercyclicality. The results suggest that the gains under a balanced-budget rule that would basically entail consuming whatever oil windfalls are realized each year would be equal to just over 16 percent of national consumption.

The gains from the simpler rules based purely on the permanent income approach would yield much lower gains than the complex rule that takes into account the probability of facing deep recessions in the private sector. The gains under the no-rule (or balanced-budget rule) scenario are still positive at just over 5 percent of the present value of long-term consumption. But, as mentioned, such a rule does not have an explicit countercyclical element, because it revolves only around the behavior of oil revenues (prices) and not around the private sector business cycle. The third rule in table 4.1 corresponds to a slightly more complicated version of the Friedman rule. It is complicated by an effort to use either current oil revenues emanating from current oil sales or using the revenues from the accumulated oil fund. In theory, the best way to use such revenues is to use them so that the marginal propensities of revenue losses are minimized. For example, if the rate of return from the oil fund in the short term is relatively high, one would want to spend more out of current revenues than remove savings from a high-yielding fund. But the gains from this approach appear to be small, and most sovereign wealth funds might do this instinctively.

A simple rule with an exit clause could be close to the optimal. This is the scenario depicted in the last row of table 4.1. It would have a simple built-in countercyclical component embodied in the exit clause. This clause would provide discretion to the fiscal authority to tap the oil fund in situations of severe private sector recessions that are transitory. For instance, this scenario would occur only if private income were to drop by 30 percent.[18] And the spending would end as soon as private incomes stabilize. Furthermore, this could be done with Kazakhstan's notably progressive social targeting, whereby the poorest 20 percent of households in per capita income tend to receive approximately close to 40 percent of social expenditures (table 4.2).

The optimal rule would entail accumulating savings of close to 25 percent of GDP over the next 25 years. Any such rule would accumulate savings in an oil-related fund. Such a fund, operating under the optimal and very complex rule, would have accumulated substantial resources over the next 25 years.[19] These savings would in principle accumulate over the current stock of oil savings, but it is unclear whether the current levels of savings, taking into account both reserves as well as the assets of the fund, are optimal from society's viewpoint.

Table 4.2 **Income and expenditure shares, 2007**

(Percent)

Quintile	Income share	Expenditure share
Poorest	9.3	39.6
Second	13.4	19.5
Third	17.1	15.6
Fourth	22.4	11.8
Wealthiest	37.8	13.5

Source: Engel and Montecinos (2013).

Using fiscal rules to enhance national welfare could be an option. When it comes to fiscal rules aiming to use revenue windfalls to enhance national welfare, Friedman's permanent income hypothesis plays a central role. Roughly speaking, it states that national welfare is maximized over time if public expenditures are stabilized around the level that the public sector's permanent income can sustain. That is, welfare is maximized when real consumption is stable and unaffected by transitory shocks. It is common in the literature to compare the welfare gains from some sort of fiscal rule that aims to stabilize private consumption at the level justified by the government's permanent income to a balanced budget rule, which implies procyclical fiscal policies.

The use of fiscal rules in that fashion could have desirable effects in a downturn. Fiscal rules based on Friedman's permanent income hypothesis do not, however, contemplate the possibility that households within countries differ in terms of their level of income, so they also differ in their marginal utilities of income. In other words, household welfare is affected differently if the household is rich or poor. A transitory drop in household income might force a poor household to reduce food consumption, for example, whereas a rich household's consumption habits might be materially unaffected by a similar proportional (transitory) drop in income. The background paper prepared for this report by Engel and Montecinos (2013) takes into account these differences in marginal utilities. In their model, the national welfare implications of temporary income shocks across households are determined by the public sector's ability to transfer temporary aid to poor households during downturns.

The basic intuition guiding government expenditures is straightforward. What the complex model developed by Engel and Montecinos suggests is that it would be beneficial for the economy to help the private sector smooth consumption by combining a precautionary motive with a smoothing of transitory income shocks motive. In that scenario, the government does not only consider its own revenue and assets when deciding how much to spend, but also looks at how the private sector is doing, spending more when the private sector's income is low. This can work well only when automatic stabilizers are well developed and can play their part. According to Engel, Neilson, and Valdes (2011, 14):

> [B]ecause there is income heterogeneity across households, and the government has only a limited ability to transfer income to the poor, the government faces a nontrivial tradeoff when implementing its spending rule: imperfect targeting increases the level of expenditure needed to achieve a given level of consumption for the poorest households, which in turn makes the optimal policy more countercyclical than if targeting were perfect. It follows that better targeting leads to less countercyclical government spending, implying that countries that have less capacity to target transfers should run a more countercyclical effort.

In conclusion, the results show that the profile of public spending can be quite relevant. The optimal rule leads to the same welfare gain as a 16 percent increase in the government's revenues under a balanced budget rule. A Friedman-type rule attains a third of

the gains obtained under the optimal rule (5.2 percent). A linear rule in assets and permanent income with optimally chosen marginal propensities achieves a little under half of optimal gains (7.9 percent). Adding an escape clause to the latter rule obtains a little over 75 percent of the gains under the optimal rule (12.6 percent). The degrees of countercyclicality of the optimal rule and the linear rule with an escape clause are similar—and much larger than those of the simpler linear rule without an escape clause.

These results endorse the conclusions advanced in chapter 1: a simple fixed rule with an escape clause allows nearly as much gain in welfare as does a theoretically optimal rule. That is additional evidence suggesting that the current fiscal rule being adopted in Kazakhstan already performs well in comparison to other more complex options. The recommendations presented in chapter 1—to rebase the nominal amount in line with the growth of nonoil GDP over four to five years, add limits for the implementation of the 15 percent deviation introduced in May 2012, and implement automatic stabilizers to the extent possible—would bring the current fiscal rule even closer to an optimal rule.

Chapter 5

Theoretical Considerations for Countercyclical Policy

This chapter discusses theoretical considerations related to the implementation of countercyclical policy with a special focus on Kazakhstan. Section one presents a brief review of the literature on the role of fiscal rules on countercyclical policymaking. The main message is that there could be significant gains associated with the adoption of a countercyclical rule, especially if it is implemented through strong automatic stabilizers. Section two discusses the role of multipliers and concludes that they will work in connection with automatic stabilizers, but that their final effect on the economy will depend on the composition of government spending. Section three concludes this literature review by looking at the role of monetary policy in a downturn, arguing that for monetary policy to be effective it needs to rely on a well-developed domestic financial sector.

Fiscal rules and countercyclical policy

There is a vast literature on the role of fiscal rules for countercyclical policy in mineral economies. Frankel (2011) and Arezki (2011) show how different fiscal rules can make mineral income vary from procyclical to countercyclical to anywhere in between. Clearly, procyclicality is something to be avoided if possible, but it is a natural result of some of the simpler budget rules that can be applied. Simple balanced budget rules result in economic instability that mirrors that of the mineral export sector as money is spent as it comes in rather than being saved. Another rule gaining in popularity following its successful application in Chile is the structural surplus rule, which targets a long-run government surplus (or deficit), derived from some version of the long-run sustainable payout from a sovereign wealth fund based on an exportable mineral resource. Such a rule allows countercyclical payouts in a downward phase of the cycle to be balanced by added savings in a boom phase.

The main pitfall associated with such a rule is arriving at a nonpolitical estimate of long-run forecasts of export prices, physical production, and GDP. While smoothing deviations from trend is always the goal of the welfare maximization, history shows us that politicians can be counted on to bias estimates in favor of current spending, particularly when they are soon to engage in an election.

The structural surplus rule can be countercyclical and can be demonstrated to have welfare properties superior to a rule that results in cyclical neutrality or procyclicality. Kumhof and Laxton (2010) extend this by relaxing the liquidity constraint imposed by the permanent income approach. After all, the structural surplus rule is countercyclical but is constrained by its grounding in some form of the permanent income rule. A key element of this analysis is that the ability of monetary policy to adequately smooth welfare for households in the economy is limited when many households are liquidity-constrained (their incomes are low enough that they live paycheck to paycheck). In effect, the government can improve welfare by saving on their behalf out of mineral

income—and spending or transferring the money in cyclical downturns. In theory, the best way to accomplish this is through direct transfers and taxes on labor and consumption.

The case for strong countercyclical fiscal policy rests on the targeting of the incomes of lower income groups as the appropriate goal for policy. The welfare implications of doing this are clearly better than a balanced budget rule, which simply transfers current cyclical ups and downs to the government budget and thus to all affected by it. It is also better than structural surplus rules, which take a longer term view and seek to target a desired long-run government surplus-to-GDP ratio and responds to cyclically low (high) government surpluses by increasing (reducing) government debt rather than instantaneously changing fiscal instruments. But this tends toward minimizing fiscal spending volatility. A key insight of Kumhof and Laxton's paper is that, if minimizing business cycle volatility should instead be the main objective, there are significant gains to adopting a much more countercyclical rule implemented through strong automatic stabilizers, such as progressive taxation and unemployment insurance.

The role of multipliers

What makes a fiscal multiplier higher or lower depends on whether there is enough targeting of public spending and excess capacity in the economy. Generally speaking, there are two characteristics for which to look. First, when looking for a large multiplier, a spending target is desired that will elicit output and employment response on the part of the real economy rather than simply bidding up prices. This implies spending money in areas where there is either excess capacity or additional capacity can be added with relative ease. Second, the subsequent rounds of effects should be concentrated in the domestic economy (again in areas with relatively elastic supply response) rather than being dissipated through leaks out of the domestic economy into increased imports.

It is also important to favor expenditures that can increase the supply response elasticity. But the likelihood that such expenditures can be easily increased or decreased through the business cycle is lower. This is due to the fact that infrastructure or other capital projects are less divisible than are other types of expenditures and so are less amenable to countercyclical instruments of policy.

To definitively quantify expenditure and tax multipliers, it would be necessary to estimate a full-fledged macroeconomic model—which is beyond the scope of this report. Lacking that, a review of Kazakh public expenditures and taxes together with some idea of the import component of spending in different areas can go a long way toward classifying expenditures as having high or low multipliers. The most recent quantitative analysis of some of the relevant parameters can be found in Naumov (2009), which constructs a social accounting matrix and compatible general equilibrium model for Kazakhstan to evaluate the impact of oil revenue—as well as Hare and Naumov (2008), which reports some of the findings of the more extensive 2009 study. Based on Kazakh household and budget surveys from 2002 to 2005, this study reports both expenditure patterns of households and the import content of overall sales for different sectors in the economy.

The sectoral composition of government spending is the most important in the impact on the domestic economy. But the import content of domestic sales in those sectors determines the extent to which subsequent rounds of effects are contained within the country or are leaked through import expenditures. Household expenditure structure is also a key element of the extent to which expenditure effects are contained or leaked, since payments to labor (and therefore household income) play a large role in determining where secondary effects are felt. For example, if the government were to spend heavily on construction projects to increase future productivity, a large share of the payments to the construction sector would end up in the hands of workers, given the relatively high labor content of production in this area. The expenditure patterns of these workers determine, in turn, whether the domestic economy will get a boost (if they spend in areas dominated by domestic production) or whether the effects will be felt only in increased imports (if they spend on imported items like cars).

Household consumption is heavily weighted toward basic necessities and goods with a high import content. Food and drink are important, with large shares also going to apparel and home furnishings (table 5.1). Utilities including electricity, gas, and water account for 6.8 percent, while transport, education, and agricultural goods are also important—at 3.7, 3.5, and 3.4 percent. The roughly a third of expenditures remaining is split among various categories. Food and fuels have a high-import content in terms of domestic market share, as do manufactures of all kinds (table 5.2). Other sectors have a far lower import share in domestic sales, indicating that purchases directed toward these sectors will boost domestic demand more in direct effects than will other purchases. Some sectors appear to have a fairly high domestic content in direct expenditures but would almost certainly reveal a high import content in their own input structure with more detailed analysis. Transport is a good example, where virtually all transport services are supplied by domestic providers, which purchase most of their vehicles and inputs to run them from outside of the country.

There is an important caveat to this entire discussion. Typically, discussions of multipliers revolve around finding spending targets that will maximize the extent to which domestic demand will be boosted. But in an oil economy susceptible to overheating from excessive spending of oil revenue, there is a definite limit to how much the government will want to see domestic spending increase in any given period. It is entirely possible that spending on, for example, construction, which shows 25 percent imported content in final sales, would be an important area for spending given the long-run priorities of the government.

Table 5.1 Structure of expenditure of the representative household, 2005

Expenditure	Percent
Agriculture and related services	3.4
Coal, other solid fuels	1.7
Food, drink, and tobacco	39.8
Clothes and shoes	9.7
Furniture, textiles, cleaning, and home products	5.4
Personal goods, televisions, and computers	1.9
Books, newspapers, and magazines	0.7
Cars and other transport equipment	1.2
Gasoline and fuels	1.3
Other personal use goods	3.5
Electricity, gas, heat and water, and central heating	6.0
Construction and housing repair	1.3
Car repair and maintenance	0.3
Repair of personal goods services	0.3
Hotels and restaurants	2.2
Transport	3.7
Post, Internet, and telecommunications	2.7
Financial and legal services, rent, and insurance	0.4
Personal services	1.5
Education	3.5
Health and medical services	2.4
Public utilities (sewage, water disposal)	0.8
Amusement and recreational services	0.7
Other (pets, plants, and related services)	0.5
Interhousehold transfers	5.2
Tax on land and real estate	0.1

Source: Hare and Naumov (2008).

Table 5.2 **Imports and domestic sales, 2002**

(Millions of tenge, unless otherwise stated)

	Total output	Exports	Imports	Exports/output (percent)	Imports/sales (percent)
Agriculture	3,800	1,110	100	29	4
Forestry	50	2	5	4	9
Fishery	170	0	1	0	0
Coal, lignite, and peat	1,030	350	9	34	1
Crude oil extraction	10,560	7,580	600	72	20
Other mining	2,350	160	100	7	5
Food, close, and tobacco	7,860	260	6,520	3	86
Fuels and chemicals	2,510	750	1,840	30	105
Metals and metal products	7,100	4,410	1,190	62	44
Other manufacturing	1,080	290	3,700	27	468
Electricity, gas, and water	3,490	7	50	0	1
Construction	4,840	1	1,230	0	25
Trade	8,200	2,310	1	28	0
Hotels and restaurants	690	0	0	0	0
Transport	6,740	30	750	0	11
Post and communication	1,080	90	80	8	8
Financial services	7,680	150	1,260	2	17
Public and other services	6,200	340	50	5	1
Total	75,430	17,840	17,486	24	30

Source: Naumov (2009).

The need for financial sector development

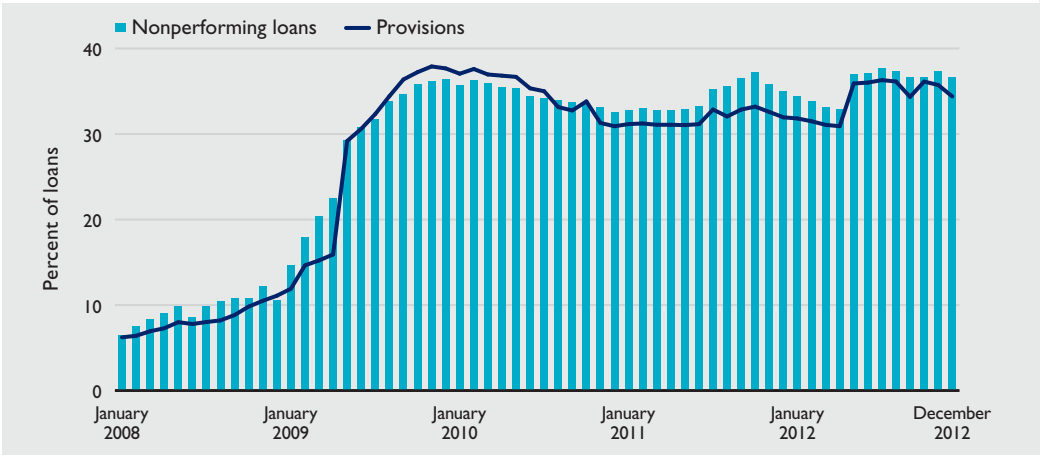
One of the key requirements for effective countercyclical monetary policy is deepening the financial sector. Having a sufficient supply on the market so that liquidity can be ensured when monetary policy requires money's use as an instrument is important, since it is precisely through such channels that monetary policy must act if it is to be an effective instrument of policy in affecting cycles in the real economy. As is having a deep enough financial development so that the links between financial markets and instruments and the real economy are well enough developed that monetary policy can hope to affect outcomes on the real side. The fewer the options for private sector entrepreneurs to access credit or financial markets, the fewer the channels for economic authorities to expect money and interest rates to provide a stimulus or a brake.

A major impediment to broadly effective monetary policy in Kazakhstan is the fragility of the banking system. This became particularly important after the world financial crisis of 2008–09 and the end of the Kazakh real estate bubble that accompanied the worldwide boom before the crash. Many banks got into major financial trouble as a result of the crisis, and many were taken over by the state. A pervasive problem for the system is the high proportion of nonperforming loans still carried by banks.

Although the authorities have been supporting the banking sector through interventions, restructurings, and extensive liquidity, the sector is yet to recover. As discussed in the latest World Bank economic update for Kazakhstan, reported capital adequacy appears healthy and bank liquidity is ample, but the industry still has depressed profitability due to poor asset quality that leads to risk aversion.[20] Furthermore, nonperforming loans remain high at 37 percent of total loans at the end of 2012, compared with 35 percent at the end of 2011 (figure 5.1). BTA Bank was the major contributor to this shift, with its nonperforming loans going up from 61.5 percent of total loans in April 2012 to 87 percent in December 2012 (figure 5.2). Although nonperforming loans in the banking sector are well provisioned (93 percent of total), they keep a third of banks' loan portfolio idle, not working for the economy.

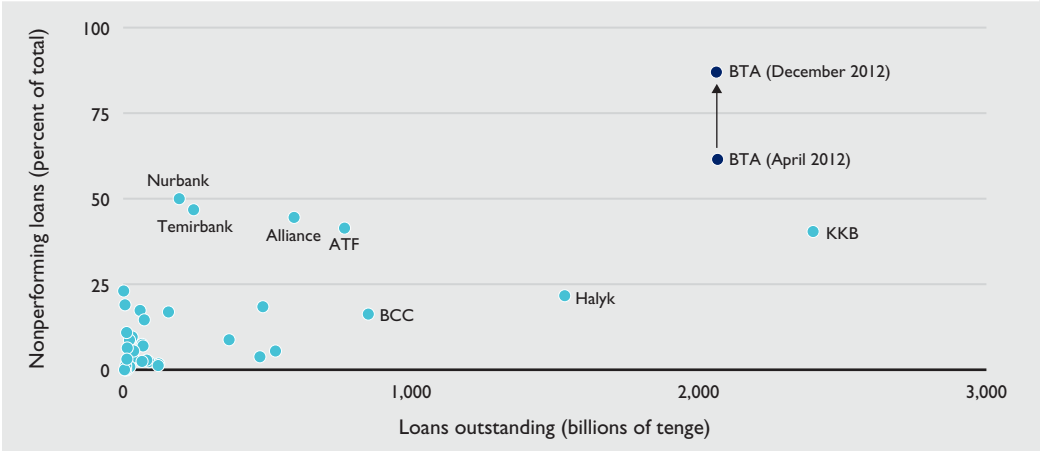
To address nonperforming loans, the National Bank established national and

Figure 5.1 Nonperforming loans are well provisioned but constrain banks' lending



Source: National Bank of Kazakhstan.

Figure 5.2 BTA remains the biggest outlier in nonperforming loans



Source: National Bank of Kazakhstan.

private asset management companies and provided additional incentives for nonperforming loan writeoffs. The National Bank of Kazakhstan is following its initial strategy of setting up a national asset management company. The Problem Loans Fund, established in April 2012, started buying problem loans (with a discount) from banks on a pilot basis. Four banks have already set up special purpose vehicles and are expected to start transferring bad loans to their respective vehicles. As part of encouraging the writeoffs, the authorities extended tax exemptions for writeoffs until the end of 2013 and imposed a ceiling for nonperforming loans (over 90 days overdue) at 20 percent of a loan portfolio in 2013 and 15 percent in 2014.[21]

The practical and theoretical case for a stable monetary policy using price stability as a target is well established. This is even clearer when the country is a large mineral exporter, in which case the strict inflation targeting approach can be usefully modified to target the real exchange rate rather than using some form of a consumer price index target, as is typical. Another possibility raised in the literature is to use the primary export commodity price (in this case, oil) as part of a target index of prices since this is the main source of volatility affecting the economy.[22]

The inability to deal with the effects of large foreign exchange inflows can be disastrous. This older, "Dutch disease" literature underscores the role of foreign exchange inflows in

bidding up the price of nontraded goods, causing an appreciation of the nominal exchange rate and thereby causing deterioration in nonmineral traded sectors due to adverse moves in the real exchange rate.[23] This stagnation is exacerbated by resource pull effects, which cause reallocations away from nonmineral traded sectors (agriculture) both to mineral (oil) and to nontraded (construction) parts of the economy.

More recently, this analysis has been extended to include adverse political and institutional ramifications of resource dependence—and to other economic problems that can arise. One of the most important is real exchange rate volatility, which can stem from volatility of resource income, but which could in theory result from anything that causes a stop-go pattern in absorption or inflation.[24]

For the Kazakh case, Hausmann (2005b) details some of the pitfalls of a strict inflation targeting approach to monetary policy. He walks through the standard response when confronted with fiscal expansion, capital inflows, or oil price shocks. In each case, a pure inflation-targeting approach would tend to exacerbate short-run fluctuations in the real exchange rate, thus in effect making the nonoil traded sector the "shock absorber" for the economy. This would happen as monetary policy was tightened in response to pressures on price levels from the increased absorption stemming from any of the sources of the shocks. Tighter monetary policy implies higher interest rates and therefore an appreciation of the nominal exchange rate. This is not what a policy of economic diversification should aim for in the long run.

The proposed alternative is to tighten policy through other means. That is, by applying limits on credit expansion through stricter reserve requirements, capital adequacy, or portfolio regulations and fiscal policy rather than through traditional monetary tightening. In other words, the need to rely solely on centralized monetary policies (such as interest rate management) to contain the aggregate demand pressures at the root of the problem are limited by "diversifying" policy to other instruments that can bear part of the burden.

In this situation, a premium remains on the ability of the government to avoid aggregate demand from overheating in the first place. The more oil proceeds that can be saved offshore, avoiding their transmission to the domestic economy through fiscal policy, the easier the task of the authorities to maintain control over both inflation and the real exchange rate. And to the extent that monetary policy can be made more effective through developing a deep and liquid domestic financial market, the more real effect will be gained from a given change in interest rates, limiting the extent of incipient appreciation from monetary tightening.

In conclusion, this literature review emphasizes general good-practice principles that could be useful in a severe recession. First, the literature on the use of countercyclical policies highlights that they can generate sizable gains, especially if these policies are implemented in connection with automatic stabilizers. The discussion in chapter 1 illustrated how automatic stabilizers could be used in severe downturns without increasing the size of the government in the economy. Second, the literature on the use of multipliers emphasizes that they are most effective when coupled with automatic stabilizers. The discussion on multipliers also covered the enhanced effects that they could have when used to boost activity in sectors that rely more on domestic providers rather than on goods and activities that rely mostly on imported inputs. This chapter reiterated the message advanced earlier that the effectiveness of monetary policy will be limited in the absence of a well-developed financial sector. These three major principles reinforce the lessons from the global financial crisis discussed in chapter 1.

Appendix I

Details of the National Fund of the Republic of Kazakhstan

Type of fund	Stabilization fund. The main goals of the national oil fund are to accumulate part of the revenues from natural resource depletion for future generations (a savings function) and to reduce the dependence on oil to meet budgetary needs (a stabilization function). Furthermore, the overall objective of the fund is to ensure efficient oil revenue management and transparency to increase the welfare of current and future generations.
Date of inception	January 2001.
Rules for contributions (What event or price triggers contributions?)	Receipts for the national oil fund are generated from tax receipts from the oil and gas sector.
Rules for distributions (What event or price triggers distributions?)	A guaranteed amount determined in the annual budgeting process, not to exceed a third of the fund's assets. The guaranteed transfer should be used only to finance development budget programs designed to invest in projects that will also be used by future generations.
Investment rules and restrictions	Consists of a stabilization portfolio (minimum 20 percent of the fund) invested in short-term debt securities and an investment portfolio invested in longer term debt and equity securities.
How distributions are used	Statutory limitations on the uses of revenues are defined by the president and include the following uses: the execution of its stabilization function; earmarked transfers of the fund to republican and local budgets, for purposes to be defined by the president; operational expenditure of the fund and the conduct of the annual external audit; and reliable and liquid investments abroad. The national oil fund may neither be used to provide credits to private or state organizations nor may it provide security for other obligations.
Reporting rules and disclosures	The fund makes daily, monthly, and yearly reports that it submits to the council. The council prepares an annual report to submit to the president on February 1 of each year. An independent external auditor (selected by the president) also makes an annual report. The report and audit are released on national (state-owned) media.
Investment management	Management is provided by the National Bank of the Republic of Kazakhstan. A management council oversees the operation of the national bank and vets all reports. The president of Kazakhstan decides the composition of the management council. The overall functioning of the council is at the president's discretion. The president chairs the management council, which includes the prime minister, chairman of the senate of parliament, chairman of the Majlis of parliament, head of the administration, chairman of the national bank, deputy prime minister, minister of finance, and chairman of the accounting committee for controlling execution of the republican budget. No representatives from trade unions, professional associations, or civil society sit on the council.
Other	The 2009–10 transfer of $10 billion to finance a crisis response package, including financial support to the top four banks through loans and capital injections, support to the construction and housing sector, financial assistance to the small and medium-size enterprise and agricultural sectors, and public investment in the industrial sector.

Source: World Bank (2010).

Appendix 2

Survey on International Monetary Fund Advice to a Sample of Resource-Dependent Countries

Country	Use of permanent income hypothesis model: Included in the fiscal framework	Use of permanent income hypothesis model: Indicator of long-term sustainability	Use of price-based fiscal rule	Use of medium-term framework	Main fiscal indicator is the nonresource balance
Angola		✔		✔	✔
Azerbaijan	✔	✔			✔
Cameroon				✔	✔
Chad		✔		✔	✔
Chile			✔		✔
Congo, Rep.	✔	✔		✔	✔
Equatorial Guinea		✔		✔	✔
Gabon	✔	✔			✔
Ghana				✔	
Nigeria		✔	✔	✔	✔
Norway	✔	✔			✔
Papua New Guinea				✔	✔
Peru				✔	
Russian Federation	✔	✔			✔
Timor-Leste	✔	✔		✔	✔
Trinidad and Tobago		✔	✔	✔	✔
Venezuela, RB		✔			

Note: In some countries, the use of the permanent income hypothesis changed during the reviewed 2004–11 period, so its current use may differ.
Source: Baunsgaard and others (2012).

Appendix 3

Fiscal Rules in Different Countries

Country	Rule permanent income hypothesis	Non–permanent income hypothesis framework	Resource fund	Description
Azerbaijan	✔		R	A nonoil balance guideline (2004) consistent with constant real consumption out of oil wealth. Never observed. More recently, reliance on ad hoc balance budget oil price. Complemented by state oil fund.
Chile		✔	F	Structural balance guideline (institutionalized in 2006 fiscal responsibility law). Adjustment by long-term rice of copper and molybdenum (10-year forecast) as determined by an independent committee. Targets have been changed over time. Supported by two funds (stabilization and savings).
Ecuador		✔	R	Various rules (nonoil balance, expenditure growth) that were mostly not observed. More recent rule states that current spending cannot exceed permanent revenue (a sort of "golden rule"). Oil funds abolished in 2008.
Equatorial Guinea		✔	R	Guidelines establishing that current expenditures should be limited to nonoil revenue have led to very high capital expenditure levels. Economic and Monetary Community of Central Africa convergence criteria include various fiscal targets (such as a nonoil balance target). It has a fund for future generations.
Ghana			R	A recent petroleum revenue management framework built around a stabilization fund and a heritage fund. Benchmark oil revenue is calculated at a seven-year moving average, with 70 percent used to finance the budget. Remaining revenue allocated in fixed proportions to the funds. No fiscal anchor limiting budget deficit.
Mongolia		✔	R	A ceiling on the structural deficit with structural mineral revenues estimated using a 16-year moving average of mineral prices. Combined with a ceiling on expenditure growth defined by the nonmineral GDP growth rate (useful when structural revenue is growing fast). The structural balance target can be changed every four years. Flows to a stability fund linked to difference between actual and structural revenues. This framework will start in 2013.
Nigeria		✔	R	Three percent of GDP deficit ceiling for federal government computed at budget oil price (not strictly followed). Budget oil price set every year in political negotiations, including with subnational governments. Excess crude account receives "windfall" revenues: ad hoc withdrawals.
Norway	✔		R	"Bird-in-hand" fiscal guideline: the cyclically adjusted nonoil central government deficit as 4 percent (the expected long-run real rate of return) of the sovereign welfare fund assets. Guidelines are flexible: temporary deviations permitted over business cycle or if large changes in sovereign welfare fund value. Very strong political consensus.
Papua New Guinea		✔	R	Five-year medium-term fiscal strategy that sets a ceiling to the nonmineral deficit in line with "normal" mineral revenue. A portion of "windfall" mineral revenue (70 percent) can be spent up to a nonmineral deficit ceiling of 8 percent of GDP. It was largely followed, but there was volatile real expenditure growth due to swings in total GDP.
Russian Federation	✔		R	The budget code includes a long-term nonoil deficit target of 4.7 percent of GDP that was suspended in 2009. Annual budgets underpinned by rolling three-year medium-term fiscal frameworks. Two oil funds (stabilization and savings).
Timor-Leste	✔		F	Fiscal guidelines based on permanent income hypothesis framework (constant in real terms). Nonoil balance set in line with estimated sustainable income, which is calculated annually as 3 percent of the sum of the petroleum fund balance and the present value of expected future petroleum receipts. Deficits can exceed the estimated sustainable income if properly justified and approved by parliament. More recently, government has scaled up public investment so that total spending amounts to more than twice the level of the estimated sustainable income.

Note: Resource funds can be an account or a statutory legal entry. R is contingent (linked to threshold values) or revenue share (flows in proportion to total revenue) funds; F is flexible (financing, linked to the overall fiscal position) funds.

Appendix 4

Economic and Social Indicators, 2005–15

Selected indicators	2005	2006	2007	2008	2009	2010	2011	2012	2013 (projected)	2014 (projected)	2015 (projected)
Income and economic growth											
GDP growth (annual % change)	9.7	10.7	8.9	3.3	1.2	7.3	7.5	5.0	5.0	5.4	5.5
GDP per capita growth (annual % change)	8.7	9.5	7.7	2.0	–1.4	5.8	6.0	3.5	3.9	4.3	4.4
GDP per capita ($)	3,771	5,292	6,771	8,514	7,165	9,070	11,357	12,009	12,775	13,725	14,749
Private consumption growth (annual % change)	9.7	11.9	10.5	4.4	1.6	10.7	9.7	9.3	6.5	4.4	4.4
Gross fixed investment (% of GDP)	31.0	33.9	35.5	27.5	29.4	25.4	22.2	21.6	21.3	21.1	21.0
Public	4.6	4.5	5.6	5.8	5.5	5.1	4.6	4.6	4.6	4.6	4.5
Private	26.4	29.4	29.9	21.7	23.9	20.3	17.6	17.0	16.7	16.5	16.4
Savings (% of GDP)	29.7	31.4	27.8	32.4	25.9	26.7	29.1	25.9	24.5	24.2	24.0
Public	9.7	11.8	12.4	10.3	7.6	10.4	12.9	12.0	11.5	9.5	9.2
Private	19.9	19.6	15.4	22.1	18.2	16.4	16.2	13.9	13.0	14.7	14.8
Money and prices											
Inflation, consumer prices (annual % change, end of year)	7.4	8.4	18.8	9.5	6.2	7.8	7.4	6.0	6.5	6.0	6.0
Inflation, consumer prices (annual % change, period average)	7.6	8.6	10.8	17.2	7.3	7.1	8.3	5.1	5.8	5.8	5.8
Central bank refinancing rate (%, weighted average)	7.8	8.6	9.2	10.8	8.4	7.0	7.4	6.2	n.a.	n.a.	n.a.
Nominal exchange rate (end of period)	134	127	121	121	148	147	148	150	149	148	148
Real exchange rate index (2005 = 100)	100	90	81	71	81	76	72	71	69	66	64
Fiscal accounts and external debt/assets											
Revenues (% of GDP)	28.0	28.3	29.2	29.7	22.7	25.0	27.7	26.8	25.5	25.5	25.1
Oil revenues	9.4	10.0	8.1	12.3	8.1	10.4	14.0	13.4	12.0	12.1	11.7
Nonoil revenues	18.6	18.3	21.1	17.4	14.7	14.6	13.8	13.4	13.5	13.5	13.4
Expenditures (% of GDP)	22.3	20.3	24.2	27.2	23.5	22.1	21.5	22.3	22.5	22.6	22.6
Current	15.8	14.2	14.8	14.2	16.1	15.0	14.9	16.2	16.4	16.5	16.6
Capital and net lending	6.5	6.1	9.4	13.1	7.4	7.1	6.7	6.1	6.1	6.1	6.1
Overall fiscal balance (% of GDP)	5.6	8.0	5.0	2.5	–0.8	2.9	6.2	4.5	3.0	2.9	2.5
Nonoil fiscal balance (% of GDP)	–3.7	–2.1	–3.0	–9.8	–8.8	–7.6	–7.8	–8.9	–9.0	–9.2	–9.2
Nonoil primary fiscal balance (% of GDP)	–3.3	–1.8	–2.8	–9.4	–8.4	–7.1	–7.3	–8.5	–8.5	–8.6	–8.6
External debt, total (current $ billion)	43.4	74.0	96.9	107.9	112.9	118.2	123.8	139.8	151.7	164.0	175.9
External public debt (% of GDP)	3.8	3.9	2.0	1.6	3.2	3.5	2.9	2.8	3.0	2.9	2.7
Total public debt (% of GDP)	9.8	12.7	7.8	8.7	13.6	15.3	12.4	13.0	16.1	16.9	17.8
Total official international reserves (% of GDP)	26.5	41.0	36.8	35.5	41.2	40.0	38.8	42.7	43.7	44.3	44.5
External accounts											
Export real growth (%, year over year)	1.1	6.5	9.0	0.9	–11.6	1.9	3.5	–0.4	1.3	4.9	4.9

Selected indicators	2005	2006	2007	2008	2009	2010	2011	2012	2013 (projected)	2014 (projected)	2015 (projected)
Import real growth (%, year over year)	12.5	12.2	25.8	–11.3	–16.0	0.9	6.9	19.5	4.0	3.5	4.0
Merchandise exports (current $ billions)	28.3	38.8	48.4	72.0	43.9	61.6	88.5	92.4	90.8	95.4	100.0
Of which oil and gas	19.5	26.3	31.5	48.9	30.0	42.5	65.3	64.5	63.7	67.8	71.8
Merchandise imports (current $ billions)	–18.0	–24.1	–33.3	–38.5	–29.0	–32.9	–40.5	–47.2	–48.2	–50.0	–52.0
Services, net (current $ billions)	–5.3	–5.9	–8.2	–6.7	–5.8	–7.1	–6.4	–7.7	–6.3	–6.7	–7.1
Workers' remittances, net (balance of payments, current $ billions)	–1.1	–1.9	–2.9	–1.9	–1.4	–1.4	–1.5	–1.5	–1.5	–1.5	–1.5
Current account balance (current $ billions)	–1.1	–2.0	–8.3	6.3	–4.1	1.8	13.6	8.8	6.9	7.3	7.6
Current account balance (% of GDP)	–1.8	–2.5	–7.9	4.7	–3.6	1.2	7.2	4.3	3.2	3.1	3.0
Foreign direct investment (current $ billions)	2.1	6.7	8.0	13.1	10.1	3.7	9.1	12.7	12.2	11.6	9.8
Population, employment, and poverty											
Population, total (millions)	15.1	15.3	15.5	15.7	16.1	16.3	16.6	16.8	17.0	17.1	17.3
Population growth (annual % change)	0.9	1.1	1.2	1.2	2.7	1.4	1.4	1.4	1.0	1.0	1.0
Unemployment rate (% of labor force)	8.1	7.8	7.3	6.6	6.6	5.8	5.4	5.3	5.3	5.3	5.3
Poverty headcount ratio at national poverty line (% of population)	31.6	18.2	12.7	12.1	8.2	6.5	5.3	4.0	n.a.	n.a.	n.a.
At $1.25 a day (PPP)	n.a.	0.4	0.2	0.1	0.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
At $2.00 a day (PPP)	n.a.	3.3	1.5	0.9	1.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Inequality (income Gini coefficient)	0.304	0.312	0.309	0.288	0.267	0.278	0.289	n.a.	n.a.	n.a.	n.a.
Life expectancy (years)	66	66	67	67	68	68	69	n.a.	n.a.	n.a.	n.a.
Other											
GDP (current tenge billions)	7,591	10,214	12,850	16,053	17,008	21,816	27,572	30,073	32,259	34,948	37,872
GDP (current $ billions)	57.1	81.0	104.8	133.4	115.3	148.1	188.0	201.7	216.8	235.3	255.5
Doing Business rank[a]	n.a.	n.a.	n.a.	n.a.	74	58	56	49	n.a.	n.a.	n.a.
Human Development Index ranking[b]	n.a.	n.a.	n.a.	n.a.	n.a.	69	68	n.a.	n.a.	n.a.	n.a.
CPIA overall rating	3.7	3.7	3.7	3.6	3.7	3.7	3.8	3.8	n.a.	n.a.	n.a.
Economic management	4.2	4.2	4.2	4.0	4.2	4.3	4.3	4.3	n.a.	n.a.	n.a.
Structural policies	3.7	3.7	3.7	3.5	3.5	3.5	3.7	3.7	n.a.	n.a.	n.a.
Social inclusion and equity policies	3.5	3.5	3.5	3.6	3.6	3.6	3.7	3.7	n.a.	n.a.	n.a.
Public sector management and institutions	3.4	3.4	3.4	3.4	3.4	3.4	3.5	3.5	n.a.	n.a.	n.a.

a. The Doing Business indicator is ranked out of 181 countries in 2009; 183 in 2010; and 185 in 2010–11.
b. The Human Development Index is ranked out of 169 countries in 2010 and 187 in 2011.
n.a. is not available; CPIA is Country Policy and Institutional Assessment; PPP is purchasing power parity.
Source: World Bank (n.d.).

Appendix 5

A One-Time 3 Percent Shock in the Mineral Sector

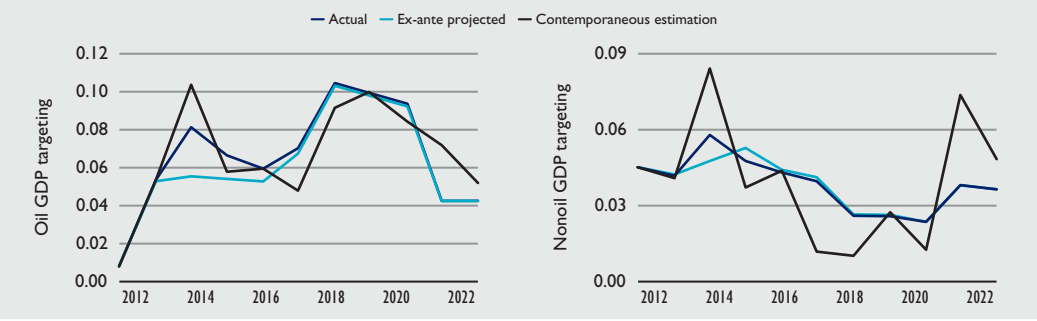
The analysis below describes a single realization of Onder and Ley's Monte Carlo simulations to provide a concrete example of what alternative short-term adjustment rules imply in one particular scenario. In this particular case, the mineral sector receives a 3 percent growth shock in 2014. This shock is then transmitted to the nonmineral sector. In the remaining years, both sectors gradually converge back to their long-term trajectories as characterized by the sector-specific propagation mechanisms (figure A5.1).

Three growth rates are traced over time: the rate that the government has projected ex-ante prior to the realization of the shock, the actual rate, and the rate the government projects contemporaneously. As the last rate is reassessed annually, the forecast error associated with it changes from year to year. Table A5.1 shows the outcomes under the fixed and each of the two short-term fiscal rule scenarios.

The standard deviation of the variation around the potential output is 0.42 for the fixed rule, 0.53 for the moderate rule, and 0.61 for the loose rule. In addition, by using the 4 percent discount rate to calculate the discounted sum of nonmineral GDP's in the estimation period, Onder and Ley find that the moderate adjustment rule brings about $0.25 billion less than the fixed adjustment rule in terms of 2012 values. Similarly, the loose adjustment rule brings about $0.38 billion less than the fixed adjustment rule. In comparison, the short-term flexible fiscal adjustment rules draw fewer funds from the national oil fund than the fixed rule: at the terminal year, the latter leaves $267.7 billion in the oil fund whereas the moderate and loose short-term rules leave $271.7 billion and $272.1 billion. This is mainly because of positive contemporaneous estimation errors. Based on these results, Onder and Ley assessed that the flexible short-term rules generate higher volatility and lead to low GDP benefits. On the positive side, the fund savings increase under the flexible rules, but these increases are small.

Source: Onder and Ley (2013).

Figure A5.1 Oil and nonoil GDP targeting assuming a 3 percent growth shock in 2014



Source: Onder and Ley (2013).

Table A5.1 Outcomes under fixed and short-term fiscal rule scenarios assuming a 3 percent growth shock in 2014

($ billions)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nonmineral GDP											
Fixed	140.0	148.4	156.1	167.6	177.0	186.8	194.1	201.8	209.0	219.7	230.5
Limited adjustment rule	140.0	148.4	155.8	167.7	177.2	186.9	193.8	201.7	208.9	220.0	230.1
Loose adjustment rule	140.0	148.4	155.8	167.7	177.5	187.0	193.5	201.5	208.9	220.3	229.7
Potential nonmineral GDP (ex-ante)	140.0	148.4	157.5	167.9	177.4	187.0	194.3	201.8	209.1	219.7	230.5
Expenditures											
Fixed	40.5	46.6	48.9	51.6	54.1	56.6	58.5	60.5	62.4	65.1	67.9
Moderate	40.5	46.7	47.7	51.3	55.3	57.8	57.3	59.3	61.5	66.3	66.7
Loose	40.5	46.7	47.6	51.2	56.5	59.0	56.8	58.1	61.0	67.1	65.5
Ex-ante planned expenditures	40.5	46.6	48.9	51.6	54.1	56.6	58.5	60.5	62.4	65.1	67.9
National oil fund assets											
Fixed	43.7	56.3	71.0	87.2	105.0	124.7	147.5	173.6	203.1	234.4	267.7
Moderate	43.7	57.4	72.9	90.2	109.3	130.3	152.2	177.2	206.9	237.2	271.7
Loose	43.7	57.7	73.4	91.9	111.9	133.8	155.1	178.3	207.0	236.6	272.1
Ex-ante national oil fund assets	43.7	56.3	70.1	85.2	101.7	120.0	141.2	165.0	193.0	222.0	253.2

Source: Onder and Ley (2013).

Appendix 6

A One-Time –6.4 Percent Shock in the Mineral Sector

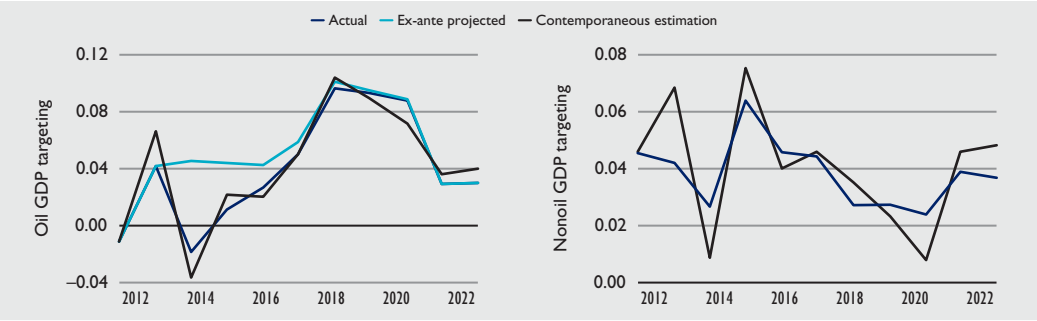
This appendix describes another realization of Onder and Ley's Monte Carlo simulations. In this case, the mineral sector receives a –6.4 percent growth shock in 2014. This shock is then transmitted to the nonmineral sector. In the remaining years, both sectors gradually converge back to their long-term trajectories as characterized by the sector-specific propagation mechanisms (figure A6.1).

The left panel in figure A6.1 depicts the evolution of mineral sector GDP growth in response to the shock. As the shock is transmitted to the nonmineral sector, the right panel shows that contemporaneous estimations magnify the actual cyclicalilty (overpessimism during economic downturn and overoptimism during recovery). Table A6.1 shows the outcomes under each short-term fiscal rule scenarios.

The standard deviation of the variation around the potential output is 0.89 for the fixed rule, 1.01 for the moderate rule, and 1.17 for the loose rule. In comparison, by using a 4 percent discount rate, Onder and Ley find that the moderate adjustment rule brings about $0.38 billion more than the fixed adjustment rule in terms of the 2012 values. Similarly, the loose adjustment rule brings about $1.02 billion more than the fixed adjustment rule. But the short-term flexible fiscal adjustment rules draw more funds from the national oil fund than the fixed rule: at the terminal year, the latter leaves $223.6 billion in the oil fund whereas the moderate and loose short-term rules leave $216.3 billion and $206.5 billion. These results show that the flexible short-term rules increase the volatility, and although they contribute to the GDP more than the fixed adjustment rule case, this comes at a substantial cost in the form of reductions in savings in the fund.

Source: Onder and Ley (2013).

Figure A6.1 Oil and nonoil GDP targeting assuming a –6.4 percent growth shock in 2014



Source: Onder and Ley (2013).

Table A6.1 Outcomes under fixed and short-term fiscal rule scenarios assuming a –6.4 percent growth shock in 2014

($ billions)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nonmineral GDP											
Fixed	140.0	148.4	154.5	167.3	176.5	186.7	194.0	201.7	209.0	219.7	230.4
Limited adjustment rule	140.0	148.6	154.1	167.7	176.5	186.8	194.0	201.6	209.2	219.7	230.2
Loose adjustment rule	140.0	148.6	153.7	168.3	176.5	187.2	194.2	201.6	209.2	219.8	230.2
Potential nonmineral GDP (ex-ante)	140.0	148.4	157.5	167.9	177.4	187.0	194.3	201.8	209.1	219.7	230.5
Expenditures											
Fixed	40.5	46.6	48.9	51.6	54.1	56.6	58.5	60.5	62.4	65.1	67.9
Moderate	40.5	47.5	47.7	52.8	55.3	57.8	59.7	60.6	63.6	66.3	67.3
Loose	40.5	47.5	45.9	54.3	56.5	59.6	62.0	61.9	64.4	67.5	68.2
Ex-ante planned expenditures	40.5	46.6	48.9	51.6	54.1	56.6	58.5	60.5	62.4	65.1	67.9
National oil fund assets											
Fixed	43.7	56.3	68.1	81.1	94.9	110.4	128.2	148.8	172.2	197.1	223.6
Moderate	43.7	55.4	68.3	80.2	92.8	107.0	123.6	143.9	166.0	189.5	216.3
Loose	43.7	55.4	70.0	80.7	92.1	104.6	118.9	137.7	158.8	180.9	206.5
Ex-ante national oil fund assets	43.7	56.3	70.1	85.2	101.7	120.0	141.2	165.5	193.0	222.2	253.2

Source: Onder and Ley (2013).

Notes

1. The discussion in this chapter draws on several World Bank reports produced during the crisis to analyze the soundness of Kazakhstan's policy stance and macroeconomic performance. These include the Kazakhstan Economic Reports prepared in March 2009, June 2009, and July 2010, as well as the Program Document of the 2010 Development Policy Loan and its respective Implementation Completion and Results Report of February 2012.
2. For a detailed discussion of these general macroeconomic principles before and after the crisis, see Blanchard, Dell'Ariccia, and Mauro (2010).
3. Baunsgaard and Symansky (2009).
4. Baunsgaard and Symansky (2009).
5. World Bank (2012).
6. The details underlying the global economic scenarios and simulations and the full model for optimal resource management developed by Hevia (2012) are presented in the second volume of this report.
7. See the background paper by the Development Economics Prospects Group in Volume II for the details of these estimates.
8. See Espinoza (2012) for a study of the determinants of TFP growth in the Gulf Cooperation Council countries.
9. Jajri (2007).
10. See Amador and Coimbra (2007) for an assessment of TFP growth in the G7 countries.
11. The modern analysis of long-term growth and productivity is based on the seminal paper by Solow (1957). His model assumes that output is obtained by combining two inputs: capital and labor. But he also showed that for the United States, these two factors of production did not explain output well, and he interpreted the remaining unexplained part as technical change or total factor productivity, a measure of efficiency in the use of factors of production.
12. Espinoza (2012).
13. World Bank (2013a).
14. Unless otherwise indicated, per capita income is based on nominal GDP per capita (weighted according to the Atlas method).
15. The results of these simulations and their impacts on the world economy and in Kazakhstan can be found on the tables in the annex to the background paper with the global scenarios in Volume II.
16. Hevia (2012).
17. IMF (2011).
18. Engel and Montecinos (2013).
19. Engel and Montecinos (2013).
20. World Bank (2013b).
21. Six banks do not meet this criterion so far: Kazkommertsbank (25 percent of NPLs over 90 days overdue), BTA Bank (78 percent), ATF Bank (43 percent), Alliance Bank (46 percent), Nurbank (28 percent), and Temirbank (44 percent).
22. Hausmann (2005a), Frankel (2005, 2011), and Velasco (2005).
23. See, for example, van der Ploeg (2011) for a recent survey, or Corden (1984) and Gelb (1988) for numerous case studies and a survey of older literature.
24. Hausmann and Rigobon (2003).

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