



# **GLOBAL SYSTEM ON THE BRINK**

## **Pathways Toward a New Normal**

Joint Study by the Atlantic Council's  
Strategic Foresight Initiative and the  
Russian Primakov Institute of World  
Economy and International Relations

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## EDITORS

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Dr. Mathew Burrows  
Director

Strategic Foresight Initiative  
Brent Scowcroft Center on International  
Security, Atlantic Council

Professor Alexander Dynkin  
Director

Primakov Institute of World  
Economy and International  
Relations (IMEMO)

---

### Atlantic Council

Mathew Burrows and  
Robert Manning (key authors)  
Aparajitha Vadlamannati, Diya Li,  
Meghan Check, Peter Engelke, Bjorn Bolte  
(contributors)

### IMEMO

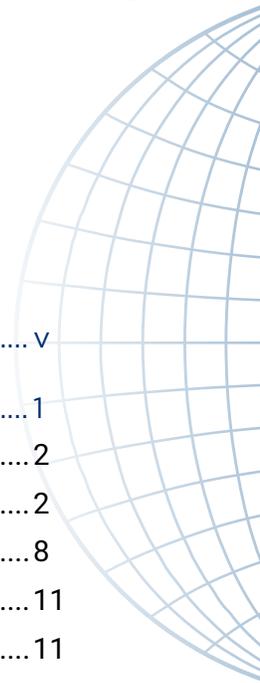
Vasily Mikheev, Alexey Arbatov, Natalia  
Ivanova, Alexey Kuznetsov, Feodor  
Voitolovsky, Givi Machavariani (key authors)  
Sergey Afontsev, Nadezhda Arbatova, Ivan  
Danilin, Alexander Fedorovsky, Sergey  
Lukonin, Yakov Mirkin, Vitaly Shvydko,  
Vyacheslav Trubnikov, Stanislav Zhukov  
(contributors)

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# Foreword

Dear Reader,

We're delighted to present *The Global System on the Brink: Pathways toward a New Normal*, a joint study by the Strategic Foresight Initiative of the Atlantic Council's Brent Scowcroft Center on International Security and the Primakov Institute of World Economy and International Relations (IMEMO). The study began before the onset of the recent crisis in US-Russian relations, but is even more relevant today as we seek to avoid a greater conflict and achieve a new normal of cooperation between Russia and the West.

In keeping with previous forecasting works published by the Atlantic Council and IMEMO, the study examines current trends and potential scenarios for global developments over the next twenty years. The goal is not to predict the future so much as to highlight the challenges and opportunities ahead. The crisis in US-Russian relations is only one facet of a world at an increasingly dangerous inflection point. Despite the rapid globalization of the past few decades, which promised cooperation and integration, the potential for major state conflict is on the rise due to deep fragmentation within and between societies. The old confrontation between capitalism and communism has given way to conflicts of moral values with nationalist, religious, and historical-psychological overtones.

The crisis in relations between Russia and the West from 2013 to 2015 shows that economic interests and cooperation in international security are not sufficient to prevent conflict based on political, geopolitical, and ideological ambition. The East-West situation differs considerably from that of the second half of the Cold War era (mid-1960s to mid-1980s), when tacit "untouchable" geopolitical spheres of influence were clearly delineated, and other zones were not worth the risk of a direct military conflict. The situation from 2015 through 2035 will be far different from the first twenty-five years following the end of the Cold War—a time when the big powers avoided serious differences, often because Russia and China acquiesced to Western leadership.

The worst outcome would be the emergence of a new bipolarity, pitting a group of states centered around China and Russia against the United States and some European and Asian allies. A somewhat less dangerous outcome would be a global breakup into regional blocs and spheres of influence, in which the potential for ad hoc global cooperation would still exist.

While we particularly want to underline the seriousness of our current situation, the study also emphasizes the opportunities that exist for both our countries and the rest of the world should we find ways to narrow differences. Strengthening the nuclear nonproliferation regime and the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) requires consensus among all NPT signatories (currently 190 countries), including countries that could violate the treaty. This would be very hard to achieve under the best conceivable circumstances, but this will be totally impossible in an environment of confrontation among the great powers. During the period from 2015 to 2035, more threshold countries are likely to emerge, and in the worst-case scenario, a chain reaction could occur, in which nuclear proliferation leads to an expansion of the "nuclear club" from nine to fifteen or more members. This would make the use of nuclear weapons in a regional conflict or their acquisition by terrorists much more likely. Cooperation among Russia, the United States, and other countries is equally important on other areas of shared interest, such as counterterrorism; opposition to religious-based violent extremism; global economic growth and financial stability; combatting climate change; and safeguarding the global commons, including a peaceful outer space. Such cooperation is perhaps only possible if tensions do not escalate, and the major powers keep their competition under stringent control in other realms. Although looking out twenty years to the future might not seem like a productive way to deal with the current East-West crisis, thinking about the kind of world we want to bequeath to the next generation may actually be the best way to start the process of overcoming the conflicts and harmful differences of today.

**Frederick Kempe**  
President and CEO  
Atlantic Council

**Alexander Dynkin**  
Director  
Primakov Institute of World Economy  
and International Relations



# Executive Summary

The world is at an increasingly dangerous inflection point. Ironically, much of the danger ahead stems from the success of the post-World War II international system: in the two decades since the end of the Cold War, globalization—the transborder flow of information, money, goods, and people—has connected economies, people, and nations more tightly than ever before and led to the massive ongoing shift of wealth and population from West to East and North to South. Globalization provides many opportunities, but it also poses serious risks. As the world becomes more interdependent and interconnected, a plethora of state and nonstate actors—some of which see themselves as marginalized by globalization—are vying for power, creating greater instability and fragmentation.

Looking out to 2035:

- The risk of conflict among the big powers, including between the United States/NATO and Russia, and China and its neighbors, is growing, and conflicts between second-tier powers, such as those between India and Pakistan, could spill over into nuclear war. Sectarian conflicts between Sunnis and Shias, and between Kurds and Arabs are worsening, potentially sparking a major war along religious, ethnic, and political lines. The growth of armed Islamic extremism as an answer to growing external interventions is another long-term destabilizing factor. The incidence of conflicts has been at a historic low since the end of the Cold War; its reversal is the single biggest threat to longer-term global economic growth and globalization itself.
- Developing countries will increasingly drive the global economy. The Chinese renminbi (RMB) will join the dollar and euro as a third reserve

currency. A globally aging population introduces a new risk factor, particularly if it pulls down growth and puts heavy pressure on public finances. By 2035, an increasing portion of the world's financial resources will be concentrated in regional clusters away from the US-UK financial hub.

- The global energy sector will experience price and investment uncertainty. A peaking in global oil consumption is likely to happen by 2035-40, but could be accelerated if the Chinese economy slows down faster than expected and India's economy fails to reach high growth rates.
- New technologies, such as robotics and automation, will take more jobs away from people, triggering a social and political backlash against established national and multilateral institutions. Over time, growing domestic inequalities may be lessened as new, well-paid jobs are created and education and skills increase.

Given the depth and breadth of the changes that will transform the global landscape, a new international order is inevitable. However, no hegemonic force can shape the global system, as was the case in the post-World War II order, and no consensus exists on what kind of new international order should be established. Nevertheless, opportunities to mitigate or avoid the risks ahead do exist. The international community's shared interests in confronting and mastering an array of global challenges far outweigh any differences. We hope that knowledge of the forces eroding the foundations of the post-Cold War international system will serve as a guide in developing an *inclusive* rules-based multilateral order that can again lower the risks of conflict, while providing the basis for global cooperation.



end the already challenged ideal of an inclusive liberal world order and put the global economy at risk.

The ongoing crisis in Russia's relations with the US and the European Union (EU) starting in 2013-15 shows that economic interests and cooperation in international security can be sacrificed for the sake of political, geopolitical, and ideological ambition. The current confrontation differs considerably from that of the mid 1960s to mid 1980s, in the second half of the Cold War era, when tacit "untouchable" geopolitical spheres of influence were clearly delineated, and other zones were not worth the risk of a direct military conflict. The situation through 2035 will also be far different from that of the first twenty-five years following the end of the Cold War, when the big powers avoided serious differences, often because Russia and China acquiesced to Western leadership.

### Worst-Case Outcomes

The worst outcome would be a new bipolarity with the emergence of a grouping around Russia and China facing a United States with some European and Asian allies. A somewhat less dangerous outcome would be the breakup in regional blocs and spheres of influence in which the potential for greater ad hoc global cooperation would still exist but is not guaranteed. A remote possibility would be a return to a more inclusive, integrated world order, in which interstate competition was kept in check and in which there was more scope for cooperation.

For both the United States and Russia, a new global bipolarity or possible breakup of the world into regional blocs would create new challenges. US capacity would be stretched to the breaking point if tensions with Russia and China escalate at a time of increased security concerns in the Middle East. The breakup into regional blocs and spheres of influence would increase the number of players with divergent interests, making it more difficult to sustain a global coalition on challenges like counterterrorism and nonproliferation. In a new bipolar system, Russia would end up not only in confrontation with the West, but it also could be drawn into conflicts in which it originally had no part. In a regional blocs scenario, if Russia's relations with the West deteriorated even further, that would inevitably poison China's and India's relations with the Western bloc and strengthen the SCO. After its enlargement in 2015, it has increased its institutionalization substantially and already comprises four nuclear states.

**Number of Regions Ripe for Conflict.** Practically any part of the post-Soviet space and surrounding regions, the western part of the Asia-Pacific region, the Middle

East, and the northern part of the Indian Ocean could become the site of serious competition between major powers. The increasing range and reduced response time of current and emerging non-nuclear offensive weapons systems and their highly automated command-and-control systems heighten the risks of accidental or provoked military incidents and rapid escalation of armed conflict.

If Ukraine continues to disintegrate and Russia becomes more-heavily involved, NATO, the United States, or a "coalition of the willing" might engage in direct military intervention, resulting in head-on conflict. If Moscow faces the possibility of a crushing defeat, it might perceive that such a conflict would, as Russia's new military doctrine states, "constitute a threat to [Russia's] statehood" and force Russia to use nuclear weapons. Even without going to such extremes, actions by the Russian and NATO navies and air forces in the Black and Baltic Seas today have raised the risk of military incidents leading to armed conflict. The threat of such crises will grow if relations with the West become confrontational and East-West tensions increase.

A REMOTE POSSIBILITY WOULD BE A RETURN TO A MORE INCLUSIVE, INTEGRATED WORLD ORDER IN WHICH INTERSTATE COMPETITION WAS KEPT IN CHECK AND IN WHICH THERE WAS MORE SCOPE FOR COOPERATION.

In the Middle East, surrounding countries and regions—such as Turkey, Egypt, and Europe—are increasingly focused on domestic issues. With less US engagement in the region, sectarian conflicts between Sunnis and Shias and between Kurds and Arabs could worsen, eventually sparking a major conflict in the region. A "cold war" between Saudi Arabia and Iran is already under way, and a "hot" regional conflict is occurring in Yemen. Pro-Iranian Houthis, as a branch of Shia, are fighting Yemeni Sunnis supported by Saudi Arabia and its Sunni allies, including the United Arab Emirates (UAE) and Egypt. The Middle East is a platform for increasing tensions between the United States and its partners against Russia, Iran, and others who want to bolster Syrian leader Bashar al-Assad.



The P5 plus Germany along with Iran announce the nuclear deal framework in Lausanne on 2 April 2015. The framework deal became the basis for a final agreement, the Joint Comprehensive Plan of Action, which was agreed on 15 July 2015. *Photo credit: US Department of State.*

In East Asia, China has been undertaking a massive buildup of its conventional forces, in particular its navy, which occurs against a backdrop of a shift in the nuclear balance of power in China's favor. The reach of China's navy will cover the entire region in which US allies and partners are located (Japan, Malaysia, the Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam), reflecting Beijing's growing geopolitical ambitions in its neighboring seas.

If China engages in military and political expansion in the western part of the Pacific Ocean and in the Indian Ocean, a new bipolarity could develop. Such a system would include, on the one hand, a loose group centered around China and Russia, including some Collective Security Treaty Organization (CSTO) members of Central Asia, North Korea, Iran, and probably others depending on circumstances, and, on the other hand, an alliance centered around the United States, including US allies in Europe and Asia.

**Likelihood of Nuclear War Increasing.** As geopolitical tensions increase, the likelihood of conflicts spilling over into regional nuclear war between second-tier nuclear powers will also increase. Worsening relations between India and Pakistan pose the biggest risk of this kind.

Pakistan, which has no clearly formulated nuclear doctrine, heavily relies on the principle of making a first nuclear strike; India, on the other hand, has pledged

a no-first-use nuclear policy. A flare-up in Pakistan's domestic political situation and the threat of Islamic radicals (the Taliban) and international terrorists (al-Qaeda) getting their hands on nuclear weapons might also lead to conflict.

A premeditated nuclear attack by North Korea against South Korea or the United States (Pyongyang is projected to develop intercontinental ballistic missile capability in the next ten to fifteen years) is unlikely. However, periodic attempts by North Korea to increase tensions could provoke an armed conflict. If the North Korean regime were to find itself facing defeat, it might resort to using nuclear weapons. In such a situation, the United States might decide to launch a pre-emptive strike using high-precision conventional weapons; Pyongyang would probably respond by using its surviving nuclear arms.

A conflict between India and China is much less likely during the next twenty years than a conflict between India and Pakistan. China would be unlikely to use nuclear weapons even if a war between India and Pakistan turned nuclear. At the same time, tensions in the Indian Ocean will probably increase and might provoke a number of armed clashes, though these would not turn nuclear.

During the next twenty years, Israel or Iran could fight an interstate conflict if either side violates the

comprehensive agreement of July 2015, regarding the limitation and transparency of the program or the lifting of sanctions. If such a conflict occurs, it would be quasi-nuclear—it would not involve the actual use of nuclear weapons, but rather the use of force to prevent their development and proliferation. The current agreement is only slated to last ten to fifteen years, opening up the potential for another confrontation if Iran does not extend its renunciation of nuclear weapons.

War, especially if the United States gets involved on Israel's side, would risk destabilizing nuclear Pakistan and setting off a rapid upsurge in Islamic radicalism around the world. It could also push the Arab and Muslim countries into a large-scale departure from the Nuclear Nonproliferation Treaty (NPT) and encourage some countries to step up their own military nuclear programs with the aim of acquiring nuclear deterrent capability against the United States and Israel.

This would irreversibly undermine the legal foundations of the nuclear nonproliferation regime. The Iranian nuclear agreement paves the way for new opportunities to strengthen the nuclear nonproliferation regime and the controls over critical technology and materials through cooperation between big powers and regional players.

**Growing Regionalized Conflict.** The risk of conflict will increase during the next twenty years, even if the big powers do not get directly involved. Such conflicts will not necessarily escalate to include the use of nuclear weapons. This applies above all to the Middle East and neighboring regions, with the possibility that conflict areas could merge to form one large zone from Morocco to the Hindu Kush, also drawing in Afghanistan, Pakistan, Central Asia, and Iran (if a military strike is launched against its nuclear infrastructure).

The risk of armed Islamic extremism in the region (this is an issue that is simultaneously domestic, transnational, and transregional in nature) remains the most serious threat to international security. Islamic armed extremism could take the form of attacks on secular pro-Western and anti-Western state regimes; conflict between Sunnis and Shias; and an increase in piracy in the Mediterranean and Red seas, around the entire African coast, and in the northern Indian Ocean and western Pacific Ocean.

Other regions where conflict could spread include Central and Southeast Asia and also equatorial Africa, where a growing number of countries could be drawn into conflict between Muslim and Christian populations, providing fertile ground for further expansion of terrorism.

**Nature and Types of Conflict.** The likelihood of a major war between the main power centers will increase relatively, but will still be lower than it was during the first part of the Cold War (1947-62). Hybrid wars, selective military operations, long-range precision strikes (non-contact wars), the use of small mobile units in special operations (rapid power), communication disruptions, and blockades will play bigger roles in the use of military power. Such means will not be used to achieve victory over the enemy, but to reach limited objectives. These objectives include changing the country's regime or subjugating a state through direct external threats to its territorial integrity or violating territorial integrity by engaging local armed opposition groups.

THE LIKELIHOOD OF A MAJOR WAR BETWEEN THE MAIN POWER CENTERS WILL INCREASE RELATIVELY, BUT WILL STILL BE LOWER THAN IT WAS DURING THE FIRST PART OF THE COLD WAR (1947-62).

The major powers and their allies are unlikely to engage in conflict with each other over energy and other natural resources (including fresh water), Arctic transport routes, and territories and key geographic nodes abroad. The damage and consequences of any large-scale conflict for the interdependent big powers would be far greater than the hypothetical advantages to solving disputes through military means. However, large-scale military deployments and an intensive arms race to gain control over the above assets would forge predominantly confrontational relations among the principal international players.

## Opportunities

Despite the growing risk of conflict, the number of military operations under United Nations (UN) aegis to impose or maintain peace or to prevent genocide, ethnic cleansing, and humanitarian emergencies—and perhaps also to prevent technological disasters and to protect the environment—could increase. States no longer have the monopoly on killing or disruption on a large scale. The next fifteen to twenty years will see a wider spectrum of more accessible instruments of war, especially precision-strike capabilities, cyber instruments, and bioterror weaponry potentially being used by international terrorist



British, Russian, and American astronauts wearing Russian 'Sokol launch and entry' suits before an expedition, in November 2015. Photo credit: US National Aeronautics and Space Administration/Flickr.

and transnational criminal organizations. Concomitantly, the number of operations by states to combat them is likely to increase.

The major powers and the main regional players could also collectively use force to prevent the proliferation of nuclear weapons and cut off terrorists' access to them. Operations of this kind on a multilateral basis or under the mandate of the UN and/or regional security operations might occur more frequently during the next twenty years.

**Arms Control.** For France, Russia, China, and India, the nuclear deterrent could play a less important role in guaranteeing security than it does today, if geopolitical competition decreases. If geopolitical competition increases, there will be much weaker incentives for movement toward nuclear disarmament. The emphasis will shift to cutting-edge, high-precision, long-range offensive and defensive weapons as well as non nuclear deterrent concepts. In a more competitive security environment, nuclear weapons would play a greater role in military-political relations between the big players and smaller nuclear powers, as well as between the new nuclear and threshold countries.

If the major powers cooperate, Russia and the United States could reduce their nuclear arsenals to around 1,000 strategic and tactical warheads. Britain and France will get involved in this process by the mid 2020s. By that time, the international community might be able to bring the Comprehensive Nuclear Test Ban Treaty into force and conclude the fissile material cut-off treaty, at least between the five big nuclear powers.

If—with the help of Russia, the United States, and China—India and Pakistan can avoid nuclear conflict, New Delhi and Islamabad could conclude a nuclear arms limitation treaty during the 2020s. In the context of general security and political and military stabilization in the Middle East and strengthening the nuclear nonproliferation regime (particularly pertaining to Iran's nuclear program), Israel could end the use of operationally deployed nuclear weapons by 2035 (following the South African example). Israel would keep the weapons-grade material in storage under the International Atomic Energy Agency safeguards but dismantle the explosive devices. During the next twenty years, North Korea's political and economic system could collapse and be united with the South, likely resulting in a unified Korea that renounces nuclear weapons.

China might play a greater role in nuclear and other arms control efforts, probably working bilaterally with the United States. Greater Chinese involvement in nuclear and advanced conventional arms control efforts could be motivated by China's desire to take Russia's place as the second superpower, a status traditionally associated with the privileged role of the counterpart in strategic arms talks with the United States.

**Arms Cooperation or Race in Space?** The only way to prevent an arms race in space would be to improve the legal basis for activity in outer space, particularly by expanding restrictions and bans on weapons deployment in orbit and on developing land-, air-, and sea-based means of destroying objects in space. If global competition intensifies, more space incidents—such as the accidental collision of Russian and US satellites in 2009—will probably occur. In addition, antagonists might disrupt the operation of each other's space systems, with unpredictable socioeconomic and military consequences.

**Chemical and Biological Weapons.** Regardless of whether the major powers cooperate or compete, by 2025—much later than the deadline set by the 1992 Convention—global stocks of chemical weapons held by states will have been destroyed in full. The situation pertaining to biological weapons is different, however. The ban on these weapons, established by the 1972 Convention, is not supported by a verification system. The development of new bans and controls for new types of bio-weapons (e.g. through genetic engineering) would be possible on a multilateral basis only if the big powers cooperate.

**Proliferation and the Nuclear Energy Threat.** With climate change, we can expect to see a considerable increase in nuclear energy use over the forecast period. In a worrisome trend, the increase will occur in many unstable and conflict-prone parts of the world. The current drop in global oil prices could slow the pace of nuclear energy development but will not change the fundamental trend.

During the next twenty years, a breakdown in the barriers between “military” and “peaceful” nuclear energy use is likely to occur, primarily driven by nuclear fuel cycle technology.

Nuclear energy (like the space sector, which is linked to missile technology) has both an economic and a political dimension in terms of countries' status, prestige, and defense capability. Nuclear weapons will increasingly morph from being one of the attributes of the leading powers to being a “weapon of the poor,” to be used against adversaries' superior conventional forces. This

shift increases the risk of their deliberate or accidental use in local wars.

Contrary to the logic underpinning the Nonproliferation Treaty (NPT), peaceful nuclear energy has not become an attractive alternative to developing nuclear weapons. North Korea used nuclear energy as a cover for developing nuclear weapons and, for many years, Iran had been suspected of following North Korea's example. By 2035, other countries in Asia, Africa, and Latin America—many of which are unstable and/or are involved in regional conflicts—might also take this road.

NUCLEAR WEAPONS WILL INCREASINGLY MORPH FROM BEING ONE OF THE ATTRIBUTES OF THE LEADING POWERS TO BEING A “WEAPON OF THE POOR” TO BE USED AGAINST ADVERSARIES' SUPERIOR CONVENTIONAL FORCES. THIS INCREASES THE RISK OF THEIR DELIBERATE OR ACCIDENTAL USE IN LOCAL WARS.

Strengthening the nuclear nonproliferation regime and the NPT requires consensus among all NPT signatories (currently 190 countries), including countries that could violate the treaty. This is hard to achieve even under the best possible circumstances, but would be completely impossible if the great powers think in confrontational terms. Until 2035, more threshold countries are likely to emerge, and in the worst-case scenario, a chain reaction could occur in which nuclear proliferation leads to an expansion of the “nuclear club” from nine to fifteen or more members. This would greatly increase the probability of nuclear weapons use in regional conflicts and of terrorists getting access to a nuclear explosive device.

Preventing nuclear terrorism is clearly an area of common interest between the great powers and their allies, regardless of the nature of their relationship. However, cooperation among Russia, the United States, and other countries on the security of nuclear munitions and materials in a bilateral and multilateral format could be restored and expanded only if tensions do not

escalate and the major powers do not compete in other realms.

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## THE GLOBAL ECONOMY: GROWING POLYCENTRISM

### Sources of Volatility

By 2035, the structure of the global economy will be radically altered, owing to differences in growth rates between developing and developed countries. The economies of developing countries and emerging new markets will continue to grow at nearly twice the rate of the developed countries, according to Institute of World Economy and International Relations (IEMO) modeling. Following a deep economic crisis in 2008 and the beginning of structural reforms, developed countries have seen higher growth rates in recent years, but collectively they will not achieve the same high growth rates over the next two decades as they did in the 1990s. As developing countries' GDP continues to grow faster than that of developed countries, so too will their contribution to global economic growth. In 1990, the developed countries accounted for 59.8 percent of global GDP, but by 2013, their share had decreased to 43.3 percent. We anticipate that by 2035, the developed countries' share of global GDP will drop to 32 percent of global GDP in terms of purchasing power parity.

The global reserve system will also evolve toward polycentrism. During the next twenty years, the US dollar (USD) will preserve its status as the global reserve currency, accounting for the biggest share of global finance (up to 45 percent); currently, more than 60 percent of global finance is in US dollars. At the same time, the Euro has become a de facto reserve currency, and it will remain the second reserve currency. Its share of global finance could reach 25-30 percent; currently, its share is 20-25 percent.

In the next ten to twenty years, a third reserve currency will appear. This new common currency might be the Chinese Yuan, which will account for 10-15 percent of global finance. A new common currency for Asia is another possibility, with more time and effort required and fewer chances to be realized any time soon.

The fact that the newly industrialized and emerging economies will be growing faster than developed countries will increasingly lead to big imbalances in their financial systems. These include the potential for excessive risk-taking, higher volatility and returns on financial assets, fierce inflation, heavy debt burden, piles

of bad assets, and financial dependence on foreign sources.

However, a significant part of the financial markets will operate out of more mature developing countries, enhancing the financial depth of the global economy. A polycentric reserve system and financial architecture should contribute to greater stability in global finance. Sophisticated systems of macro-prudential supervision will be developed at the national and international levels. This will lead to the dampening of volatility. The resulting economic and financial environment will probably be one of moderately increased volatility (lower than that of the 1890s-1940s but higher than that of the 1950-60s), with periodic market booms and crashes, and instances of markets getting out of control and falling into imbalances.

**Growing Regionalism.** By 2035, the world's "financial model" will be changed. At the end of the twentieth and the beginning of the twenty-first centuries, the world's financial resources were accumulated and redistributed mostly through the "US + UK + offshore" financial hubs. But by 2035, an increasing part of financial resources will pass through and concentrate in regional clusters like the EU, Association of Southeast Asian Nations (ASEAN), and Mercosur. Moreover, regional financial systems will become insular to some extent, owing to the integration of regional economies and the growth in their domestic demand.

The Anglo-Saxon model ("US + UK + offshore") will still serve the largest financial players in processing major capital flows. It will play a crucial role in the redistribution of financial resources among regional clusters. The "shareholder capitalism" of the Anglo-Saxon model will continue to fulfill its key global functions: the development of financial innovations and risk management, venture financing, world pricing of commodity and financial assets, and the "natural selection" of weak economies.

Regional multilateral financial institutions will play an increasingly prominent role. The development of a polycentric financial architecture and its subordinated clusters will lead to a relative decline in the role of the International Monetary Fund (IMF), World Bank, Bank for International Settlements, the Organisation for Economic Co-operation and Development (OECD), and the World Trade Organization (WTO) (financial services). The G-20 could play a greater role in the global financial system, creating its own infrastructure for financial decision-making. The Financial Stability Board, representing G-20 major economies (90 percent of global financial assets), will experience the growth of its regulatory role.

**TABLE 1. AVERAGE GROSS DOMESTIC PRODUCT GROWTH IN 2013 PURCHASING POWER PARITY TERMS (PERCENT)**

	1991-2000	2001-10	2011-13	2014-20	2021-30	2031-35
World	3.0	3.8	3.5	3.8	3.7	3.7
Developed countries	2.7	1.7	1.4	2.3	2.6	2.6
USA	3.4	1.6	2.0	2.7	2.8	2.8
EU	2.1	1.5	0.5	1.7	2.3	2.3
Developing countries and countries in transition	3.4	6.2	5.4	4.9	4.5	4.3
China	10.4	10.5	8.3	6.5	5.0	4.0
India	5.6	7.5	6.2	5.9	5.5	5.3
Brazil	2.6	3.6	2.8	2.5	3.2	3.5
Russia	-3.9	4.8	3.0	2.5	3.5	4.0

Source: IMEMO calculations.

At the beginning of the twenty-first century, developed economies, particularly the United States, have become net importers of capital that is channeled from the export-oriented developing countries (resource-based economies and the “workshops of the world”), who have become global creditors. This situation could change in the event of global economic rebalancing. If commodity prices fall and/or re-industrialization of developed countries occurs, the flows would reverse. Financial recovery of the developed economies (manifesting itself in higher saving rates, public finance restructurings, and reductions of government debt burden) could also help the United States and several other developed economies return to their role as net exporters of capital.

The significance of free trade zones, common markets, and monetary unions will increase. These institutions will serve as mechanisms for financial integration within regional clusters and as financial bridges between them. Free trade zones bridging Transatlantic, Transpacific, and Eurasian areas will be of particular importance.

### Worst-Case Outcomes

Long-term economic and financial cycles will continue. Strong expansion and the fast growth of global investments and market capitalization are forecast from the mid 2010s to early 2020s, combined with increasing volatility and strengthening of systemic risks to the middle of the third decade of the twenty-first century.

The role of the state will strengthen in the next decade, and then this trend will be replaced after eight to ten years by a new wave of liberalization, privatization, deregulation, and structural reforms to make more space for market forces.

In the long-term cyclical expansion, the local financial crises are inevitable (“ripples on the surface of a long wave”). IMEMO modeling forecasts that there will be five to six big local crises during the next decades. These will occur either in emerging markets (Asian economies, post-Soviet marketplace, Latin America, Islamic finance), caused by their imbalances, speculative attacks, and “financial infections,” or in innovative segments of developed capital markets, due to the “bubbles” of the new economy and financial innovations.

The long-term cycles of the USD exchange rate values against the Euro and a basket of world currencies will continue (it exists from the beginning of the 1970s). The related cyclic changes in the world prices of commodities and financial assets that have appeared since the beginning of 2000 will generate the waves of financial instability.

As systemic risks pile up, a chain reaction resulting in the transmission of risks will occur repeatedly, leading to financial contagion, cross-border shocks, and crises of the real economy. As a consequence, two scenarios are possible. The first and more likely scenario is the accelerated globalization and increased efficacy of financial risk management at the macro- and micro-levels. A second, less likely scenario would occur if the super-concentration of risks in global finance undermines the viability of the financial system. Finally, the separate big risks will be magnified as a consequence of financial (banking, debt, currency, etc.) crises and can spread to the real economy, causing a “waterfall” of social and economic disruptions. In this scenario, global finance and its risks will play the role of a lever to initiate the long process of degradation of the global economy.

## Opportunities

There will be a transition toward more complex management of macro-financial structures and financial development in order to ensure sustainable economic growth and more balanced economies. In this framework, the financial authorities will traditionally address the ideas of the twentieth century, which are related to the stability of prices, low inflation, health of public finance, and capability to effectively manage the exchange rates and interest rates.

Alongside these traditional concerns, the central issue will become the regulation of the following: the rate of economic growth, ownership structure, capital raising models in the economy, financial depth, structure of capital raising instruments, savings rates, savings and investment, the tax burden, the relationship between the public and private (corporate, household) finance,

internal and external financial sources of economic growth, macro-prudential supervision, and reduction of systemic risks.

Developments of the financial system promoting sustainable economic growth and mitigation of cyclical behavior and excessive volatility will be prioritized. A repressive system of taxing financial transactions, developed in the early 2010s, will be gradually replaced by an incentive-based tax system aimed at concentrating liquidity and long-term financing in the domestic markets.

AS SYSTEMIC RISKS PILE UP, A CHAIN REACTION RESULTING IN THE TRANSMISSION OF RISKS WILL OCCUR REPEATEDLY, LEADING TO FINANCIAL CONTAGION, CROSS-BORDER SHOCKS, AND CRISES OF THE REAL ECONOMY.

There will be transition toward a multi-tier, polycentric system of regulation that can hold and stabilize the “supersized” global finance system, expanding at a higher rate than the real economy. The regulatory framework will be based on a hierarchical structure, supported by a mix of linear, functional, regional, and project structures. The shift of financial regulation from the national to international (primarily regional) base will continue.

With regard to international finance, the marketplace will be increasingly unified due to the harmonization of law; wider implementation of the international standards on the macro- and micro-levels; multiplication of best practices; and greater use of information sharing agreements, “Single Passport” programs for integrated markets, common rules inside global trading platforms and major infrastructure institutions, agreed formats of information disclosure, and more comprehensive international statistics.

Unregulated space in finance could be reduced. A trend toward centralized regulation will persist, including a gradual transition to centralized systems of information disclosure, safekeeping, clearing, and settlement for all over-the-counter (OTC) financial transactions, especially

with nonconventional assets and instruments across weakly regulated financial institutions.

The facilities to supervise and mitigate systemic risks will be developed in global finance. Along with attention to the financial health of individual countries, the key focus of such supervision will be on the identification of deformations in global financial architecture, major dysfunctions in covering the needs of the real economy, and super-concentrations of risk at various stages of economic cycles.

In global finance, a system of quantitative restrictions will be built on global and regional levels, aimed at “taming” volatility (optimal currency areas, agreed parameters of monetary, interest rate, fiscal policies, inflation rates ceilings, limits on the public debt, capital adequacy requirements, restrictions on bank leverages, etc.). There also will be attempts to establish limits for the development of derivatives markets and structured financial products.

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## ENERGY SECTOR: GROWING UNCERTAINTIES

### Sources of Volatility

The “shale gas revolution” in the United States and the refusal of Saudi Arabia and other Arab monarchies to maintain high oil prices in 2014 led to a significant drop in oil prices, setting off a restructuring process in all the energy markets. Over the coming years, the global energy sector will be in a state of price and investment uncertainty.

Global demand for oil is likely to increase to 91.5 million barrels per day (bpd) in 2020 and 99 million bpd in 2035. China will account for nearly two-thirds of global oil consumption growth. At the same time, global oil consumption could peak earlier, if the Chinese economy slows down faster than expected, and India’s economy fails to reach the high growth rates usually predicted in many forecasts.

Demand for coal will peak sooner. Organisation for Economic Co-operation and Development (OECD) countries, according to the most likely scenario, will pass their peak coal consumption by 2020. If international climate cooperation and the adoption of binding measures to limit greenhouse gas emissions become more likely, China could pass its peak coal consumption in 2020-25, and coal consumption in the development countries would peak in 2030-35.

### Opportunities

Time has conclusively disproven the theory that a peak in oil production would be followed by a shortage of energy resources that would constrain global economic growth. Energy resources will not become a limiting factor for economic growth.

At the global level, proven oil reserves are sufficient to satisfy current oil consumption for fifty-three years, and natural gas reserves are sufficient for fifty-five years. The “shale gas revolution” has demonstrated how new production can develop rapidly using breakthrough technological advances. We can expect that production technology developed in the nonconventional hydrocarbons sector will be used in the conventional oil and gas sector, increasing usable resources and helping maintain the competitiveness of hydrocarbon fuels.

Wind and solar energy will continue to grow at faster rates, in part because of the thousands of private companies working in this sector. There is also a highly developed system for financing projects. But the small initial base and high production costs involved mean that renewable energy sources will not account for more than 2-3 percent of global energy consumption by 2020 and 4-5 percent by 2035. Some developed countries, especially the EU countries, are actively promoting the renewable energy sector through state subsidies and administrative levers: renewable energy sources could account for 6-7 percent of total energy consumption in these countries by 2035. Lower oil and natural gas prices will slow down to some extent the advancement of new energy sources in the transport sector, but will probably not have an impact on its development in the electricity sector, especially in Europe.

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## NEW TECHNOLOGIES: GENERATOR OF SOCIAL DISRUPTION

### Sources of Volatility

We are entering a period in which the economic and social impact of new technologies is taking a toll on existing jobs, and it is unlikely that new, well-paying employment will be created in the near term to offset the losses. It is a future in which technology substitutes for labor, and automation replaces not only jobs, but also knowledge. During the coming decade, robots will be replacing a wider array of jobs, posing both risks but also opportunities to deal with aging populations and the skills gaps that exist in many countries.

As with the previous technological revolution, this one reflects a reality in which the whole equals more than

the sum of its parts, owing to an increasing synergy among technologies. This future has been enabled by the innovative application of decades of developments in information and communications technology (ICT) and artificial intelligence, as well as big data, algorithms, the emerging Internet of Things (IoT), and new materials created through nanomanufacturing technologies, such as graphene.

This revolution involves more than just a different way of using raw materials—steel, aluminum, plastic, and other inputs—and fashioning them into different objects. Rather, it also includes the materialization of digital information. A computer-created design—or a scanned physical object—can be converted from digital bits to material atoms. This can be done remotely, by sending the digital file for the 3D object over the Internet to rematerialize anywhere in the world. It has the potential to reduce, if not eliminate, supply chains and assembly lines for many products.

### **Worst-Case Outcomes**

Low-skill service and manual labor jobs are likely to be eliminated by new technologies, such as automation and artificial intelligence. The loss of what have been stable occupations will increase income inequality without governments taking politically controversial steps, such as taxing the rich more, in order to achieve greater income redistribution.

There is already an ongoing morality debate about the use of drones in warfare. Waging war by remote control will intensify further when robots can substitute for infantry soldiers. The degree to which robots are allowed to make life or death decisions on the battlefield is a key tipping point for many opponents. So long as there is no guarantee against erring in killing unarmed civilians or bystanders, robot police or soldiers probably will not be widely used. There may be more latitude for their use in battlefield situations, especially if putting in “live” soldiers would prove more dangerous. Terrorist groups would have fewer qualms about any collateral damage from the use of robots.

However smart machines are made to be, there are likely to be errors. The more serious the accidents, the more likely governments and publics will be slow to incorporate artificial intelligence in critical infrastructure functions despite the efficiency benefits.

### **Opportunities**

The reinforcement of more local, customized production will be facilitated by the increasing convergence of a number of the new technologies such as 3D printing,

nanomanufacturing, nanobiotechnology, robotics, more capable artificial intelligence, and customized personal health care. Small- and medium-sized industries (around 300,000 in the United States alone) could benefit, particularly if the cost of these emerging technologies begin to come down. It is not too hard to envisage a small business with 3D printers customizing the manufacture of bespoke products and Baxter-like robots helping in the packing and distribution.

The developing world may benefit the most from 3D printing and other emerging technologies once they are more low cost. Today, African countries import many basic consumer goods that, in the future, could be easily manufactured through 3D printing. The expense involved in building a 3D printing facility, including a computer, printers, materials, and Internet access, is less than \$10,000. By comparison, a conventional factory could cost much more. Mobile telephones have been transformative in such economically challenged environments. It is not too hard to imagine that 3D printing as well as other new technologies—most of which do not require massive infrastructure investments—could be also beneficial for low income economies.

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## **REGIONAL TRENDS**

### **Euro-Atlantic: Great Potential, But Also Big Problems**

Despite their political differences, North America, Europe, and Russia/Eurasia have the greatest potential to create a common economic space because of their shared interests and cultural affinity. This common economic space could see the most intensive trade and investment flows in the world by 2035, despite the rapid strengthening of emerging markets. The potential for stronger science and technology (S&T) linkages should not be underestimated either. Geopolitically, the United States, Europe, and Russia will all be battling terrorism and extremism in various forms for years to come and have common interests in lowering tensions in the Middle East.

Another direction for creating global common market will be the upscaling of the Trans-Pacific-Partnership (TPP), which will also foster economic, financial, and technological cooperation between the US and China, with China probably joining the partnership in ten to fifteen years.

A rise in political populism and nationalism could make it impossible for North America, Europe, and Russia/



A Chinese navy destroyer is docked in the American port of Pearl Harbor, Hawaii, in 2006. *Photo credit: US Navy/Wikimedia Commons.*

Eurasia to come together despite shared interests. The countries in these regions have many peripheral areas that are less economically competitive, have weak links to the main research and development hubs, and have made only limited use of the information revolution's achievements. Thus, inequalities will remain. Even many prosperous countries in North America and Europe face the threat of increased poverty. Millions of people in developed countries will most likely be functionally illiterate and unable to exploit the benefits of technological progress. The growing number of immigrants from other cultures could become one of the biggest challenges for Euro-Atlantic countries during the next twenty years.

The potential for higher GDP growth rates would increase with greater regional integration. Without this increased integration, the region, which currently accounts for more than half of global GDP, risks a sharper loss of economic leadership.

MILLIONS OF PEOPLE IN DEVELOPED COUNTRIES WILL MOST LIKELY BE FUNCTIONALLY ILLITERATE AND UNABLE TO EXPLOIT THE BENEFITS OF TECHNOLOGICAL PROGRESS.

### Asia: Shifting Balance Of Power

During the next twenty years, China will increasingly become the United States' main competitor in military, economic, and technological realms. Its role as an enabler of S&T and the industrial development of other regions, such as Eurasia, will grow. Beijing will face a choice: either join the frameworks initiated by the United States (e.g., the TPP) or rely on free trade agreements

initiated by China, in which Washington is not welcome. Though the first option carries the risk that China will be subordinate to US regulations, it seems to be more probable because of China's growing global political and economic involvement. The second option contains the risk that China's partners will switch—for economic and political reasons—to areas and associations subject to US regulations. A third option could also arise in fifteen to twenty years if Silk Road–Eurasian Economic Union area succeeds. That would bring more stimulus for closer cooperation with the EU.

With growing capitalism in **China** and its anticorruption drive, there will be an increasing need for political reforms, particularly as it seeks to develop its innovation capacity. Chinese President Xi Jinping's current corruption campaign demonstrates that the Chinese leadership understands reforms are necessary to protect the party's position and legitimacy. The biggest challenge for the Chinese leadership will be to work out a fuller concept for democratization.

China will certainly not become the leading power in international relations comparable to the United States. Worries about becoming overextended will act as a constraint on Chinese foreign policymaking. China wants to avoid what it sees as the United States' entrapment in global problems like the Middle East.

**Japan** will play less of a role in the region, largely as a result of the dual nature of Tokyo's goals, which include a desire to maintain alliance relations with the United States to ensure Japan's security and to strengthen its own defense capabilities. At the same time, while China will continue to be its main strategic security challenge, Tokyo will need to strengthen its economic ties with Beijing and other regional powers to promote sustainable economic growth. A continued resistance to a large-scale influx of foreign laborers and the opening of traditionally closed sectors to foreign competition would hinder Japan's involvement in deeper regional liberalization.

**India** has a good chance of achieving high economic growth if it can raise educational levels and find ways of balancing the interests of major social and political groups. Geopolitically, it will be pulled in a number of directions. Worried about a domineering China, it—along with Southeast Asian states—will develop stronger security ties with the United States. At the same time, trade and investment with China are increasing; China also is becoming a more important player in Central Asia on India's northern border as the United States and NATO retreat.

**ASEAN** will not become the locomotive of Pacific integration, despite its focus on removing internal barriers and promoting cooperation within the association.

Attempts to address the issues on the **Korean Peninsula** through negotiations among the major regional powers are highly unlikely to succeed; the only solution to the problem of tensions on the Korean Peninsula would be the peaceful reunification of the country. That will not happen unless there is an acute collapse of the North Korean regime.

**Territorial disputes** will also remain a critical security issue for all of Asia. The key to establishing new security architecture in the Asia Pacific region could be the promotion of security dialogues between China and Russia on one side, and the United States, Japan, and the Republic of Korea on the other, along with involving China in international talks on strategic stability.

WITH GROWING CAPITALISM  
IN CHINA AND ITS  
ANTICORRUPTION DRIVE, THERE  
WILL BE AN INCREASING NEED  
FOR POLITICAL REFORMS,  
PARTICULARLY AS IT SEEKS  
TO DEVELOP ITS INNOVATION  
CAPACITY.

### The Middle East: Violence Feeding On Itself

The Middle East will be the region that will be the most unrecognizable in 2035. There, the nation-state is under more threat than anywhere else because of deeply divided societies and external interventions in major countries like Iraq and Syria. Today's national boundaries—many of which were set after the end of the First World War—are highly unlikely to survive intact. The formation of new states in the region, along with the fragmentation of existing states, is certain. By 2035, fossil fuel use may be peaking, eliminating a key revenue source for a large number of Middle Eastern states. The youth bulge will be disappearing, but it will not have delivered a "demographic dividend." The big question will be the degree to which conflict spreads,

either engulfing the whole region or being contained and dying out by 2035.

A non nuclear Iran would increase the chances for greater regional security, but equally plausible is a scenario in which Iran is seen by its neighbors as being nuclear-capable—despite the recent agreement with the West—and very dangerous. This latter perception could trigger a nuclear arms race. A Sunni-Shia “cold war”—if not escalating into a hot conflict—is also a possibility. Positive scenarios for the region are not impossible, but unlikely in the next few years.

How the Middle East evolves has huge implications for the broader international system. Large-scale conflict would increase the dangers of a much more rapid spread of jihadism, raising the terrorist threat elsewhere in Europe, Russia, and the United States. The global economy would take a big hit if a conflict resulted in the closure of the straits of Hormuz, preventing oil supplies from reaching customers in Asia and Europe. Given how other countries’ interests would be affected, an all-out Middle East conflict might have the ironic effect of cementing closer ties among the great powers—the United States, Europe, China, Japan, India, and Russia. All of these countries would be hurt by such a major conflict and would have an increased interest in banding together to try to stop such a war from spreading.

### **Sub-Saharan Africa: Increasing Opportunities, but Stiff Challenges Could Mar Development**

Sub-Saharan Africa will be the only region with a growing and youthful population in 2035. Failure to overcome the impediments to economic development will have long term global implications as a growing and large proportion of the world’s population will be African in 2035 and beyond. There are many positive signs that Africans are turning around their economies, but nevertheless the progress has not been enough to signal confidence about a bright future across the entire region. In 2035, Africa is likely to remain a region of contrasts and contradictions.

Africa is one of the fastest-growing regions of the world, yet sixteen of the top twenty states on Foreign Policy magazine’s Fragile State Index are African.

- The continent contains the world’s most uncultivated arable land, yet it has the lowest agricultural productivity and is a net food importer.
- Africa is a major energy exporter, yet half its energy use is biomass and one in four Africans lacks electricity.

- Democracy has spread, yet a governance deficit exists, with up to one-third of African countries mired in civil conflict of varying degrees.

High proportions of working-age population was a key ingredient in Asian development. Africa’s annual population growth rate is 2.2 percent, more than double that of Asia’s 0.9 percent. Though this rate is expected to slow to 2 percent, Africa’s population is projected to reach 1.6 billion by 2035. The region already has the youngest population in the world, with more than half of its total population under the age of twenty-five and a median age of eighteen. Almost 200 million Africans are between the ages of fifteen and twenty-four.

As Africa’s largest state and the continent’s largest economy, Nigeria is a major concern. Nigeria, which has made some modest strides to address corruption and enhance transparency, is often viewed as a frontier investment destination with significant diversification into manufacturing and services. However, the country’s socioeconomic situation is disproportionately shaped by its petro-wealth, and it faces continued ethnic and religious divisions. One measure of Nigeria’s governance deficit is its inability to address the Islamist threat to stability from Boko Haram. This group has become more virulent during the past two years; it now controls swathes of territory in the northeastern area of the country—in one estimate, upwards of 15 percent of Nigeria.

Agriculture is a fundamental challenge for Africa. At the same time, however, the region is ripe for its version of a “Green Revolution,” which benefited other parts of the world in the 1960s and 1970s and is an imperative for sustaining growth. Raising production levels to those of India or China would mean a doubling or more of African grain production, and by some estimates, would lead to a 10-12 percent increase in global food production.

Sustaining the continent’s economic growth trajectory from the past decade will require the improvement of governance and resource management, a resolution of longstanding conflict, better governance—including rule of law—and a qualitative leap in functional regional integration.

### **Latin America: Falling Behind Asia In Catching Up With The West**

The key question for the future is whether the Latin America region can maintain the same economic momentum, which has fueled a commodity boom over the last decade, particularly with China’s slowing growth. The region suffers from modest productivity

growth, which is lower than the OECD median. To boost productivity, Latin American countries will need to spend more on education—on top of the recent increased investment. Latin American educational rates are still below par compared with those of advanced economies. Moreover, the region’s research and development (R&D) expenditures remain low. The region invests 13 percent of GDP in innovation capital versus the 30 percent average for the OECD.

Population trends in Latin America have never been as favorable as they currently are, but the populations of Latin American countries will begin to age significantly by 2035. Latin American countries will need to work hard to realize a demographic dividend during this relatively short remaining window.

With many in the recently emerging middle class vulnerable to falling back to poverty, populism is likely to be an ever increasing concern throughout the region. According to one estimate by Brookings Institution experts, 39 percent of the total middle class population in Latin America could lose its newly found middle class status as economic growth ebbs in the coming years. Another big threat to governance comes from the still high levels of organized crime and related violence in Mexico and Central America.

Latin America is increasingly divided. Pacific Rim and northern countries are attracted to, and enmeshed in, the US-driven and Asian-focused trade initiatives. Until recently, Brazil has looked to Europe for political and economic models, but has grown increasingly dependent on the commodity trade with China. There are divisions in terms of development models: over half of regional GDP comes from those countries in Latin America that are promoting free and open markets; the other half like Bolivia, Ecuador and Venezuela are tied to regulated economies in which there is a large amount of state control. Finally, attempts at regional integration has failed to find success. Taking account of these sharp intra-regional divisions along multiple lines, it is questionable whether the region could project a distinctly unitary political voice even by 2035, given the entrenched diversity and discordant perspectives.

39 PERCENT OF THE TOTAL MIDDLE CLASS POPULATION IN LATIN AMERICA COULD LOSE ITS NEWLY FOUND MIDDLE CLASS STATUS AS ECONOMIC GROWTH EBBS IN THE COMING YEARS.

## ANOTHER WORLD ORDER IS INEVITABLE, BUT WHAT KIND?

For the first time since the end of the Cold War, countries are developing competing visions of the world order. In addition to the re-emergence of major powers such as China and India, a burgeoning strata of dynamic rising middle powers (particularly Brazil, Indonesia, Iran, Nigeria, South Africa, South Korea, Turkey) is already playing an increasingly important role in regional security and global rules-shaping. Some of these emerging states—democracies (liberal and illiberal) as well as authoritarian regimes—harbor resentments against the US- and Western-created and controlled global institutions, whose governing structures have been largely unchanged since 1947. Whether it is evidenced by Brazil, Russia, India, China, and South Africa (the BRICS) launching their own dialogue framework and development bank; China pushing its “One Belt, One Road” mega-strategy and initiating an Asian Infrastructure Investment Bank (AIIB) to support it financially; Turkey becoming an illiberal democracy and distancing itself from the United States and the EU; or radical Islamists becoming increasingly intent on bringing about a clash of civilizations, a paradigm shift in global governance is unfolding.

Today’s world is fragmented and messy, but not classically multipolar, as characterized by relatively equal poles. The United States remains the sole military superpower, with a defense budget larger than the rest of the world combined. Yet—as evident in the outcomes of the wars in Iraq and Afghanistan—military force is often of limited use in solving regional problems. A stable, modernizing Middle East is not, for example, an outcome that the application of external military power can achieve. Solving global problems such as poverty, disease, or climate change may lie more in public-private partnerships than diplomatic arrangements among states or military action.

In this increasingly post-Western world, developing countries increasingly question Western policies and norms that they view as threats to their national sovereignty. Thus, values-based issues such as democracy promotion and the Right to Protect (R2P) tend to spark strong counteraction from not just authoritarian regimes but also many emerging democracies that worry about maintaining their national sovereignty. India, for example, is reluctant to “name and shame” other nations or favor regime change. “Humanitarian interventions,” such as the 2011 one in Libya that resulted in the overthrow of Muammar Qaddafi but led to violent internal conflict, have undermined the sense of legitimacy of such policies.

The lag between the diffusion of power in the international system and the distribution of power in the structure of multilateral institutions fosters resentment in countries with emerging economies and complicates efforts at global problem-solving. It is relatively easy for nations to block global actions, such as the Kyoto Accord on climate change, the Doha global trade round, or UN efforts to forge a treaty to cut off production of fissile material. The growing trend of trying to fashion alternative institutions—from the Chiang Mai Initiative spurred by the 1997-98 Asian financial crisis to China’s AIIB—increases the difficulty of forging international cooperation to address global problems.

## Four Potential New Worlds

The potential for breakdown of the international liberal order is greater than ever before. The possibility of turning the clock back to a more inclusive, integrated world order, in which interstate competition was kept in check and there was more scope for cooperation, seems remote. We paint a picture below of different global orders and how they come about from the same starting point—the current fraying international order.

## A New Cold War

In a repeat of Churchill’s 1946 dictum: a new curtain descends across the world. As was in the first half of the earlier Cold War, establishing an equilibrium in this world order would be an immense feat. Countries do not know each other’s redlines. Major state-on-state conflict is no longer unthinkable. Nationalism is rearing its ugly head. Revisionist history is afoot. Globalization is seen as a sham—despite the numbers of people who have climbed out of poverty, the East and South see globalization as a device that has promoted Western interests. In the West, globalization is seen as benefitting the United States’ and its allies’ enemies.

In this scenario, war breaks out between the major powers, first on Russia’s borders in the wake of the ongoing crisis in Ukraine and then in Asia, where the United States and China come to blows. The UN is immobilized. The G-20 is a shell. Only half of the member countries show up when a meeting is held in a Western capital. China is talking about pulling out of the IMF and the World Bank. The number of Chinese students in the United States has plummeted.

Globalization had been cyclical—the last big burst ended with the First World War—but at the beginning of the twenty-first century, it was thought to be everlasting.

## Eurasia Leading the Way

US-led sanctions against Russia at the time of the Ukraine crisis drives Russia to look East, particularly to China, India, and Pacific Asia as a whole. Russia sees its long-term energy future in Asia, and nearly half a trillion dollars in gas and oil deals with China has bolstered a shaky economy.

China gains a valuable partner—instead of a rival—for stabilizing and modernizing Eurasia—which China no longer sees as a backwater, but as its economic future. China’s “One Road, One Belt” or “pivot West” to Eurasia is turning a vulnerability—a border with fourteen nations—into a strategic asset.

A successful partnership in Eurasia boosts what had been an ailing backward region by putting in infrastructure and serves a double purpose: economic development there helps counter what has been a growing trend of extremism that threatens Moscow, Beijing, and numerous Central Asian regimes. China and Russia use their success to showcase the non-Western model of authoritarian-style state-centric capitalism. Africa and Latin America—where China development largesse has already made inroads—are reaping lessons from Eurasia’s rapid development.

Sino-Russian cooperation extends into other realms, including the UN, WTO, and other Bretton Woods institutions. More importantly, Russia and China develop the SCO into the premier regional body, overshadowing the TPP. India and Pakistan joined SCO years ago: it has become the place that China and India are beginning to settle their differences and build cooperation. SCO could become a body where India-Pakistan tensions could calm down, just like how the EU and NATO canceled the centuries old-conflict between Germany and France.

## A New Global Concert

For the first time since the 2008 financial crisis—when the global economy was threatened and G-20 leaders were forced to work together to prevent a worldwide depression—the prospect of a nuclear war brings Western leaders and the leaders of emerging powers together. Alone, the West has neither the will nor capacity to defuse the military escalation in the Middle East and South Asia. As nuclear powers, Russian and Chinese leaders have a motive for preventing proliferation and an outbreak of war between Israel and Saudi Arabia against Iran in the Middle East. As in 2008, such a war would undermine the global economy, potentially destabilizing the economies of China and Russia, as well as their political positions. The stakes for Western leaders are equally high.

No agreement is perfect, but the newly established “global concert” starts anew a global process of arms control and nonproliferation. The G-20 is beefed up and becomes the new UN Security Council. Asians are given a much bigger role in the Bretton Woods institutions. Most importantly, the peacekeeping force sent to the Middle East reflects the strong multipolar effort. NATO, the Chinese People’s Liberation Army, India, and Russia command and coordinate the effort as a group. It is as if the Congress of Vienna had been updated for the global multipolar world.

## Coming Apart at the Seams

Most observers expect that the great powers are on a collision course with one another—until each of them starts to collapse from within. The great powers all start to topple like bowling pins. The wrecking ball is not a war with one another; rather, it is the internal decay that has been festering within each country for some time, the result of social cohesion being ground down by globalization, the technological revolution taking away jobs, and the inability of governments to rise to those challenges in the eyes of the citizenry. The advanced democracies prove to be just as vulnerable as the authoritarian states.

Owing to the dysfunction of all the major powers, the simmering Sunni-Shia conflict eventually leads to a nuclear war. Climate change promises are not kept, and there are no extra efforts made to keep the rise in temperatures to below two degrees. The world is on track to a four-degree climb in temperatures by the end of the century—something future generations are left to deal with.

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## RECOMMENDATIONS

We see a rich and critical agenda of shared interests, which cannot be ignored during this period of heightened global tensions. Without leadership from the United States, Russia, Europe, and China, as well as from other countries, these issues cannot be tackled:

- Stemming nuclear and weapons of mass destruction (WMD) proliferation
- Countering religious-based violent extremism
- International trade
- International environment (e.g. oceans, climate change)
- Global Commons—move toward new norms, rules, codes of conduct in maritime, air, cyberspace, and outer space

A world in which there is no agreement among the major powers would be harmful to everyone’s interest and future. Developing inclusive mechanisms—such as those that existed with the P5+1 engagement with Iran over its nuclear program—to deal with major issues will be critical for successfully resolving them and may help to resolve existing differences. Another example is the six-party process (China, Japan, Republic of Korea, Russia, and the United States), which has gradually lessened differences between the parties and established a consensus among the five principal outside actors on their policies toward North Korea. The worst outcome from the current differences would be the emergence of a new bipolar division between Russia and China on one side and the United States and Europe on the other.

The risk of fragmentation in the global system is increasing, despite economic, technological, and environmental interdependence. In a fragmented, bipolar world, competing ideas of regional and global order and norms (e.g. precepts of European security versus the Sinocentric institutions proposed by Beijing) are only likely to grow in intensity. As a brake on further fragmentation, the G-20 should be institutionalized as the central forum for global economic management, expanding its role to be able to forge more political consensus.

Both the United States and Russia face critical strategic choices if they want to successfully navigate the increasingly treacherous seas of global interdependence.

THE WORST OUTCOME FROM THE CURRENT DIFFERENCES WOULD BE THE EMERGENCE OF A NEW BIPOLAR DIVISION BETWEEN RUSSIA AND CHINA ON ONE SIDE AND THE UNITED STATES AND EUROPE ON THE OTHER.

**Russia's strategic choice:** Russia is both a European and Pacific power with substantive economic and security interests in the East and compelling historical, economic, cultural, and security interests in Europe. Securing inclusion in a broader transatlantic economic and security architecture will remain critically important as Russia explores a broader agenda of cooperation with its Eurasian neighbors, including China.

**The United States's strategic choice:** In moving from primacy to *primus inter pares*, the United States needs to update the international system to reflect the new weight of emerging economies. Finding ways to overcome differences in interests and values will ensure that an international system does not fragment and remains open to the free flow of commerce, technology, and new ideas. The conflict in Ukraine has now become the focal point for renewed tensions between Russia and the United States/Europe, though it may well change in a long term perspective. In this regard, there are areas where US and Russian interests on Ukraine overlap, areas where there is a wide gap, and areas where efforts to reconcile them are needed:

- Neither the United States nor Russia want Ukraine to become a failing, unstable state or the economy in eastern provinces to remain shattered.
- In regard to trade, Ukraine (and Russia) could have trade agreements with both the EU and the Eurasian Union. Ukraine's trade goes in both directions.

- Minsk 2 and future formal processes should seek to find a balance of US, EU, and Russian interests. To the United States and the EU, Russia's actions constitute a violation of another country's sovereignty; for Russia, it is about historical interests, culture, identity, and respect for Russian interests in the post-Soviet space.
- A stable, prosperous, and military-neutral Ukraine that is integrated into the regional and global economy is in everybody's interest. There is a need to move beyond another "frozen conflict" and define mutually acceptable understandings and commitments on European security and an inclusive Russian role.
- Knowledge of the forces eroding the foundations of the post-Cold war international system can serve to animate a sense of mutual responsibility. This can narrow the gap in global governance and motivate efforts to develop an inclusive, rules-based multilateral order that can lower the risks of conflict, while providing the basis for global cooperation.
- Keeping the communications channels open is critical for both sides. A lack of mutual understanding can only aggravate the sense of resentment and hostility on both sides. The US, Russian, European, and Chinese governments should encourage efforts by universities, think tanks, and scientific and business organizations to step up their exchanges. These exchanges remain critical at this time of heightened tensions.



PART I

# The Changing Global Context

## GLOBALIZATION AND ITS CONTRADICTIONS

In the two decades since the end of the Cold War, globalization—the transborder flow of information, money, goods, and people—has connected more tightly than ever before economies, people, and nations and led to the massive ongoing shift of wealth and population from West to East and North to South. Globalization provides many opportunities, but it also poses serious risks. As the world has become more interdependent and interconnected, a plethora of state and nonstate actors has been vying for power, creating greater instability and fragmentation.

### Benefits of Globalization

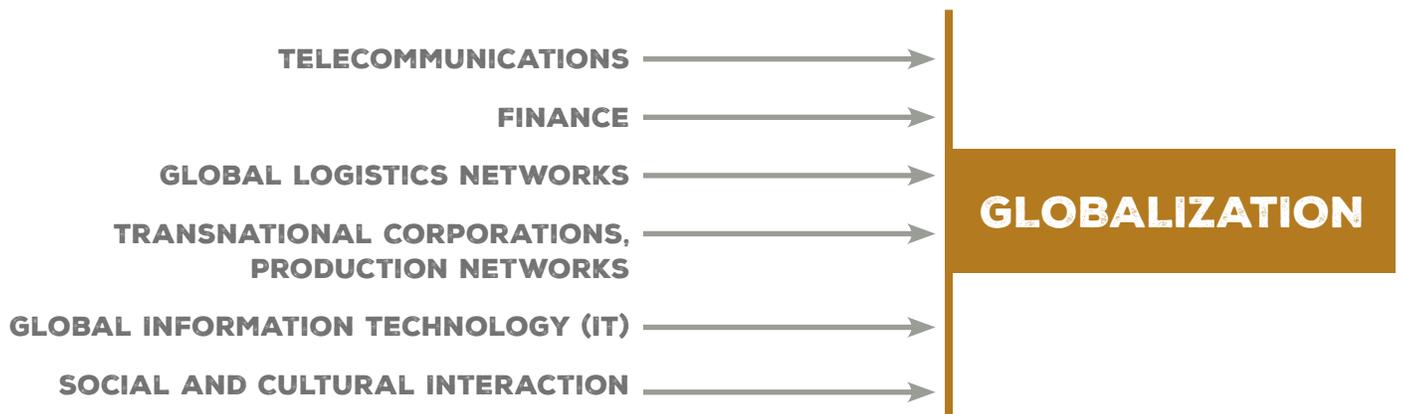
During the past twenty years (1995-2015), globalization has developed most rapidly in the information technology and telecommunications sectors, followed by globalization of financial and industrial sectors. Owing to greater interaction with the new communications technologies, a more efficient global logistics infrastructure has been developed. Unprecedented

improvements in transportation and distribution of goods and resources have been achieved. The telecommunications revolution is now a global one, helping even mid-sized corporations and firms to extend their reach across the world. Extensive production and distribution networks, which include dozens of links in various countries and complex network communications, have been established. Due to trade and investment liberalization, extensive transnational production networks have been established. Cross-border use of material, labor, and intellectual resources has intensified through increased use of outsourcing arrangements.

### Risks of Globalization

Despite its many benefits, globalization poses serious **risks**, perceived by some national political elites as social, political, and economic **threats**. Such risks include erosion of national sovereignty and economic crises. Owing to fears about the negative effects of globalization, there is a growing popular backlash, particularly from those who feel economically and socially marginalized.

## DRIVERS OF GLOBALIZATION



## RISKS OF GLOBALIZATION

1.

Damage to national sovereignty, surrendering much of it to more powerful international actors

2.

Destabilization of external cultural and ideological influences

3.

Financial and other crises caused by external factors beyond control of national government

4.

Economic and political marginalization of particular social groups and countries

### Globalization: A Trend or Political Decision?

Globalization is often described as a “trend” (see above) reflecting the world’s growing interdependence, but it is more than **an objective trend**; it is also a **political choice** made by individual countries and ultimately the world community. In making the choice for or against globalization, politically influential groups can be guided by their interest in reaping the benefits of closer integration or by their fears of risks associated with closer ties.

#### GLOBALIZATION

- 1 An objective trend that reflects the world’s growing interdependence
- 2 A political choice of a ruling class that reflects its interests and values

### Globalization: The Next Twenty Years

During the next twenty years (2015-35) the same **driving forces of the previous period of globalization will remain**. This is particularly the case for such sectors as telecommunications, information technology, and the transnationalization of production systems. New technology *will revitalize* existing industries and create conditions for modernization of traditional modes of transport, the construction industry, and agriculture. The world could see a second “green” revolution, of which genetically modified organisms (GMOs) are an important part.

The energy industry is likely to undergo significant changes due primarily to the diversification of technologies and sources of energy production, as well

as increasing energy efficiency in the developing world. The revolution in communications technologies will also reduce the cost of transporting people and goods, which in turn will increase the mobility of the labor force. This acceleration of mobility—or growing social globalization—will further enhance the conditions for new technological breakthroughs in almost every industry.

**The growing importance of technology and innovation** to the world community will have a **complex and ambiguous impact** on globalization. On the one hand, the number of technological exchanges designed to promote international research and development (R&D) integration between countries and regions is likely to grow rapidly. International innovation projects will be critical to achieving global scientific and technological progress.

#### NEW DIVISION LINES

- 1 An objective trend that reflects the world’s growing interdependence
- 2 A political choice of a ruling class that reflects its interests and values

On the other hand, the growing sophistication of applied technologies will lead to greater gaps between countries in terms of technological development, which will be difficult to overcome in the short term.

The increased importance placed on high tech in the global production of goods and provision of services will have a dual impact on global competition. Gaps between manufacturers of new high tech and other older technologies will widen.

## GLOBALIZATION AS A TREND

Growing interaction of all parts of the global world, elimination of barriers to interaction

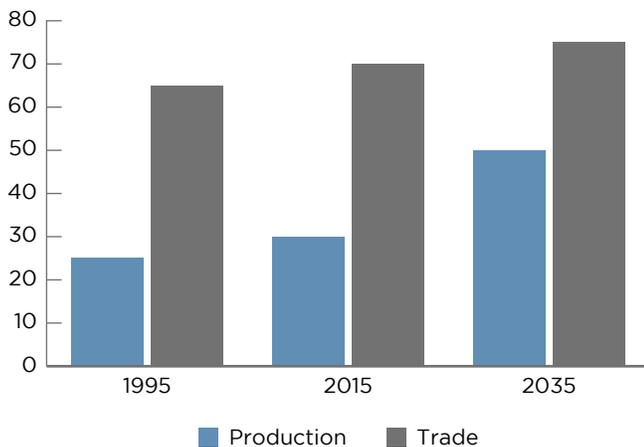
Providing basis for new tools and frameworks advancing international cooperation

Development of infrastructure for global cooperation

Attainment of global economic, social, and institutional standards

On the one hand, developers of core technologies from the United States, European Union, and Japan are prone to form global oligopolies leading to weaker competition.

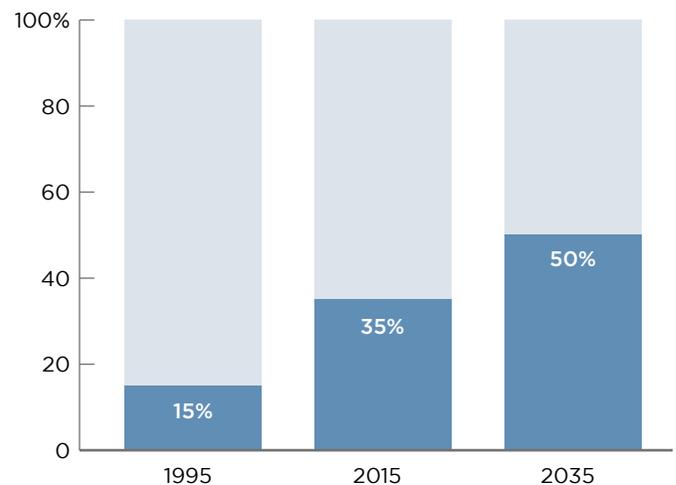
### SHARE OF TRANSNATIONAL BUSINESSES IN GLOBAL PRODUCTION AND TRADE



On the other hand, competition between transnational companies that use these technologies is growing. An increasing proportion of profits will be extracted as intellectual and institutional rent due to holders of intellectual property rights (legally protected rights to use technologies and brands).

**International trade and cash flows** will continue to play an important role in the global economic system. Although the growth rate of the world's exports of goods and services will slow down, it will remain above the world economy's growth rate, according to IMEMO modeling. Thus the size of international trade in proportion to global GDP will increase.

### WORLD EXPORTS IN RELATION TO WORLD GDP, 1995-2035



Extensive development of international outsourcing will continue to influence the nature of **cross-border labor migration**. With skills gaps increasing in many rapidly advanced economies due to aging, people with skills in sought after high tech areas as well as in service areas like the medical and nursing fields will be in high demand.

By 2035, transnational corporations (TNCs) will control about a half of the world's production of goods and services and more than two-thirds of world trade. This figure will vary greatly from country to country; many small European countries will experience the highest levels of TNC control.

A significant portion of TNCs will be not global but "intra-regional" or "biregional." Cross-border chains established by TNCs will not go beyond one "macro region" (mostly the EU or Asia-Pacific). In specific cases, more regions could be added (e.g., EU + post-Soviet

region, Asia-Pacific + Africa). To a large extent, this is the result of gradual internationalization of medium-sized businesses.

A corporate (not only a political) world map will become increasingly important for understanding the global balance of power. Against this background, **governments and transnational corporations** will compete to control the development and application of common rules of business conduct. Increased tensions between TNCs and authorities are likely to occur, despite the tendency of TNCs to deeply engage in the political life of individual states, which will also be significant in the coming decades.

### Sectoral and Regional Imbalances of Globalization

In the next twenty years, globalization will continue to be accompanied by growing gaps between economically robust areas and those increasingly marginalized.

The world will gradually move to a new model of “free trade with some exceptions.” Trade will especially grow in the relatively new sectors of the economy, such as IT, where barriers to global trade were originally absent or low. At the same time, barriers to trade and investment flows could remain or could become even higher in traditional sectors (especially agriculture). However, such barriers will not hinder negotiations to eliminate barriers to establish free trade areas and common markets.

“A CORPORATE (NOT ONLY A POLITICAL) WORLD MAP WILL BECOME INCREASINGLY IMPORTANT FOR UNDERSTANDING THE GLOBAL BALANCE OF POWER.”

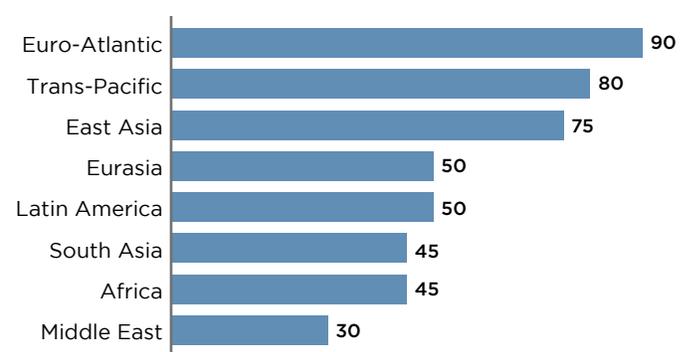
**Differences** will continue to exist in the level of participation of **particular regions and countries** in global and regional processes.

- The **Euro-Atlantic area** will maintain its leading position in globalization processes. Progress will be halting in the Trans-Pacific area.
- Internal political and cultural constraints—such as immigration—will continue to influence **Japan's** position. Such constraints will not allow Tokyo to

take advantage of powerful incentives for cross-border economic and social activity.

- **China** will not only actively participate in globalization, it will increase its role as one of its principal international drivers. Expansion of Chinese capital investments overseas will promote globalization in the countries targeted by Chinese investors.
- In **South Korea**, globalization might be constrained by Seoul’s commitment to modernize northern parts of the Korean Peninsula in case re-unification occurs.
- In the Euro-Atlantic area, Southern and Eastern Europe, particularly the Balkans and the former countries of the Soviet Union, might be less involved in globalization.
- In Asia, large countries such as India and Pakistan will be involved in globalization only partially; only limited enclaves of their economies will be exposed to international interaction and influences.
- Some actors, such as the Arab world, will aspire to a bigger role in the new globalized world but will face severe social, cultural, and institutional constraints.

### EXPECTED PACE AND DEPTH OF ELIMINATION OF INTERNAL BARRIERS FOR WORLD “SUPRA-REGIONS”



### Technological Gaps

As technological progress accelerates in many countries, some countries will fall out of the race for technological leadership while others reap huge benefits from high tech innovation. As a result, technological and economic gaps among countries will widen. In two decades, these gaps could become almost insurmountable, becoming a major obstacle to further globalization. Differences in the pace of globalization **between countries in the core and**

## OBSTACLES TO GREATER INTEGRATION

### Political

- Fear about limiting sovereign rights of national states

### Economic

- Differences in the level of economic development
- Widening technological gaps between countries

### Institutional

- The compatibility of systems of government

### Cultural, Ideological

- Differences in educational systems
- Differences in mindsets
- Religious and cultural aspects

those on the periphery of the world economy will increase.

**The United States'** current lead and its well-developed innovation “eco-system” means that it will remain the overall technological leader, even as China will become a peer competitor, if not leader, in a number of fields.

**The European Union and Japan** will feel pressure from new competitors from China as well as other developing countries. Such nations will seek to become “medium-level countries” in terms of income as well as R&D and technological potential.

At the same time, new “**islands**” of **accelerated growth and development** will appear on the world “innovation map.” The number of countries that focus on modernization and innovation as the basis of their future economic growth will increase. Some of these countries—particularly South Korea, Singapore, India, and Brazil—will transmit new technologies developed by world innovation leaders to other developing countries.

### Obstacles to Greater Integration

Globalization will be constrained by political and economic factors affecting individual countries, as well as institutional, cultural, and ideological differences.

#### Globalization as a Political Choice: Anti-Globalism

The ideological basis for antiglobalization forces and movements will be the notion that globalization reinforces existing gaps among countries’ social and economic development and their ability to influence strategic decisions in world politics. Many countries might be excluded from greater integration because their political elites perceive that the strengthening of global institutions threatens their own power. Fear about

encroachments on the sovereign rights of national states will continue to be one of the most serious challenges to globalization.

GLOBALIZATION WILL BE CONSTRAINED BY POLITICAL AND ECONOMIC FACTORS AFFECTING INDIVIDUAL COUNTRIES, AS WELL AS INSTITUTIONAL, CULTURAL, AND IDEOLOGICAL DIFFERENCES.

In the face of new global and regional crises, **nationalism** is expected to grow and will be transformed from the philosophy of a nation’s own superiority and expansion to an ideological rationale for fencing one’s homeland off from external influences. Current examples include the anti-immigration movements in Europe, the rise of Islamism in the Arab world, and irritation with the significant presence of expatriates in global South countries.

As a result, political elites in many countries will be tempted to shift their countries away from globalization and try to neutralize its impact. Nevertheless, anti-globalization will not be dominant in the coming decades. It will be opposed by powerful globalization-oriented “middle classes” in the countries of the South. These “winners” are already reaping the benefits from greater integration.

GLOBALIZATION VS. REGIONALISM

**Step to Globalization**

- Constructive/Open regionalism

**Antithesis to Globalization**

- Defensive/Closed regionalism
  - » fragmentation
  - » interactions limited to the local level

Anti-globalism will not be able to stop globalization, but it can significantly affect its pace and shape. The main threat is that antiglobalization will become a powerful deterrent to social movement as we are seeing with rising anti-immigration sentiment even in the rich, advanced economies.

such institutions. Open regionalism creates and expands common ground and areas for economic and political integration by adding new levels to it.

In other cases, however, regionalism represents an antithesis or a shift away from globalization. In its extreme form—defensive or closed—regionalism causes fragmentation with most social interactions being restricted to the local level.

**FACTORS CONTAINING GLOBALIZATION**

- 1 Fragmentation of global identity, separate self-identification by constituent parts of international community
- 2 Rise of nationalism and isolationism

**Globalization vs. Regionalism**

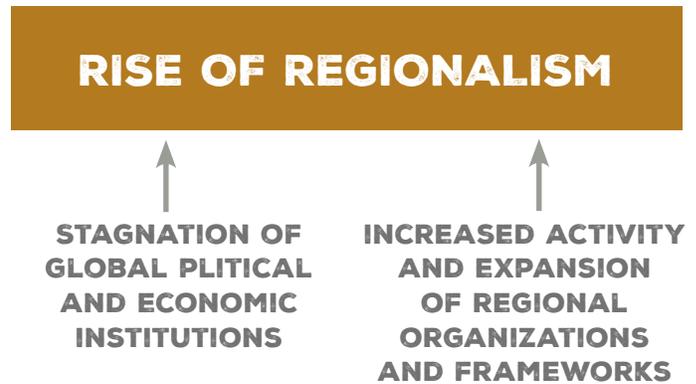
The next twenty years also will be marked by growing regionalism, which will be largely compatible with globalization. Most regionalism will contribute to globalization by reducing barriers between the growing number of economically powerful centers. At the same time, we might see more populist efforts within certain countries and regions aimed at walling these places off from greater global interdependence and connectedness. Those countries or regions that resist globalization risk falling further behind economically and technologically. Global governance will struggle in the face of mounting fear and political reaction to globalization. The inadequacy of global regulatory institutions will be compensated for by better-functioning regional institutions.

Growing regionalism—for example, increasing regional patterns of trade and investment—is not necessarily in opposition to globalization. In some cases, regionalism is a natural “step” toward globalization, reducing barriers among the growing number of regional actors. When regional frameworks adapt their rules and regulations to the norms of World Trade Organization (WTO) and other global institutions, they contribute to the development of

**Global vs. Regional Institutions**

The stagnation of global political and economic institutions, such as the WTO, has triggered an expansion of regional-scale organizations. Growing regional patterns of trade and investment are occurring in the major economic clusters: Europe, Asia, North America, and Latin America.

REGIONALISM



Evidence of this growing trend can also be found in the new bilateral and multilateral free trade agreements; “economic partnerships” of various kinds have proliferated since the early 2000s. The various regional frameworks differ in terms of their focus, depth, and pace of their liberalization activities. Nevertheless, the speed and scope of growing regional cooperation contrast sharply with the lack of serious progress in

negotiations within WTO and other global institutions. Growing regionalism casts doubt on the idea of creating uniformed economic rules and standards for countries with different levels of and strategies for economic, political, and institutional development.

**THOSE COUNTRIES OR REGIONS THAT RESIST GLOBALIZATION RISK FALLING FURTHER BEHIND ECONOMICALLY AND TECHNOLOGICALLY.**

### **Demographic Challenges: A Testing Time for Nations**

The world will be vastly different in 2035 based on just the demographic shifts which cannot be changed in the short term. Demographic shifts will force major political and social choices on practically every country. There are as many challenges as benefits. Whoever is able to maximize benefits and minimize drawbacks will reap significant advantages over others who will not. Most countries will have to fight against the maxim—“demography is destiny”—if they want to end up economically stronger in 2035 than they are today.

Aging is overtaking youth bulges as the biggest demographic threat over the next twenty years. Almost everywhere, median ages are rising, and will continue to be gathering steam in 2035. Only a small number of countries in sub-Saharan Africa and South Asia will not experience this trend and will be youthful. Europe and Japan stand to be at the forefront, aging the most. But other key countries—China and Russia—will be greatly impacted. The United States also will age, but at a slower, more manageable tempo.

Globally, there is increasing worry that the high levels of economic growth, which have characterized the last several decades, will be a casualty of accelerating aging. Over the past fifty years, per capita income across the world almost tripled while population more than doubled.<sup>1</sup> A large part of the historic economic expansion over the past half century was due to growing

populations and the “demographic dividend” many countries benefitted from.

Over the last few decades, many countries experienced a rising share of working age populations while fertility rates went down as more women entered the workplace and urbanization increased, especially in the developing world. However, employment in Germany, Italy, Japan, and Russia has already peaked and with current demographic trends, could shrink by up to one-third by 2064. China and South Korea could reach a peak in employment as early as 2024. Only a small number of advanced and emerging countries will not see their employment peak. India’s worker pool will expand by over half in the next fifty years; Nigeria’s will expand faster than any other G-20 member—almost three times. The United States, Indonesia, and South Africa will not peak, but they will see rising employment at slower rates.<sup>2</sup>

Over the next fifteen to twenty years, longevity may also increase at a faster rate as medical breakthroughs accelerate. In May 2013, the United Nation’s (UN) World Health Organization (WHO) released figures showing that “global life expectancy has dramatically increased from sixty-four years in 1990 to seventy years in 2011.” The growth has been due to the rapid fall in child mortality and improvements in life expectancies in the two biggest developing states: China and India. However, even in the rich, advanced world where life expectancies are already longer, there had been significant increases. Countries that already have the longest life expectancies—Japan, Australia, and Switzerland—continue to see their populations living longer.

WHO officials believe that “gene therapy” will accelerate life expectancy even more and new scientific breakthroughs will benefit initially the rich, developed world where medical care is already the most advanced, but will spread quickly. In the past, longevity has increased fastest in the countries “that are relatively behind best (medical) practice(s)” because of an increasingly rapid transmission of medical knowledge and practice between developed and developing states. Projected rates of longevity improvement have also tended to be underestimated. One expert believes “all countries could reach a life expectancy of at least eighty-nine by 2050” even though the UN only projects eighty-seven for Japan, which currently has the best life expectancy.<sup>3</sup>

<sup>1</sup> “Global Growth: Can Productivity Save the Day in an Aging World,” McKinsey Global Institute, January 2015, p. 1.

<sup>2</sup> McKinsey

<sup>3</sup> John Llewellyn, “The Business of Aging,” Nomura: Global Equity Research, November 25, 2008.

TABLE 2. WORLD POPULATION (MILLIONS OF PEOPLE)

	1990	2000	2010	2013	2020	2030	2035
World	5279	6102	6884	7125	7580	8100	8300
Developed countries	987	1049	1107	1121	1150	1190	1200
USA	250	282	309	316	330	348	357
EU	478	488	505	507	515	525	530
Developing countries and countries in transition	4287	5047	5769	5996	6430	6900	7100
China	1135	1263	1338	1357	1380	1400	1400
India	869	1042	1206	1252	1340	1440	1500
Brazil	150	175	195	200	210	220	225
Russia	148	147	142	144	145	146	147

### Youth Bulges Remain Important

While aging will become the predominant demographic trend, the number of countries—fifty—with a median age of twenty-five years or less will remain relatively large, though down from over eighty in 2010. Such youthful countries tend to have an over-sized impact on foreign affairs because of the high correlation between youth bulges and the propensity for conflict, either inside or between countries. Since the 1970s, “roughly 80 percent of all armed civil and ethnic conflicts” started in countries with youth bulges.<sup>4</sup> Many of the countries with large youth bulges also figure high on lists of states at risk of failure and are unfortunately located in areas where climate change’s impacts will be the greatest and food and water scarcities are a growing threat.

In 2035, most of these countries with still large youth bulges will be concentrated in sub-Saharan Africa, parts, but not all, of the Middle East—including the Palestinian Territories, Jordan, and Yemen. In the New World, only Bolivia, Guatemala, and Haiti will retain their youth bulges. And in the Pacific, only East Timor, Papua New Guinea, and the Solomon Islands. In South Asia, only Afghanistan will be youthful, although youth bulges will persist in tribal populations in Pakistan’s western provinces. Today, Pashtun women in both Pakistan and Afghanistan have greater than five children per woman.<sup>5</sup>

The high fertility rates will have an explosive effect on countries’ populations, especially those in the Middle East and South Asia. Countries like Afghanistan and Yemen will see a doubling of their populations between 2005 and 2030 and a tripling by 2050, if current fertility

4 Global Trends 2030: Alternative Worlds, National Intelligence Council, December 2012.

5 Ibid.

trends persist. Pakistan's population—part of which is beginning to age—will nevertheless see a 50 percent increase, reaching 240 million by 2030, which will make it the world's fifth most populous country. Saudi Arabia—which is also beginning to age—will have a 58 percent increase to 27 million between 2005 and 2030. Overall, the Middle East will add roughly 290 million in the 2005-30 period.<sup>6</sup>

The population explosives make it difficult to turn youth bulges into demographic dividends for the economy. Afghanistan, Yemen, the Palestinians and a number of sub-Saharan countries are projected to see gains in their working-age populations of around 130 percent in the next two decades.<sup>7</sup> No economy could absorb such numbers.

The persistence of high birth rates among minorities within countries will cause potential imbalances and tensions with majority populations. Kurdish fertility in southeastern Turkey has stalled at about four children per woman. In Israel, the ultra-Orthodox Jewish minority or Haredim and the Arab sectors will double their absolute numbers over the next twenty years while the percentage of non-Haredim and secular population—with lower birth rates—will drop from 51 percent in 2010 to 42 percent in 2030. However, the non-Haredim and secular populations provide the vast majority of the Israeli workforce.<sup>8</sup> Such a reduction in numbers cannot but impact negatively the economy.

## Migration and Mobility

Migration and mobility could be an important factor in ameliorating the workforce and skills gaps caused by aging. Populations in youthful countries will have increasing opportunities to migrate so long as they can acquire the skills and immigration barriers are not so high as to prevent mobility. The first globalization of the late nineteenth and early twentieth centuries saw bigger movements proportionally of people emigrating

(mostly from Europe) and also high rates of return to their home countries.<sup>9</sup>

Circumstances are even more favorable to movements of people in coming decades, both internationally and within countries. According to the UN, there were 232 million international migrants in 2013. Between 1990 and 2013, the number of such migrants rose by over 77 million or by 50 percent, with “much of that growth between 2000 and 2010.”<sup>10</sup> Interestingly, though, the proportion of the world's population who are international migrants has stayed around 3 percent since 1995.

Europe and Asia currently host nearly two-thirds of all immigrants; in 2013 there were 72 million immigrants in Europe and almost an equal number in Asia. North America hosted the third largest number (53 million) followed by Africa (19 million), and Latin America (9 million). The United States has by far the largest number of immigrants: 46 million reside in the United States, equal to nearly 20 percent of the world's total. The Russian Federation hosts the second largest number—11 million—followed by Germany (10 million), Saudi Arabia (9 million), and the United Arab Emirates and the United Kingdom (8 million each).<sup>11</sup>

CIRCUMSTANCES ARE EVEN MORE FAVORABLE TO MOVEMENTS OF PEOPLE IN COMING DECADES, BOTH INTERNATIONALLY AND WITHIN COUNTRIES.

More recent trends indicate a shift away from Europe and North America, especially increasing South-South flows. In 2013, “Asia-Asia was the largest migration corridor in the world, with some 54 million international

6 Adele Hayutin, “Critical Demographics of the Greater Middle East: A New Lens for Understanding Regional Issues,” Stanford Center on Longevity, March 13, 2009, <http://longevity3.stanford.edu/wp-content/uploads/2012/10/Critical-Demographics-of-the-Greater-Middle-East.pdf>.

7 Ibid.

8 Amir Mizroch, “Israel 2030: A Hard Look at the Hard Numbers,” April 13, 2012, <http://www.amirmizroch.com/2012/04/13/israel-2030-a-hard-look-at-the-hard-numbers/>.

9 Global Trends 2030, p. 24; Ronald Skeldon, “Global Migration: Demographic Aspects and its Relevance for Development,” UN Population Division, 2013, p. 2,

[http://www.un.org/esa/population/migration/documents/EGM.Skel-don\\_17.12.2013.pdf](http://www.un.org/esa/population/migration/documents/EGM.Skel-don_17.12.2013.pdf).

10 International Migration Report 2013, UN Department of Economic and Social Affairs/Population Division, p. 1, [http://www.un.org/en/development/desa/population/publications/pdf/migration/migrationreport2013/Full\\_Document\\_final.pdf](http://www.un.org/en/development/desa/population/publications/pdf/migration/migrationreport2013/Full_Document_final.pdf).

11 Ibid, p. 5

migrants” leaving one Asian country for another. The Latin America-US corridor—which had been the largest one from 1990-2000 has been steadily declining. The birth rate in Mexico—which used to provide the largest number of migrants—has gone down as the middle class there has increased. Many more are finding opportunities at home rather than being forced to emigrate. All, except three, of the largest migration corridors in the world have a destination in the South. Increasingly too, the majority of immigrants are moving within the region they are born in.

As country populations age, the number of immigrants who will leave is likely to decline. Since the late nineteenth century, the majority of immigrants have been young adults. As the proportions of youths decline in aging countries, they are likely to have more job opportunities at home, lessening the incentive to leave. The big exception will be for students, the numbers of which are increasing at a very rapid rate. According to the OECD, the number of international students more than doubled between 2000 and 2011, with almost 4.5 million university-level students enrolled outside their country of origin. Asians—Chinese, Indian, and Korean—constitute a majority of all students going abroad to complete their education. As with permanent migration, the destinations are beginning to change with Australia, Korea, New Zealand, the Russian Federation, and Spain receiving more international students while the United States and Germany are beginning to lose their shares. The United States, which still has by far the largest share of international students, nevertheless slipped from 23 percent to 17 percent between 2000 and 2011. Increasingly, international students are also staying on, with 25 percent on average becoming permanent residents in Organisation for Economic Co-operation and Development (OECD) countries. For some receiving OECD countries—including Australia, Canada, the Czech Republic, and France—the stay rate is more than 30 percent.<sup>12</sup>

For all the increasing movement of young people, it is not clear it will make huge a demographic difference in most countries they settle in. For example, net migration is projected to offset Europe’s population decline until 2020 when the surplus of deaths over births will be so great that even increasing migration is unlikely to reverse. The big exception is in the United States, where migration has already greatly boosted population growth and will become increasingly important as US birth rates decline

and net migration becomes more important than natural increase in the early 2030s.<sup>13</sup>

AS THE PROPORTIONS OF YOUTHS DECLINE IN AGING COUNTRIES, THEY ARE LIKELY TO HAVE MORE JOB OPPORTUNITIES AT HOME, LESSENING THE INCENTIVE TO LEAVE.

Internal migration is a more difficult subject to analyze for structural patterns because of the patchy data. Available data would indicate that “where the distribution of the population in urban areas approaches about three-quarters of the population, the number of internal migrants declines.” Internal migration in the US has been dropping with a leveling off of urbanization. Aging is also a factor. The number of internal migrants in Japan has dropped since the 1970s when Japanese fertility rates fell below replacement level. In places like sub-Saharan where urbanization rates are increasing, the move to the cities is picking up momentum despite government efforts in some African countries to stem the flow. China presents an interesting case where its economic growth has been fueled by the migration of peasants to the cities—over 229 million in the past few decades of which 200 million moved without getting formal permission to change residency. China is counting on the continued movement to bolster economic growth, although it is unclear—with the youthful proportion declining—if they can continue to match former rates of migration.<sup>14</sup>

## Urbanization

For the first time in human history, a large number of people live in urban areas, and that number will climb to nearly 60 percent by 2030, in contrast to roughly 30 percent in 1950. Sub-Saharan Africa—where the urban proportion of population is under 50 percent—may have the highest rate of urban population growth, although Asian urban populations will continue to grow. According to the UN, between 2011 and 2030, 276 million more Chinese and 218 million more Indians will live in cities,

12 “Education Indicators in Focus,” OECD, July 5, 2013, [http://www.oecd.org/education/skills-beyond-school/EDIF%202013--N%C2%B014%20\(eng\)-Final.pdf](http://www.oecd.org/education/skills-beyond-school/EDIF%202013--N%C2%B014%20(eng)-Final.pdf).

13 International Migration Report, pp. 14-15.

14 Skelton, pp. 16-17.

accounting for 37 percent of the total increase for urban population in 2030.<sup>15</sup> Other countries providing significant additions to the world's urban population include Bangladesh, Brazil, Democratic Republic of the Congo, Indonesia, Mexico, Nigeria, Pakistan, the Philippines, and the United States.<sup>16</sup>

"By 2035, the world is projected to have 41 mega-cities with 10 million inhabitants or more."<sup>17</sup> This is all the more impressive as it is happening at a rapid pace. According to the World Bank, "it took Europe more than 50 years [in nineteenth and twentieth centuries] to urbanize the equivalent number of people that have moved to urban areas in East Asia in just the past 10 years."<sup>18</sup> Urban buildings and infrastructure will probably account for the majority of global investment out to 2035.<sup>19</sup> In Africa's case, we expect the consequences of the projected rapid urbanization to be even more far-reaching, including spurring smaller family sizes, formation of stronger middle classes, and more rapid education attainment.<sup>20</sup>

Urbanization is a key to ending extreme poverty and fueling broad economic growth, but it has often aggravated existing inequalities. "Large cities without affordable housing and efficient public transportation can force the poor to live far from work, schools, clinics, markets, and other amenities," according to the World Bank.<sup>21</sup> Going forward, the central challenge will be to create cities that are sources of social and political stability. Historically, political revolutions have started in crowded cities by middle classes who see their path towards economic opportunity begin to become more difficult. Currently there are fears that growth is slowing in many megacities around the world and they are not keeping pace with the needs of their expanding populations.<sup>22</sup>

Rapid urbanization risks increased pollution and environmental degradation. "Environmental degradation increases with income in the initial stages of economic development," as dramatically portrayed in China over the past couple of decades. The rate of environmental

degradation slows at higher incomes. However, for most countries in East Asia, let alone South Asia and sub-Saharan Africa where incomes are lower, the World Bank estimates that the world is "still at the stage at which income growth, urban expansion, and environmental degradation go hand in hand."<sup>23</sup> Providing and managing adequate water supplies will be a huge challenge. India's cities will need 94 billion liters of potable water in the next fifteen to twenty years. Sewage collection will need massive upgrades; coverage now in some mid-size cities in India is as low as 10-20 percent.<sup>24</sup> Many rapidly urbanizing cities are in coastal areas and increasingly vulnerable to climate change, including sea level rise and storm surges. On the World Bank/OECD's list of the ten most vulnerable cities are many rapidly expanding developing-country ones, such as Guangzhou, China; Guayaquil, Ecuador; Ho Chi Minh City, Vietnam; Abidjan, Ivory Coast; Zhanjing, China; Mumbai, India; Khulna, Bangladesh; Palembang, Indonesia; and Shenzhen, China.<sup>25</sup>

In most of these cities, the poor are most at risk, living in "the most vulnerable neighborhoods, often in low-lying areas and along waterways prone to flooding."<sup>26</sup> However, rapidly urbanizing countries have an opportunity to mitigate these risks by employing a wide array of emerging technologies to solve problems of overcrowding, traffic congestion, resource use, housing, and disaster response systems. Information and communications technologies (ICT)—non-existent in Europe, Latin America, or the United States at the heyday of those regions' rapid urbanization—can be used to enhance nearly every type of good or service. A city's public transport system can use ICT applications to improve scheduling or routing. "Architects and engineers involved in the green building movement want to reduce the absolute amount of energy and water" that buildings use. Currently, 71 percent of worldwide electricity use can be attributed to supplying buildings.<sup>27</sup> McKinsey research in India suggests that it can be 30 to 50 percent less expensive for large cities to deliver basic services including water, housing, and education than it is in more sparsely populated rural areas.

15 *World Urbanization Prospects: The 2011 Revision*, UN Department of Economic and Social Affairs, April 12, 2012.

16 *Ibid.*

17 [http://www.mckinsey.com/~media/mckinsey/dotcom/insights/urbanization/urban%20world%20the%20shifting%20global%20business%20landscape/mgi\\_urban\\_world3\\_full\\_report\\_oct2013.ashx](http://www.mckinsey.com/~media/mckinsey/dotcom/insights/urbanization/urban%20world%20the%20shifting%20global%20business%20landscape/mgi_urban_world3_full_report_oct2013.ashx).

18 "East Asia's Changing Urban Landscape," World Bank Group, January 2015, p. xix, [http://www.worldbank.org/content/dam/Worldbank/Publications/Urban%20Development/EAP\\_Urban\\_Expansion\\_full\\_report\\_web.pdf](http://www.worldbank.org/content/dam/Worldbank/Publications/Urban%20Development/EAP_Urban_Expansion_full_report_web.pdf).

19 McKinsey, "Urban World"

20 NIC, *Global Trends 2030*, pp. 27-29.

21 World Bank, "East Asia's Changing Urban Landscape," p. 2

22 McKinsey, "Urban World"

23 World Bank, "East Asia's Changing Urban Landscape," p. 3.

24 NIC, *Global Trends 2030*, p. 29.

25 "Which Coastal Cities Are At Highest Risk of Damaging Floods?" World Bank, August 19, 2013, <http://www.worldbank.org/en/news/feature/2013/08/19/coastal-cities-at-highest-risk-floods>.

26 *Ibid.*

27 "Envisioning 2030: US Strategy for the Coming Technology Revolution," The Atlantic Council, December, 2013, pp.11-13. <http://www.atlanticcouncil.org/publications/reports/envisioning-2030-us-strategy-for-the-coming-technology-revolution>.

## PART II

# Breakdown of the Post-Cold War Security Order

International conflicts are likely to spread in both geographic area and level of destructiveness during the next twenty years—and the risk is growing that the major powers, including the United States, Europe, Russia, China, and India, will take opposing sides in these conflicts. This risk especially applies to differences between Russia and the United States/NATO in the post-Soviet space, and, with less probability, to China and the United States' relations with both countries' allies and partners in Asia. The nuclear deterrent will reduce the chances of armed conflict between the major powers. Such countries will prefer to act indirectly through the support of opposing parties. Economic interdependence among the key players, which will continue to grow with globalization and countries' deepening vulnerability to even limited use of conventional arms, will also protect against potential conflict. Nevertheless, the crisis in relations between Russia and the West in 2013-15 showed that economic interests and cooperation in international security can be sacrificed for the sake of political, geopolitical, and ideological motives and ambitions.

The old confrontation between capitalism and communism has given way to nationalism and conflicts of intellectual values with religious and historical-psychological overtones. These differences are even more serious when linked to the domestic political interests of particular countries' ruling circles. The possibility of the big powers being accidentally drawn into direct, however limited, armed conflict as a result of an escalation of crises cannot be ruled out.

The situation will differ considerably from that of the second half of the Cold-War era (mid 1960s to mid 1980s), when tacit "untouchable" geopolitical spheres of influence were very clearly delineated and other zones were not worth the risk of a direct military conflict. The situation will be even more different than it was during the first twenty-five years following the end of the Cold War, when the major powers avoided serious differences, often because Russia and China acquiesced to Western leadership.

The involvement of the major powers in any indirect conflicts would entail providing political, economic, and military-technical (arms and military supplies and assistance) help to proxy states and nonstate armed groups. The "hybrid" nature of this involvement would expand with the sending of military instructors and specialists, commanders to organize military operations, private armed groups and volunteers, special forces and regular troops, and direct involvement of the major powers' aircraft, artillery, naval forces, and air defenses in border areas.

WE CANNOT RULE OUT THE POSSIBILITY OF THE BIG POWERS BEING ACCIDENTALLY DRAWN INTO DIRECT, HOWEVER LIMITED, ARMED CONFLICT AS A RESULT OF ESCALATION OF CRISES.

Virtually any part of the post-Soviet space and surrounding regions and also the western part of the Asia-Pacific region and northern part of the Indian Ocean could become the site of serious competition between the main power centers. For the first time since the end of the Cold War, the Black Sea is becoming a theatre of military confrontation between Russia and the United States/NATO. This increases the danger of an unintended escalation of military action as a result of incidents at sea or in the Black Sea region's airspace.

Meanwhile, the increasing range and reduced response time of current and emerging nonnuclear offensive weapons systems and their highly automated command-and-control systems heighten the risks of accidental

(or provoked) military incidents and rapid escalation of armed conflict.

The Ukrainian crisis will lose its present importance—similar to the Chechen war or the war on the former Yugoslavian territory twenty years ago. Nevertheless, in 2015, it gives us a kind of a portentously dangerous example. If Ukraine continues to disintegrate and Russia becomes involved, NATO or the United States (with a “coalition of the willing”) might eventually intervene directly, resulting in head-on conflict. Such a conflict could, as Russia’s new Military Doctrine states, “constitute a threat to [Russia’s] statehood” and force Russia into using nuclear weapons. Even without going to such extremes, demonstrative action by the Russian and NATO navies and air forces in the Black and Baltic Seas have already raised the risk of military incidents. The threat of such crises would grow if relations with the West become confrontational and East-West tensions increase.

The Commonwealth of Independent States (CIS) conflicts can be viewed as the product of the Soviet legacy and uneven collapse of the USSR as well as the ill-conceived policies and mistakes of the involved parties, Russia, and external actors: the United States, NATO, and the EU. The USSR was dissolved by a stroke of a pen without any well-conceived concept or negotiations aimed at resolving the problems of the Soviet legacy—the rights of national minorities, territorial and border problems, etc. The EU and NATO regional strategies strengthened the “great power” sentiments of Russia’s political elite, and also created fears that there was a Western strategy of “squeezing” Moscow out of the zone of its vital interests—the CIS. As long as Russia shares the continent with the EU and NATO,—which possess huge economic, technological, and military power—“without Russia” will be interpreted by Moscow as “against Russia.” If Europe continuously ignores this reality, this could be a powerful source of confrontation in Europe.

In East Asia, China has been undertaking a massive buildup of its conventional forces, in particular its navy, against a backdrop of a shift in the nuclear balance of power in China’s favor. The scope of China’s navy will objectively take in the region in which US allies and partners are located (Singapore, Thailand, Vietnam, Malaysia, Philippines, Taiwan, Japan, and South Korea). This broadened scope reflects Beijing’s growing geopolitical ambitions in its neighboring seas.

As a result of China’s ambitions, Japan will feel increasingly concerned. Its strategic situation will undergo a drastic change; whether or not the United States will live up to its security guarantees for Japan

in a limited armed conflict will look more doubtful as a result of change in the balance of conventional and nuclear power in the region.

The other potential scenario (though more hypothetical rather than realistic because of China’s policy of engagement with Taiwan through economic and cultural interaction) is that of armed conflict in response to attempts by Beijing to settle the Taiwan issue through force. If such a scenario occurred, neutral countries such as Vietnam and Malaysia and other Southeast Asian countries that have territorial disputes with China would be alarmed about their security.

If China embarks on military and political expansion in the western part of the Pacific Ocean, and then in the Indian Ocean, a risk of a new bipolarity would develop. However, the growing economic and financial integration boosted by Chinese mega-strategy of the global Silk Road and supporting financial institutions will counterbalance the new bipolarity risks.

## Escalating Conflict

Among the features that will characterize future conflict, the following are the most dangerous:

- An increase in the number, scale, and activity of nonstate armed groups;
- The readiness of nonstate groups to use extreme forms of violence, including weapons of mass destruction at their disposal;
- The increasing transnational nature of conflicts;
- Violence aimed primarily at civilian populations and causing humanitarian emergencies; and
- Widespread use and broadcasting via modern media of acts designed to intimidate (execution of hostages, demonstrative terrorist attacks, mass murder on ethnic and religious grounds, etc.); and
- Conflicts of a mixed type that will continue to dominate – basic intrastate conflicts with outside intervention and hostilities that spill beyond state borders.

As geopolitical tensions escalate, conflicts will become more likely to spill over into regional nuclear war between second-tier nuclear powers. Regional conflicts that have the risk of turning nuclear can be ranked in probability by region as follows: South Asia, the Far East, India-China, and the Middle East.

**AS GEOPOLITICAL TENSIONS ESCALATE, CONFLICTS WILL BECOME MORE LIKELY TO SPILL OVER INTO REGIONAL NUCLEAR WAR BETWEEN SECOND-TIER NUCLEAR POWERS.**

Potential conflict between India and Pakistan will continue to carry the greatest risk of turning nuclear. The Kashmir issue will remain the biggest obstacle in these countries' bilateral relations. The terrorist threat from radical Islamists has introduced a new dimension to the situation. Pakistan, which has no clearly formulated nuclear doctrine, follows the principle of making a first nuclear strike (unlike India, which has stated that it will not be the first to make a nuclear strike). Given Pakistan's policy, any conflict with India could provoke a nuclear war.

Conflict could also occur if Pakistan's domestic political situation flared up or Islamic radicals (the Taliban) and international terrorists (al-Qaeda) obtained nuclear weapons. The Pakistanis fear that India would provoke political chaos if it used force to settle the Kashmir issue. This would very likely lead to a nuclear response, all the more so because, unlike in India, control of Pakistan's nuclear weapons is in the armed forces' hands.

North Korea's military nuclear program and provocative foreign policy are the biggest destabilizing factors in the Far East. A premeditated nuclear attack by North Korea against South Korea, Japan, or the United States (in ten to fifteen years, when Pyongyang would have developed intercontinental ballistic missiles) is unlikely. However, periodic attempts by North Korea to step up tensions could provoke an armed conflict. If the North Korean regime were to find itself facing defeat, it might resort to using nuclear weapons. In such a situation, the United States might decide to launch a pre-emptive strike using high-precision conventional weapons. Pyongyang would most likely respond by using its surviving nuclear arms.

Conflict between India and China is much less likely during the next twenty years than conflict between India and Pakistan. China would not use nuclear weapons even if a war between India and Pakistan turned nuclear. Beijing would also refrain from intervention if India, the United States, or multilateral forces took military action in the event that the Pakistani government collapsed or Islamists took power in Islamabad.

Increasing tensions in the Indian Ocean could provoke armed clashes, though without turning nuclear. China is in the process of establishing a system of bases to control the Indian Ocean region (the "string of pearls" strategy). India is also building up its navy and constructing naval bases in the Indian Ocean. Destabilization of Iran, Pakistan, Myanmar, or Thailand or attempts by any of these countries to block each other's access to sea routes might provoke armed conflict between China and India. Such a conflict would be particularly dangerous between naval forces in the open sea, where there are no state borders and where a first strike usually achieves a victory.

Over the forecasted period, Israel or Iran might fight an interstate conflict over the Iranian nuclear program if the comprehensive agreement of July 2015 is violated by either side regarding limitation and transparency of the program or lifting of sanctions. Such a conflict could be quasi-nuclear: it would not involve the actual use of nuclear weapons, but the use of force to prevent their development and proliferation.

War, especially if the United States gets involved on Israel's side, would risk destabilizing nuclear Pakistan and setting off a rapid upsurge in Islamic radicalism around the world. Such a war could also push the Arab and Muslim countries into en-masse departure from the Nuclear Nonproliferation Treaty (NPT). Some of these countries might accelerate their own military nuclear programs in order to acquire a nuclear deterrent capability against the United States and Israel. This would irreversibly undermine the legal foundations of the nuclear nonproliferation regime.

**WAR, ESPECIALLY IF THE UNITED STATES GETS INVOLVED ON ISRAEL'S SIDE, WOULD RISK DESTABILIZING NUCLEAR PAKISTAN AND SETTING OFF A RAPID UPSURGE IN ISLAMIC RADICALISM AROUND THE WORLD.**

If comprehensive agreement on the Iran nuclear issue is successfully implemented, this would pave the way to broad new opportunities for strengthening the nuclear nonproliferation regime and controls over critical

technology and materials through cooperation between the major powers and regional players. Universalization of some principles and norms of the comprehensive agreement would greatly enhance the NPT and its regimes and institutions. At the same time, lifting the embargo and restoring relations between the West and Iran would reduce Russia's influence in the region and open the way for Iran to export its hydrocarbons to the world market. This would result in long-term lower global oil and gas prices and offer the European Union alternative sources of energy imports. Such developments would have detrimental consequences for Russia's economy.

### **Growing Regionalized Conflict**

Other regions will also be at heightened risk of conflict to 2035, but will not necessarily involve the major powers. This applies above all to the Middle East and neighboring regions. Conflict areas could merge to form one large zone from Morocco to the Hindu Kush, drawing in Afghanistan, Pakistan, Central Asia, and Iran too, if a military strike is launched against its nuclear infrastructure.

The risk of armed Islamic extremism in the region (this is an issue that is simultaneously domestic, transnational, and transregional in nature) is the greatest threat to stability out to 2035. Islamic armed extremism could take the form of attacks on secular pro-Western or anti-Western state regimes; conflict between Sunnis and Shias; or an increase in piracy in the Mediterranean and Red Sea, around the entire African coast and in the northern Indian Ocean and western Pacific Ocean.

Other regions where conflict might spread include Central and Southeast Asia and also equatorial Africa, where a growing number of countries could be drawn into conflict between Muslim and Christian populations. If the major powers are unable to act together to stop such wars, they might be drawn into them on opposing sides.

During the next twenty years, there will be an expanding number of limited interstate conflicts in the Middle East, Africa, and parts of Central and South Asia over access to raw materials, including hydrocarbon resources at sea, fish stocks, and fresh water; as well as drug trafficking; extremist and criminal groups; and environmental damage.

Owing to the limited military capabilities of the countries in Central and Southeast Asia as well as Africa, such conflicts would be small in scale and duration. Such conflicts could be settled through intervention

and/or assistance from the UN and regional collective security organizations.

Scenarios forecasting conflicts between the major powers and their allies over access to energy and other natural resources (including fresh water), hydrocarbons, Arctic transport routes, and territories and key geographic nodes abroad are far-fetched. The damage and consequences of any large-scale conflict for the interdependent big players would be far greater than the hypothetical advantages to be gained solving disputes through military means.

Small countries might engage in conflict for the reasons listed above, but such conflicts would be limited in scale (though they could have serious humanitarian consequences) and could lead to intervention by bigger countries and international organizations.

### **Major Power Conflict**

The likelihood of a big war between the major powers will increase compared to today, but such a war will be less likely than it was during the first part of the Cold War (1947-62).

Hybrid wars, selective military operations by major powers, and precise long-range strikes (noncontact wars), use of small mobile units in special operations (rapid power), disruption of communications, and blockades will play bigger roles in the use of military power, not as means of achieving victory over the enemy, but to reach specific limited objectives.

Such objectives include:

- Subjugating a country by posing a direct external threat to its territorial integrity;
- Violating territorial integrity with the help of local armed opposition groups; and
- Depriving a country of its economic, military-industrial, and geopolitical assets.

### **Wider Access to Lethal Technology**

States no longer have a monopoly on causing deaths or disruptions on a large scale. The next fifteen to twenty years will see a wider spectrum of more accessible instruments of war, especially precision-strike capabilities, cyber instruments, and bioterror weaponry. The commercial availability of key components, such as imagery, and almost universal access to precision navigation GPS data is accelerating the diffusion of precision-strike capabilities to nonstate actors. The proliferation of precision-guided weapons will allow

critical infrastructures to be put at risk by many more potential adversaries.

THE NEXT FIFTEEN TO TWENTY YEARS WILL SEE A WIDER SPECTRUM OF MORE ACCESSIBLE INSTRUMENTS OF WAR, ESPECIALLY PRECISION-STRIKE CAPABILITIES, CYBER INSTRUMENTS, AND BIOTERROR WEAPONRY.

The proliferation of lethal technologies is a potential nightmare for the Middle East, particularly in those countries where there are multiple terrorist and insurgency groups. Imagine Hamas or Hezbollah with highly accurate missiles at their disposal. Even the United States could be threatened. The proliferation of long-range precision weapons and anti-ship missile systems could pose problems to forward-deployed forces. Third parties might be discouraged from cooperating against such terrorist groups because they would fear becoming a victim of precision weapons with greater lethal consequences. More accurate weapons could lead attackers to become overconfident in their military capabilities and therefore more apt to employ such systems. In addition, precision weapons might give attackers a false sense of their abilities to tailor attacks to create specific, narrow effects.

Although many commentators have said that cyber warfare will completely change the nature of warfare, the main threat posed by cyber weapons is their ability to be used in an attack without warning and achieve various levels of disruption. Potential cyber warfare scenarios include coordinated cyber weapon attacks that sabotage multiple infrastructure assets simultaneously. One scenario would involve a case in which power, the Internet, cash machines, broadcast media, traffic lights, financial systems, and air traffic software simultaneously fail for a period of weeks. Although some computer systems are more secure than others; few, if any systems are completely secure against a cyberattack.

For some attackers, cyber warfare offers other advantages, which have seldom been the case for most types of warfare: anonymity and low buy-in costs. These attributes favor employment by disaffected groups

and individuals who want to sow mayhem. Thus far, the cyber weapons wielded by criminals and malicious individuals are unsophisticated compared to what state actors can deploy, but this is likely to change. As criminal organizations become more adept, they might sell their services to those state and nonstate actors who have even more dangerous intentions.

Terrorists are now focused on causing mass casualties, but this could change as they understand the scope of the disruptions that can be caused by cyber warfare. Other emerging technologies, such as synthetic biology, in the hands of terrorists could cause significant loss of life in addition to ecological and agricultural damage. Bioterrorism is no longer a rare incident or remote possibility. The tools needed to sequence, synthesize, manipulate, assemble, and transmit DNA are increasingly accessible to non-experts. Amateurs in one place designing a genetic sequence on a computer can send a code to a 3D printer in another location. In 2011, scientists in the United States and the Netherlands sought to create a deadly influenza that would be transmissible among mammals. These were controlled experiments, but they illustrated the ease with which “synthetic biology techniques” can be used to create and replicate dangerous viruses in labs with less-robust safety systems, health monitoring and experience. The United States, EU, Russia, and China need a proactive security strategy to counter such threats.

### Big Benefits from International Cooperation

Growing cooperation among the major powers might occur in military operations under UN aegis to impose or maintain peace; prevent genocide, ethnic cleansing, and humanitarian disasters; and perhaps to prevent technological disasters and protect the environment. With international terrorism and transnational crime set to grow, we can also expect to see an increase in operations to combat them with more and better cooperation among UN member-states.

Use of force to prevent proliferation of nuclear weapons and cut off terrorists’ access to them could also occur in an atmosphere of greater cooperation. Depending on the willingness of the major powers and the main regional players to take collective action, more frequent operations of this kind are likely to occur on a multilateral basis or under the mandate of the UN and/or regional security operations.

### Role of Nuclear Weapons

The nuclear deterrent might play a less important role in guaranteeing security in China, France, India, and

Russia, following the lead of US and British military policy. If geopolitical competition increases, however, much weaker incentives will exist to move toward nuclear disarmament. The emphasis will shift to cutting-edge, high-precision, long-range offensive and defensive weapons and nonnuclear deterrent concepts. At the same time, nuclear weapons might start playing a greater role in military-political relations among the major players and smaller nuclear powers, and also between the new nuclear and threshold countries.

The United States will remain the leader over the long term in developing missile defense systems, both in technological capability and scale of deployment. Russia will develop its own defense system within the Air-Space Defenses (which combine air defenses, missile defenses, and space defenses). China, India, Japan, South Korea, Taiwan, Israel, and the European countries in NATO would individually follow suit or make technological and financial contributions to developing alliance-based missile defenses.

The most intensive efforts will be in the development, by the United States and Russia, of long-range high-precision, conventionally armed weapons systems (cruise missiles launched from aircraft, submarines and surface ships). Development of boost-glide hypersonic systems and long-range ballistic missiles is also very likely (similar to those already being developed under the US Prompt Global Strike program). China, India, Israel, and other countries are likely to follow the United States and Russia down this road.

If East-West tensions increase, the development of defensive and offensive weapons could drastically undermine strategic stability and destroy the nuclear arms control regime, including arms limitations and nonproliferation. In this more competitive context, an arms race in space might develop, since the space powers will continue to expand space-based missile attack early warning systems, intelligence, navigation, communications and broadcasting, and military command-and-control system.

The likelihood of space incidents (such as the collision of Russian and US satellites in 2009) might increase. Such incidents also include the possibility that authoritarian and irresponsible regimes will attempt to disrupt the operation of space systems, with unpredictable socioeconomic and military consequences.

If an arms race in space does get under way among the United States, China, Russia, India, Brazil, Japan, and other countries, these countries are likely to employ symmetric and asymmetric measures to counter the threats in space and coming from space.

In an environment of growing cooperation among the major powers, Russia and the United States could reduce their nuclear arsenals to around 1,000 strategic and tactical warheads in ten to fifteen years. At the same time, the scale of deployment and technical characteristics of future offensive and defensive conventional high-precision weapons systems could be limited by agreements between Russia and the United States and also by multilateral agreements. Britain and France will get involved in this process in one way or another by the mid 2020s. By this time, it could be possible to bring the Comprehensive Nuclear Test Ban Treaty into force and conclude the fissile-material cut-off treaty, at least among the five big nuclear powers.

IF GLOBAL TENSIONS INCREASE, THE DEVELOPMENT OF DEFENSIVE AND OFFENSIVE WEAPONS COULD DRASTICALLY UNDERMINE STRATEGIC STABILITY AND DESTROY THE NUCLEAR ARMS CONTROL REGIME, INCLUDING ARMS LIMITATIONS AND NONPROLIFERATION. IN THIS MORE COMPETITIVE CONTEXT, AN ARMS RACE IN SPACE MIGHT DEVELOP.

If—with the help of Russia, the United States, and China—nuclear conflict between India and Pakistan is avoided, these countries could conclude a nuclear arms limitation treaty during the 2020s. As part of efforts to stabilize the situation in the Middle East and strengthen the nuclear nonproliferation regime (especially pertaining to Iran's nuclear program), by 2035, Israel could do away with operationally deployed nuclear weapons (keeping nuclear materials in storage under the IAEA safeguards, in a sense following the South African example). By 2035, North Korea's political and economic system will most likely go through the collapse of the totalitarian regime and dramatic structural changes that will result in Pyongyang fully renouncing nuclear weapons.

**BY 2035, NORTH KOREA'S POLITICAL AND ECONOMIC SYSTEM WILL MOST LIKELY GO THROUGH CHANGES THAT WILL RESULT IN PYONGYANG FULLY RENOUNCING NUCLEAR WEAPONS.**

During the next twenty years China might begin to play a greater role in nuclear and other arms control efforts, mostly likely in bilateral efforts with the United States. Greater Chinese involvement in nuclear and advanced conventional arms control efforts would be motivated by China's desire to take Russia's place as the second superpower, a status traditionally associated with the privileged role of counterpart in strategic arms talks with the United States.

The only way to prevent an arms race in space would be to improve the legal basis for activity in outer space, particularly by expanding restrictions and bans on weapons deployment in orbit and development of land-, air-, and sea-based means of destroying space objects.

Under any scenario that takes place by 2035 (much later than the deadline set by the 1992 Convention), global stocks of chemical weapons will have been destroyed in full. The situation pertaining to biological weapons is different, however, because the ban on these weapons established by the 1972 Convention will not be enforced due to the lack of a verification system. Development of new bans and control measures for new types of bio-weapons (genetic engineering and so on) would be possible on a multilateral basis only in the context of cooperation among the major powers.

## **Proliferation of Critical Materials and Technology**

Preserving and strengthening the international nonproliferation regime (for nuclear weapons and missile technology) requires agreement among the major powers: Russia, the United States, and China. Even if these countries cooperate, however, success is not guaranteed given the growing number of actors involved in technological development and the increasing international trade in nuclear materials. The risks would be even greater in the absence of major state cooperation.

With climate change and an expected turning away from hydrocarbon fuels, nuclear energy use is set to increase considerably to 2035. The expansion will occur first and foremost in the Asia-Pacific region as well as in many unstable parts of the world like the Middle East/ Gulf and African regions. At the same time, the barriers between "military" and "peaceful" nuclear energy use will dissolve, particularly through the use of nuclear fuel cycle technology.

The current drop in global oil prices could slow down somewhat the pace of nuclear energy development but will not change the fundamental trend. Nuclear energy (as in the space sector, which is linked to missile technology), will have not just an economic but also a clear political dimension in terms of countries' status, prestige, and defense capability.

Contrary to the NPT's logic, peaceful nuclear energy has not become an attractive alternative to developing nuclear weapons. Rather, it has become a means and pretext for countries seeking to acquire nuclear weapons or the technical ability to quickly produce them (attain the "nuclear threshold").

North Korea, which set the example of developing nuclear weapons under the cover of pursuing nuclear energy, has been, for many years, followed by Iran. During the next twenty years, other countries in Asia, Africa, and Latin America could also take this road. Many of these countries are characterized by internal instability and/or are involved in regional conflicts.

The provisions and mechanisms of the NPT (the International Atomic Energy Agency (IAEA), Nuclear Suppliers Group, and the 1997 Additional Protocol) have proven inadequate for this challenge because the NPT does not ban development of dual-purpose technology and accumulation of critical materials for peaceful purposes. This situation threatens the nuclear weapons nonproliferation institutions and regime, particularly because many provisions need to be adapted to today's situation but have not been done so.

Strengthening the nuclear nonproliferation regime and the NPT requires consensus among all NPT signatories (currently 190 countries), including some states that might violate the treaty. By 2035, a number of threshold countries are likely to emerge. In the worst-case scenario, a chain reaction of nuclear proliferation and expansion of the "nuclear club" from nine to fifteen or more members would occur.

Nuclear weapons will increasingly transform from being one of the attributes of the leading powers to becoming "weapons of the poor" to be used against adversaries'

superior conventional forces. This increases the risk of their deliberate or accidental use in local wars.

NUCLEAR WEAPONS WILL INCREASINGLY TRANSFORM FROM BEING ONE OF THE ATTRIBUTES OF THE LEADING POWERS TO BECOMING “WEAPONS OF THE POOR” TO BE USED AGAINST ADVERSARIES’ SUPERIOR CONVENTIONAL FORCES.

Spread of critical materials in unstable or radicalized countries would increase the threat of nuclear explosive devices falling into the hands of terrorist organizations.

Despite preventive measures, the risk of theft of nuclear munitions and materials will continue to 2035 and will probably increase as peaceful nuclear energy use expands and more countries possess nuclear materials and technology (the number will increase from thirty to forty-five to fifty by 2035). The end of Russian-US cooperation on security of nuclear facilities and materials—which would occur in an atmosphere of growing major state hostility—would intensify this threat. In this situation, terrorists would most probably obtain a nuclear explosive device by 2035.

Cooperation among the United States, Russia, China, and other countries on security of nuclear munitions and materials in bilateral and multilateral format could be restored and expanded only if the relations of predominant cooperation are revived among the major powers.

## PART III

# Growing Weight of the Developing World

For the past seven decades, the US-led global economy enabled the international system to flourish: from the post-World War II rebuilding of Europe and Japan; to the demise of the Soviet bloc and its absorption into the globalized system; to the Chinese opening and integration into the global economy and international institutions. The rules, norms, and shared stake in the success of that system produced the current \$102 trillion world GDP. Such success has fostered a new geography with developing countries increasingly becoming drivers of the global economy.

Developing countries and countries in transition will grow at nearly twice the rate of the developed countries, but these countries will experience a slowdown in economic growth over the forecast period (Tables 3 and 4). The fastest growing economies, China and India, will slow down as they grow into being larger economies, and this in turn will lead to a slowdown in growth throughout this group.

Following the deep 2008 economic crisis and the start of structural reforms, the developed countries will see higher growth rates. The US economy is set to grow at an average annual rate of 2.7-2.8 percent over the forecast period, and Europe's economies will grow by 1.7-2.3 percent. However, the developed countries will not ever achieve collectively the same high growth rates they did in the 1990s.

The difference in the two groups' growth rates will lead to changes in the global economy's structure. As the developing countries' GDP continues growing much faster than that of the developed countries, so too will their contribution to global economic growth increase. In 1990, developed countries accounted for 60.4 percent of global GDP, but by 2013, their share had decreased to 45.4 percent. By 2035, the developed countries' share will drop to 35 percent of global GDP in purchasing power parity terms.

Labor productivity in developing countries will grow faster than in the developed countries and the gap

between the two groups will narrow, though it will still remain substantial by the end of the forecast period.

In 2013, China's GDP was 56.5 percent of the size of the US GDP, but its labor force was five times larger (757 million people compared to 147 million in the USA). This means that overall labor productivity in China, calculated by the quantity of goods and services produced per person in the labor force, came to around 10 percent of the US level. China's labor productivity will not exceed one third of the US level by the end of the forecast period. It would take China a much longer period to reach the developed countries' labor productivity level.

## Growing Inequality, But Bigger Middle Class

The income gap in the world continues to grow. In examining the entire world population, the income gap between the wealthiest 10 percent and the poorest 10 percent will increase. But the situation differs considerably from one country to another. The income gap is growing slowly in developed countries. The smallest decile gap between the wealthiest 10 percent and poorest 10 percent is in Japan—4/1, and the biggest is in the USA—nearly 16/1. The middle class in the developed world faces increasing erosion, with some of its members joining the ranks of the wealthy while many more join the ranks of the poor. By 2035, this process will slow down. The unemployment level will fall and investment in education and technology development will increase. As with previous technological revolutions, the new breakthroughs will eventually lead to the creation of new jobs, although in the immediate future more jobs may be destroyed than created. The link between education level and income that typifies the USA will gradually spread to other countries too. In any event, the number of poor people in developed countries, as defined by their own standards, will not exceed 10 percent over the forecast period.

The dynamic differs from one country to another in the fast-growing developing countries too. The income gap decreased rapidly in Brazil, for example, from a decile

TABLE 3. AVERAGE GDP GROWTH IN 2013 PPP TERMS, PERCENTAGE

	1991-2000	2001-10	2011-13	2014-20	2021-30	2031-35
World	3.0	3.8	3.5	3.8	3.7	3.7
Developed countries	2.7	1.7	1.4	2.3	2.6	2.6
USA	3.4	1.6	2.0	2.7	2.8	2.8
EU	2.1	1.5	0.5	1.7	2.3	2.3
Developing countries and countries in transition	3.4	6.2	5.4	4.9	4.5	4.3
China	10.4	10.5	8.3	6.5	5.0	4.0
India	5.6	7.5	6.2	5.9	5.5	5.3
Brazil	2.6	3.6	2.8	2.5	3.2	3.5
Russia	-3.9	4.8	3.0	2.5	3.5	4.0

Source: IMEMO calculations.

TABLE 4. STRUCTURE OF GLOBAL GDP IN 2013 PPP TERMS, PERCENTAGE

	1990	2000	2010	2013	2020	2030	2035
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Developed countries	60.4	58.9	48.3	45.4	41.1	36.8	35.1
USA	20.0	20.9	17.0	16.3	15.1	13.8	13.2
EU	25.9	23.8	19.1	17.5	15.1	13.1	12.3
Developing countries and countries in transition	39.6	41.1	51.7	54.6	58.9	63.2	64.9
China	3.6	7.3	13.7	15.7	18.8	21.3	21.6
India	3.3	4.3	6.1	6.6	7.6	9.0	9.7
Brazil	3.4	3.2	3.2	3.1	2.9	2.7	2.7
Russia	6.2	3.1	3.4	3.4	3.1	3.0	3.1

Source: IMEMO calculations.

### Note on the methodology

For analysis and forecast purposes, all countries' GDPs are converted into US dollars.

International comparisons of GDP and other economic indicators expressed in national currencies use two methods for converting national currencies to a common currency (usually the US dollar)—either the purchasing power parity (PPP) method or the national currency's average yearly exchange rate to the dollar.

Exchange rate data is widely available and frequently used, but can cause big distortions for various reasons (exchange rates that do not reflect the real balance between the currencies, for example, particularly during crisis periods).

The PPP method uses calculations done by large groups of experts as part of the UN's International Comparison Programme. The last round of comparisons was done using data from 2011 and was published in 2014. Between the rounds, PPP comparisons are calculated by measuring each country's GDP deflator against the US GDP deflator.

The 2013 comparisons produced a paradoxical result: the developed countries' GDP, calculated using national currencies' exchange rate to the dollar, came to 62.4 percent of the global total, but in that same year, the developed countries' share in global GDP came to 45.4 percent using the PPP method. In other words, the global economic structure differs considerably depending on which calculation method is used: 45.4-54.6 percent using the PPP method, and 62.4-37.6 percent using the exchange rate method.

Obviously, over a 20-year forecast period, the choice of a baseline year figure obtained through another one of the methods produces big differences in the quantitative and group results (individual countries' growth rates remain the same no matter which method is used). Individual countries' GDP, converted into dollars using these methods, differ more according to how great the difference is between prices for basic goods in these countries and in the United States. Thus, when looking at a group of countries or at the global economy in general, growth rates are higher when using the PPP method, which better reflects developing countries' undervalued and more dynamic economies. We calculate that the global economy will grow by an average of 3.7-3.8 percent using the PPP method, and by 3.3-3.4 percent if we use the exchange rate method.

difference of 80/1 in the late 1990s to 40/1 by the end of the 2000s. In India, the gap grew slowly. The decile difference stood at 6.9/1 in 1990, and reached 7.8/1 by 2010. In China, the income gap grew much faster: from 10.9/1 in 2000, to 17.8/1 in 2010. In other words, the picture varies considerably, making it impossible to apply a common measure to this problem.

The important point to note is that the middle class will continue to grow over the forecast period in the global economy overall. The middle class accounts for up to 80 percent of the population in developed countries, and today accounts for up to 20 percent of the population in developing countries (as defined according to these countries' standards). Overall, 30 percent of the world's population comes under this category. In estimation, the middle class will account for more than half of the world's population by the end of the forecast period.

With developing countries' economies continuing to grow at a faster rate, income differences between countries will fall, but the gap as expressed in absolute values of per-capita GDP will increase (Table 3). For example, the GDP gap between China and the United States in 2013, measured in per capita PPP came to 4.5 times, and the GDP gap as measured using the exchange rate method, came to 7.6 times. We calculate that the gap will narrow to 2.4 times by 2035 in PPP terms, and to four times using the exchange rate method. In other words, the gap will close by nearly half.

No radical change will take place in the global economy's sectoral structure. The share of material production will continue to decrease and the share of services will continue to grow. Material production will probably drop to lower than 25 percent by the end of the forecast period, with agriculture accounting for 2 percent, mining for 4 percent, and manufacturing and construction for 18-19 percent. The service sector will account for more than 75 percent of global GDP.

*Unemployment will continue to be the biggest problem over the forecast period.* Reforms in this area are the most painful and difficult to carry out, especially in Europe. That said, reform will continue everywhere because countries that have managed to reform their labor markets show impressive economic results. Unemployment rose substantially in the United States due to the 2008 crisis but then gradually dropped. In Germany, it fell to 4.7 percent, and in Japan to 3.3 percent. In other words, unemployment in the biggest economies returned to the pre-crisis levels that had changed little over many years. A similar picture was seen in Europe's smaller countries, in the newly industrialized countries, and in other developed countries (Australia, Canada, Israel, New Zealand).

TABLE 5. GDP IN PER CAPITA PPP AS COMPARED TO THAT OF THE USA, PERCENTAGE

	1990	2000	2010	2013	2020	2030	2035
World	23.7	22.1	26.4	27.2	28.8	31.1	32.5
Developed countries	76.5	75.9	79.4	78.7	78.0	77.8	78.8
USA	100.0	100.0	100.0	100.0	100.0	100.0	100.0
EU	67.7	65.9	69.0	67.0	64.1	62.9	62.4
Developing countries and countries in transition	11.5	11.0	16.3	17.7	20.0	23.0	24.7
China	4.0	7.8	18.7	22.5	29.7	38.2	41.5
India	4.8	5.5	9.2	10.2	12.4	15.7	17.4
Brazil	28.0	24.9	29.7	30.2	29.7	31.1	32.2
Russia	52.3	28.6	44.0	45.9	46.7	52.4	56.6

Source: IMEMO calculations.

## Imbalances in the Financial Sector

The growing imbalances during the 2000s were one of the key causes of the severity and geographical spread of the crisis in the global economy that began in 2007-08. The ongoing buildup of foreign liabilities in countries with long-term high (and often growing) balance of payments deficits financed by flows from capital operations made such countries vulnerable to fluctuations in global financial markets and left them more at risk of debt crises. At the same time, the economies of countries with persistently high balance-of-payments surpluses (in some cases obtained through measures to maintain an artificially low exchange rate) suffered considerably from the drop in demand for their exports during the crisis. Reducing global imbalances thus came to be seen as an essential condition for normalizing global economic development and reducing the risk of further problems over the medium- and long-term.

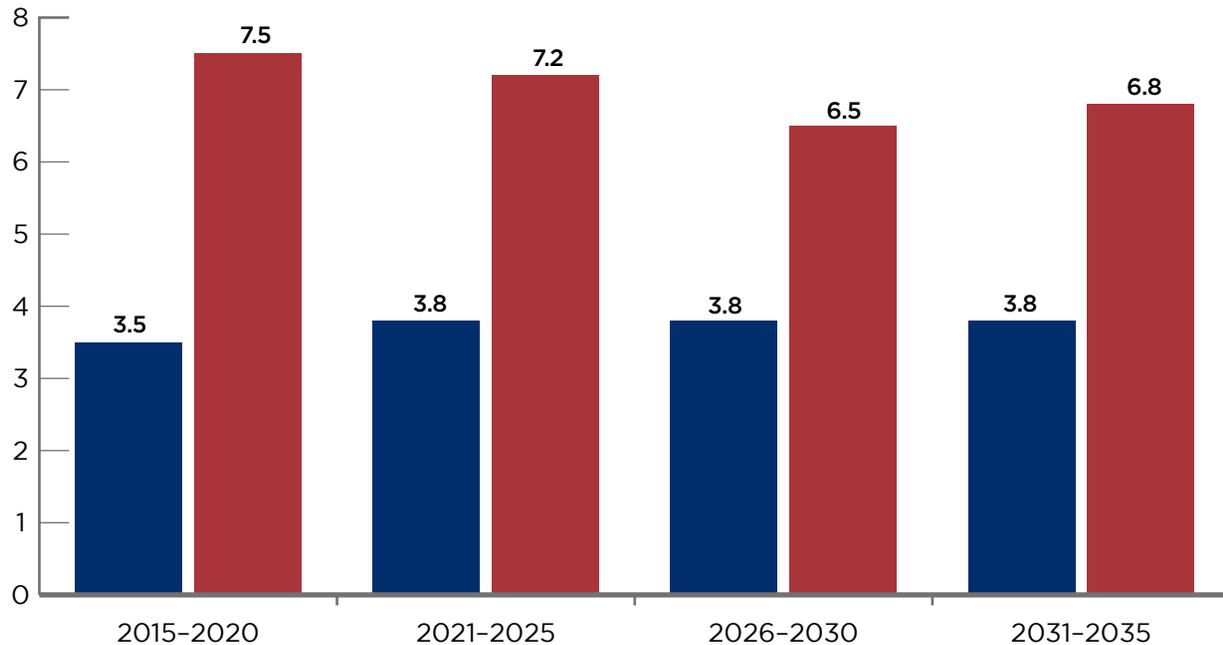
Global imbalances are traditionally divided into current account imbalances (flow imbalances) and net foreign assets imbalances (stock imbalances). Compared to the pre-crisis level, **total flow imbalances fell over 2006-13 from 5.6 percent to 3.6 percent of global GDP**. At the

same time, **stock imbalances continued to increase**: the ten biggest debtor countries saw their net liabilities increase from 11.6 percent to 15.5 percent of global GDP, and the group of the biggest creditor countries saw their net assets increase from 11.9 percent to 16.3 percent of global GDP as a result of continued flow imbalances (even as their absolute value decreased) and revision of liabilities/assets taking into account exchange rate changes.<sup>28</sup>

Some countries have long-term current account (capital account) deficits or surpluses; in some cases, the existence of such deficits/surpluses can create new opportunities for economic growth. First, countries with long-term high balance-of-payments current accounts have traditionally acted as capital exporters, financing economic development in countries with developing markets. Second, import demand from large countries with long-term high balance-of-payments current account deficits creates good conditions for economic growth in exporter countries. Third, the structure of

28 World Economic Outlook. October 2014. Legacies, Clouds, Uncertainties. Washington: IMF, 2014, p.117, 130.

**FIGURE 1. GLOBAL GDP (IN BLUE) AND GLOBAL TRADE GROWTH RATES (IN RED), PERCENT (GDP ACCORDING TO MARKET EXCHANGE RATES)**



Source: IMEMO calculations.

imbalances is very important. A massive influx of short-term investment (“hot money”) can destabilize the receiving economy (especially its currency system), but a buildup of net obligations in the form of direct and long-term foreign portfolio investment expands the resource (and in the case of direct investment also the technological and organizational development base of the capital importing countries).

Consequently, the following questions are critical for forecasting global imbalances and their impact on global development to 2035.

- What is the probability that global imbalances will rise to a level that creates risks of a new systemic crisis in the global economy?
- Will the reduction of particular imbalances go too far and curb global economic growth rates without offsetting the curb with an adequate reduction of the risk of instability in the global economy?

The mechanisms determining further change in flow imbalances to 2035 will differ fundamentally in countries in which change in the current account is shaped above all by foreign demand for exported goods and services (export model countries), and countries where foreign capital inflows play the primary role (capital import

model countries). Countries with a balance-of-payments current account surplus dominate the first group, and countries where imports, financed by capital from abroad, exceed exports, are typical of the second group.

Growth in world trade will be crucial for the shape of flow imbalances in the export model countries. From 1994-2004, global trade grew at an average rate that was more than twice as high as global GDP growth in current prices (the highest difference—2.4 times higher—was in 2000).<sup>29</sup> The difference dropped to 1.9-2 times higher in 2005-06, and in 2007-13 was in a range of 1.6-1.8 times higher (the lowest difference was during the crisis year of 2009). Over 2015-20, taking into account faster growth in global trade (the compensatory effect of the crisis slowdown), the difference will increase to 2.1-2.2 times higher. In 2021-35, once the compensatory effect wears off, domestic markets grow in the main developing countries (rebalancing of demand from foreign to domestic markets), and global demand for primary energy resources slows down, the difference

<sup>29</sup> Calculations based on ten-year moving averages (*World Trade Report 2014. Trade and Development: Recent Trends and the Role of the WTO*. Geneva: WTO, 2014, p.20).

between global trade growth and global GDP growth will fall to 1.7-2 times higher.

In this situation, flow imbalances are likely to change in the biggest export model countries, where the current account is determined by foreign demand for exports, and to look as follows:

- Exporters of non-commodities (especially Germany, Switzerland, South Korea, Japan, and Singapore) will run a current account surplus of not less than 4-5 percent of GDP, with continued high foreign demand.
- The current account surpluses of leading non-commodity-exporting developing economies in Asia (particularly China and the developing economies in ASEAN) will decrease. These economies will refocus on internal demand as per capita GDP continues to grow and expand their imports. Some of this expansion will result from real revaluation of these countries' currencies.
- Unlike in 2006-15, the current surplus of hydrocarbon-exporting countries will decrease in response to growing internal demand for imports and falling global demand for primary energy sources. Falling energy demand will have a maximum effect in 2026-35.

**The second group of countries**, in which capital account flows determine the long-term structural parameters of the balance-of-payments current account, will experience the following trends:

- The big capital-importing countries with developing markets (India, Brazil, Turkey, and Mexico) will continue to run long-term current account deficits, which by 2035 will be in the range of 2-4 percent of GDP.
- The main developed countries will be able to reduce their current account deficits only if they reduce their state budget deficits (the United States) and change their social welfare financing model (EU countries). In an inertia scenario, the US deficit would remain at 2-4 percent of GDP, and deficit levels in the eurozone countries (with the exception of Germany and The Netherlands) would increase to 4-5 percent of GDP.

Summarized data on expected change in flow imbalances based on the main analytical and geographical country groups and the analysis presented above is shown in Table 6. The actual values of current account deficits and surpluses to 2035 can fluctuate at the intervals indicated, either to the lower limit (optimistic scenario of imbalance reduction) or to the upper limit. Although imbalances are expected to continue (and in some cases even to expand) in the

post-crisis period in response to increased demand for exporter countries' goods and resumption of financial flows into the capital-importing countries, two factors will limit their destabilizing effect on the global economy.

First, faster economic growth and simultaneous financial stability guarantees will help to change capital flow structures in favor of direct foreign investment, which by 2020 will reach 4 percent of global GDP. Second, the 2008 global crisis has seen a sharp reduction in portfolio and other investment from 4-5 percent of global GDP in 2007 to 1-2 percent in 2012-13.<sup>30</sup> This level is too low for developing the investment base in the capital-importing countries. Establishing effective rules for regulating international financial markets and increasing portfolio and other investments to 3-3.5 percent of global GDP will speed up global growth without increasing the risks to the international financial system's stability. Taking these circumstances into account, increased capital account imbalances could act as a driver of long-term growth in the global economy rather than being a threat.

INCREASED CAPITAL ACCOUNT  
IMBALANCES COULD ACT AS  
A DRIVER OF LONG-TERM  
GROWTH IN THE GLOBAL  
ECONOMY RATHER THAN BEING  
A THREAT.

If the structure of current account surpluses and deficits remains unchanged in each of the main country groups, imbalances in the level of net foreign assets will increase from the current 15-17 percent to 25-35 percent in 2035. At the same time, the share of the biggest creditor countries (Japan, China, and Germany, which currently account for more than half of total net assets,<sup>31</sup> will fall to 40-42 percent. When considering the impact that these processes could have on the outlook for global economic growth and stability, three circumstances should be taken into account:

- First, expansion of the capital-exporting countries' net investment positions is a positive factor and

30 Butzen P., M. Deroose, Ide S. Global Imbalances and Gross Capital Flows // National Bank of Belgium Economic Review, September 2014, p.45.

31 2014 *Pilot External Sector Report*. Washington: IMF, 2014, p.26, 41.

TABLE 6. CURRENT ACCOUNT IMBALANCES AS A PERCENTAGE OF GDP

	2006-08	2009-13	2015-24	2015-2035
<b>DEVELOPED COUNTRIES</b>				
United States	(5)-(6)	(2)-(3)	(2)-(4)	(2)-(4)
Eurozone	(0)-(7)	(1)-5	(2)-2	(2)-3
Japan	3-4	1-4	2-5	2-4
Other developed economies	3-5	4-5	4-5	3-5
<b>DEVELOPING ECONOMIES</b>				
Developing economies in Europe	6-8	3-6	5-7	4-6
Developing economies in Asia (not counting China and India)	6-7	1-3	4-6	3-5
Including China	8-10	2-5	4-6	3-5
Including India	(5)-(10)	(7)-(20)	(5)-(10)	(4)-(7)
Latin America and the Caribbean	(1)-1	1-3	(2)-1	(1)-3
Sub-Saharan Africa	(4)-0	1-3	2-3	0-1
<b>FOR REFERENCE:</b>				
Hydrocarbon-exporting countries	11-15	3-11	5-12	4-8

Note. The figures in brackets show the size of the current account deficit. The figures not in brackets show the size of the surplus.

is in keeping with the long-term (at least since the 1870s) norm in global economic development.

- Second, increasing the gross total foreign direct investment (FDI) in the capital-importing countries has a positive effect as developing countries restore their share of foreign direct investment following the 2008 crisis (up from 49.4 percent to 61 percent in 2009-13<sup>32</sup>) and increase their share of FDI export to 43-45 percent in 2035.
- Third, key systemic challenges will continue to be linked to the situation with sovereign debt in countries with a high level of foreign liabilities. The biggest risks in this group are for eurozone countries (if they do not change their social welfare financing models) and the United States and Japan (Table 7).

Thus, forecast growth in net foreign asset imbalances is at acceptable levels (as long as a critical increase in sovereign debt does not occur in the main developed economies with high levels of foreign liabilities). Coupled with the trends outlined above pertaining to current account imbalances, expected trends in the change to global imbalances through to 2035 are compatible

32 World Investment Report 2012. NY: UNCTAD, 2012, p.38; World Investment Report 2014. NY: UNCTAD, 2014, p.36.

TABLE 7. RATIO OF SOVEREIGN DEBT TO GDP (PERCENT)

	2013	2025	2035
<b>DEVELOPED COUNTRIES</b>			
United States	104	108	115
Eurozone	95	102	115
Japan	243	252	260
<b>DEVELOPING COUNTRIES</b>			
Developing economies in Asia [excluding China and India]	42	45	50
Including China	39	45	52
Including India	62	65	70
Latin America and the Caribbean	50	60	75

with the outlook for higher growth rates in the global economy as a whole and in the key groups of countries.

### A Polycentric Financial System by 2035, Too

A polycentric global financial system will be characterized by three defining developments: a trend toward financial deepening and more complex financial systems, intensification of liberalization and integration in the field of finance, and further concentration of the financial regulatory framework at the supranational level.

### Financial Depth

A deepening of the world economy will prevail during the next twenty years because more countries will become developed, and more countries with lower GDP per capita will participate in the financial system. As in the twentieth century, financial deepening, the rate of growth of the financial assets, will be ahead of the dynamics of the real economy. The monetization ratio of the economy will increase while the number of financial instruments and institutions increases as well. Securitization will continue and the role of “high finance” (complex financial transactions) will grow.

The ratio of global financial assets to the world GDP increased exponentially from 1990 to 2000. Extrapolation

of the historical financial dynamics into the future points to an immense gap between the financial markets and the real economy. The financial crises of 1997-98, 2000-02, and 2007-08 pulled down the exponential growth of the financial assets toward the linear or S-shaped dynamics. This growth pattern is forecast to run for decades. A similar scenario (exponential growth to crisis to slowdown of dynamics) will occur during the coming decades. The forecast of the global financial depth based on this scenario is shown in Table 8.

### Financial Markets Maturing

The number of developed financial markets will increase to forty-five to fifty (the developing economies in Europe, new industrial economies). Moreover, seven to ten new frontier markets will evolve (African countries and Islamic markets). Ten to fifteen contemporary frontier markets will become developed (post-Soviet region, Eastern and Western Asia, and Islamic markets). Export-oriented countries, betting on modernization, will be staying in the cluster of the emerging markets, though closely approaching the group of “developed” (based on the financial depth and the level of risk) countries. The liberalization of the economies will result in “defrosting” or building from zero to five to seven new financial markets (from former rogue/authoritarian/underdeveloped states).

TABLE 8. THE DYNAMICS OF GLOBAL FINANCIAL DEEPENING\*

GLOBAL RATIO, PERCENT	1980	1990	2000	2002	2007	2008	2020	2025	2035
Bank deposits/GDP	46	83	106	114	101	100	110-120	120-130	150-170
Securities/GDP	57	127	243	175	250	192	260-290	300-360	430-520
Total global financial assets/GDP	103	210	349	289	351	292	380-400	430-480	600-670
Exchange-traded derivatives/GDP	n/a	n/a	44	72	146	95	150-170	170-210	310-370
Over-the-counter-traded derivatives/GDP	n/a	n/a	297	427	1078	899	1100-1300	1300-1700	2000-2600

\* Global financial assets, global bank deposits, the total market capitalization of stock markets and government, and municipal and corporate securities are estimated based on Mapping Global Capital Markets, McKinsey Global Institute Annual Reports, 2006-09. The notional value of exchange-traded and over-the-counter (OTC) derivatives (open positions) are estimated based on data from BIS (Bank of International Settlements) Quarterly Reviews 1995-2009, global GDP at current prices by IMF Economic Outlook Database, October 2009

## Global Financial Reserve System

The global reserve system will evolve toward polycentrism. The global collective reserve currency (SDR or another basis) will not be introduced.

Although the US Dollar will account for a smaller share (up to 45 percent, down from over 60 percent today) of global financial transactions, it will preserve its status as the global reserve currency. At the same time, the Euro, which has de facto become a reserve currency, will remain the second reserve currency. Its share of global financial transactions can reach 25-30 percent (currently 20-25 percent).

In the next ten to twenty years, a third reserve currency will appear. This new common currency might be the Chinese Yuan, also known as the renminbi—which joined in late 2015 the IMF benchmark currency basket—will account for 10 to 15 percent of global finance. A new common currency for Asia is an option too, with more time and effort required and fewer chances to be realized any time soon.

The number of currencies in the world will decrease. The old currencies of the developed countries will maintain their importance as a “safe harbor” for risk

diversification. The regional reserve currencies will appear (up to 5 percent in the global turnover). The Ruble has the potential to be widely used in the post-Soviet space. Several new common currencies (Arab world, Latin America, Africa) can emerge and play a more prominent role than today.

The number of countries with fully open capital accounts and currency regimes will increase. Such accounts are based on unrestricted currency convertibility and unrestricted floating exchange rates.

Looking out to 2035, money will continue to be “dematerialized”: less physical currency will be in circulation while the role of electronic money will continue to increase. The indicator “currency outside the banking system to base money” decreased from 40 percent in 1980 to 30 percent in 2007.<sup>33</sup>

Governments will partially lose their current monopoly on the issuance of money. Private money will gain more significance. The small, but nevertheless expanding,

<sup>33</sup> Beck, Demirgüç-Kunt, 2009, p. 6.

niche will be occupied by corporate currencies, regional (municipal etc.) currencies, and cryptocurrencies (such as bitcoin), increasingly enabled by the networked information space and local exchange of goods and services.

The value of currency will no longer be pegged to gold, which will be turned into a non-precious metal. The size and complexity of the global financial system have overgrown the “physical” capacity of gold to back up currency due to its limited volume. The currencies based on the gold standard will not be introduced. Gold holdings will continue to diminish in the official reserves; globally, gold reserves increased by 21.5 percent (historical maximum) from 1948-65, then declined by 22.5 percent to 2009).<sup>34</sup>

## Financial Architecture

Financial globalization will accelerate. The centripetal tendencies of the global financial system will be combined with the centrifugal ones. The centripetal forces include: market integration, consolidation of financial and infrastructure institutions, globalization of investors and issuers, super-concentration of financial assets and flows into a narrow group of countries, and the central role of the Anglo-Saxon model. The centrifugal elements include: growth of regional financial centers (Asia and Latin America), formation of a polycentric three-tier global financial architecture with four to five regional clusters on the “intermediate” tier (the group of countries that are economically and financially self-sufficient), strengthening of the alternative market economy models based on the concentration of ownership, and a prominent role of the government (stakeholder capitalism, continental bank-based model, Asian model, Islamic finance, etc.). A combined-model financial system—incorporating elements of market-based, bank-based, and debt-based models—will gain importance.

A trend toward financial globalization is well demonstrated by the dynamics of the indicator, “cross-border capital flows/global GDP.” This indicator was 4.7 percent in 1980, 20.7 percent in 2007, and 3.1 percent in 2008. Experts forecast that it might reach up to 22-26 percent in 2025 and 30-35 percent in 2035.<sup>35</sup>

The other indicator of globalization—“cumulative foreign direct investment/global GDP”—could increase from

6 percent in 1980, 28.3 percent in 2007, and 24.5 percent in 2008 to 30-35 percent in 2025 and 40-45 percent in 2035.

In the three-tier global financial architecture, nations will constitute the first tier, regional groupings (EU, ASEAN, Mercosur, etc.) or groupings based on commonalities (the BRICS, for example) will comprise the second tier, and the third tier will be globalized financial flows and institutions.

- The Anglo-Saxon financial model will be the cornerstone of global finance, with the world’s major financial centers in the United States and Great Britain. In addition, a significant amount of financial flows will occur in offshore havens. The Anglo-Saxon model’s share in financial intermediation will decrease (up to 25-30 percent of global financial assets).
- International finance will grow at a higher rate than purely nationally-based financial systems. Cross-border capital flows will become more significant. The number of countries following policies of financial isolationism will decline. The share of nonresidents in asset ownership will increase in a majority of countries. Ultimately, in the next twenty years, the world’s financial markets will on average be more open than in the period from the 1980s to early 2000s.
- A second pole of global finance will form in the Eurozone (Germany, France, and the direct investment hub in Benelux), accounting for 20-25 percent of global finance. A third pole will be in East Asia (China, Japan, and Korea) and Southeast Asia (15-20 percent of global finance). Regional financial clusters will be formed in Latin America, the Middle East, and North Africa. The offshore zones (providing facilities of the tax and regulatory arbitrage) will be increasingly established on the financial periphery.
- The post-Soviet region will preserve its significance as a major hub on the world’s financial map and will continue to allow “fuzzy” integration processes.

Global finance will be based on the oligopoly of the twenty to twenty-five big financial groups (the global financial investors and intermediaries). The number of national markets in which these financial groups will occupy the dominant share will grow. The second tier of financial institutions, perhaps numbering seventy-five to one hundred, will form the oligopoly in the financial markets of regional clusters. The cross-border consolidation of exchanges, over-the-counter markets, clearinghouses, depositories/repositories, and custodians (three to four international networks),

34 World Gold Council, *Gold Reserves Historical Statistics, 1948-2008*.

35 GDP at current prices. Estimation based on FDI Stat Database, UNCTAD, IMF World Economic Outlook Database, *McKinsey Global Institute Reports 2006-2014*.

will result in the consolidation of the infrastructure framework for global finance.

Ten-to-fifteen new supranational financial regulators and self-regulatory organizations will probably be established. They will operate on a global and regional level to unify markets and supervise and reduce systematic risks.

Along with the consolidation, the fragmentation of markets will strengthen. A top one hundred global financial institution list will be reinvigorated with new entrants from developing countries. Financial intermediaries and infrastructure institutions will move toward dematerialization. Fewer branch networks (in their “physical form”) will exist, except for the frontier markets. The market niche of high-tech, finance, and infrastructure companies of small- and medium-size will increase. The alternative investments sector will expand. Unregulated financial instruments and intermediaries will play a more important role in the international financial system. The number of “finance-focused” international organizations will multiply as their regionalization continues.

The world’s “financial model” will change. At the end of the twentieth and beginning of the twenty-first centuries, financial resources were accumulated and redistributed mostly through the “United States plus United Kingdom plus offshore” financial hubs. By 2035, an increasing portion of the world’s financial resources will pass through and be concentrated in regional clusters (the “intermediate” tier of the three-tier global financial architecture). Moreover, a partial self-encapsulation of regional financial systems will occur, caused by the integration of regional economies and growth in their domestic demand.

The Anglo-Saxon model (“US plus UK plus offshore”) will serve the largest financial players in processing major capital flows. It will play a crucial role in the redistribution of financial resources among regional clusters, as well as in financing US and UK economies.

The “shareholder capitalism” of the Anglo-Saxon model will continue to fulfill its key global functions: development of financial innovations and risk management, venture financing, world pricing of commodity and financial assets, and “natural selection” of weak economies (flooding with “hot money” by bubbles and speculative attacks, financial infections, or capital flights).

The significance of free trade zones, common markets, and monetary unions will increase. These institutions will serve as mechanisms for financial integration within

regional clusters as well as financial bridges between them. Free trade zones bridging Trans-Atlantic and Trans-Pacific areas will be of particular importance.

At the beginning of the twenty-first century, developed economies, particularly the United States, have become net importers of capital channeled from export-oriented developing countries (resource-based economies in the Gulf and the “workshops of the world” such as China) that turned out to be global creditors. This situation can change with likely global economic rebalancing. As commodity prices fall and/or re-industrialization of the developed countries occurs, the flows will reverse. A financial recovery of the developed economies (manifesting itself in higher saving rates, public finance restructurings, and/or reductions of government debt burden) could also help the United States and several other developed economies to resume their roles as net exporters of capital.

### Change of Basic Concepts

The era of ultra-low or even negative interest rates following the 2007–08 crisis might lead to a revision of the basic concepts of financial intermediation—raising, managing, and preserving capital for financial gain. Instead, a new concept of financial intermediation could develop in which the service provided by banking institutions is seen to be keeping deposited liquid assets safe (not to be stolen, to ease transfers, etc.). In this case, the interest rate can be negative, and customers must pay financial institutions only for safekeeping of the assets.

Another commonly accepted concept before the 2007–08 crisis was that part of the financial industry should be weakly regulated or not regulated at all because it has to be able to take on the extremely high risks associated with high-technology and innovations in the real sector and to supply capital for start-ups, venture capital firms, small caps, etc.

This concept will be supplanted by the idea of a “shadow banking system” in which a rigid, quasi-banking regulation gradually extends to those segments of the financial sector that have not been transparent and were poorly regulated before the 2007-08 crisis.

### Multilateral Regulation of Global Finance

A transition will occur over the next couple decades to a more complex management of macro-financial structures and financial development to ensure sustainable economic growth and more balanced economies (based on multi-purpose policies instead of the simpler earlier concepts). In this framework, the

financial authorities will traditionally address the ideas of the twentieth century, which are related to the stability of prices, low inflation, health of public finance, and government capacity to effectively manage the exchange rates and interest rates.

Alongside these traditional concerns, the central issue will become the regulation of the following: rate of economic growth, ownership structure, capital-raising models in the economy, financial depth, structure of capital-raising instruments, savings rates, savings and investment, the tax burden, the relationship between public and private (corporate and household) finance, internal and external financial sources of economic growth, macro-prudential supervision, and reduction of systemic risks.

Developments of the financial system that promote sustainable economic growth, mitigation of cyclical behavior, and excessive volatility will be rank-ordered. A repressive system of taxation of financial transactions developed in the early 2010s will be gradually replaced by an incentive-based tax system aimed at concentrating liquidity and long-term financing in the domestic markets.

The next couple of decades will see a transition toward a multi-tier, polycentric system of regulation that can hold and stabilize the “supersized” global financial system, expanding at a higher rate than the real economy. The regulatory framework will be based on a hierarchical structure, supported by a mix of linear, functional, regional, and project structures. The shift in financial regulation from a national to international (primarily regional) base will continue.

International financial markets will be increasingly unified due to the harmonization of law, wider implementation of international standards pertaining to macro- and micro- level economic policies, and replication of best practices. Other drivers of increased unity will be greater use of information-sharing agreements as well as “Single Passport” programs for integrated markets, common rules inside global trading platforms and major infrastructure institutions, agreed formats of information disclosure, and more comprehensive international statistics.

Unregulated space in finance could be reduced. A trend toward centralized regulation will persist, including gradual transition to centralized systems of information disclosure, safekeeping, and clearing and settlement of all OTC financial transactions, especially with nonconventional assets and instruments across weakly regulated financial institutions.

Facilities to supervise and mitigate systemic risks will be expanded in global finance. Along with attention to the financial health of individual countries, the key focus of such supervision will be identification of problems in global financial architecture, and major dysfunctions in providing for the needs of the real economy.

In global finance, a system of quantitative restrictions will be built (on global and regional levels) aimed at “taming” volatility (optimal currency areas, agreed parameters of monetary supply, interest rate and fiscal policies, inflation rates ceilings, limits on the public debt, capital adequacy requirements, and restrictions on banks [leverages, etc.]). There will be attempts to establish limits for the development of derivatives markets and structured financial products.

Regional multilateral financial institutions will play an increasingly prominent role in the global economy. Development of a polycentric financial architecture and subordinated clusters inside it will lead to a relative decline in the role of the IMF, World Bank, Bank for International Settlements, the OECD, and the WTO (financial services). The G-20 could play a greater role in the global financial system, creating its own infrastructure for financial decision-making. The Financial Stability Board representing G-20 major economies (90 percent of global financial assets) will experience the growth of its regulatory role. New international associations of financial regulators will also come into existence. Multilateral currency swap agreements between central banks could be established as substitutes for regional stabilization funds.<sup>36</sup>

In the medium term, the financial protectionism that existed in 2000 through the early 2010s will be weakened. An exit from the protective regimes undertaken during the 2007–08 crisis will occur (bank buyouts, “soft” and “hard” restrictions on capital accounts, and currency convertibility). In the next twenty years, financial markets will be generally more open on average than in the 1980s through early 2000s.

## Cyclicality

Long-term economic and financial cycles will continue. Strong expansion and the fast growth of global investments and market capitalization are forecast,

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36 “The Fed + central banks” (the US dollar, sixteen countries, 2007-13.), “The central banks of ASEAN plus China, Japan, South Korea” (dollar, yuan, yen, and other currencies of fourteen countries, 2010-13.), “The People’s Bank of China + central banks” (Yuan, fourteen countries, 2008-13.); Asian Clearing Union—the central banks of South Asia (nine countries, 2013). Discussed—Asian, African, Latin American monetary funds

according to IMEMO modeling, from the mid 2010s to early 2020s, combined with increasing volatility and strengthening of systemic risks to the middle of the third decade of the twenty-first century.

The role of the state in the economy will strengthen in the next decade; after another eight to ten years this trend will likely be replaced by a new wave of liberalization, privatization, deregulation, and structural reforms to make more space for market forces.

While long-term cyclical expansion is ongoing, local financial crises are inevitable (“ripples on the surface of a long wave”). It is forecast, using IMEMO modeling and historical patterns, that five to six big local financial crises are likely to occur during the next few decades. Such crises are likely to occur either in emerging markets (Asian economies, post-Soviet marketplace, Latin America, and Islamic finance) caused by imbalances, speculation, or “financial infections,” or in innovative segments of developed capital markets (due to the “bubbles” of the new economy and financial innovations).

The long-term cycles of fluctuations in the US dollar exchange rate to the euro and to a basket of world currencies will continue (it began in the 1970s). The related cyclic changes in the world prices of commodities and financial assets that have appeared since the beginning of 2000 will most likely generate waves of financial instability.

## The Impact of Changes in Technology

Between 2015 and 2035, large-scale technological innovations will accelerate. Consequently, an increasing share of global finance will be assumed by venture financing, alternative investments (through channels of private equity and direct investment establishments), facilities to finance small- and mid-size capitalization firms (high-technology, fast-growing, “new economy” segments of capital markets, etc.) and the mergers and acquisitions (M&A) markets (to restructure the declining industries). The riskiest innovative financing will continue to make global finance volatile.

## Derivatives and Securitization

Derivatives and securitization of assets will grow at a faster rate compared to the increase in financial assets and their share in global finance will expand. Almost three-quarters of global financial assets will consist of securities (Table 9). The rights of access to resources will be securitized and converted into financial assets (for instance, the access to raw materials, energy, land, clean water, biomass, and information). Examples include the markets for greenhouse gas emissions and energy exchanges.

Prices of raw materials and other resources will be formed to a greater extent in financial markets (the conversion of commodity markets into financial ones). The influence of fundamental factors (stocks, production, demand, and technology) on prices will be reduced.

**TABLE 9. CHANGES IN THE STRUCTURE OF GLOBAL FINANCIAL ASSETS DUE TO SECURITIZATION\***

FINANCIAL ASSET	SHARE IN GLOBAL FINANCIAL ASSETS, PERCENT							
	1980	1990	2000	2007	2008	2020	2025	2035
Bank deposits	45	39	31	29	34	27-32	25-30	22-28
Securities	55	61	69	71	66	68-73	70-75	72 -78
Total financial assets globally	100	100	100	100	100	100	100	100

\*The structure of assets in 1980-2008 was calculated according to Mapping Global Capital Markets, McKinsey Global Institute Annual Reports 2006–2009.

Correlations of prices of financial and commodity assets in all segments of the financial markets will strengthen (exchange rates, interest rates, inflation rates, prices and yields of securities, prices of underlying assets, and other financial variables).

## Financial Stability

Newly industrialized and emerging economies are growing faster than economies of developed countries. As a result, the financial systems of newly industrialized and emerging economies are subject to major imbalances, including the potential for excessive risk-taking, higher volatility and returns on financial assets, fierce inflation, heavy debt burden, bad assets, and financial dependence on non-residents.

An increase will occur in the share of global finance attributable to servicing small- and medium-size capital enterprises, high-technology firms, and industries that are in decline and undergoing restructuring. Such transactions involve limited liquidity, high risks, and impressive returns on assets.

Excess volatility will be generated by the final transformation of physical commodity markets to financial ones, with derivatives at the base growing before conventional securities. Global finance will continue to include financial innovations (with the Anglo-Saxon model as the biggest machine to generate new financial “creatures”). This trend could generate the riskiest imbalances. Financial assets will tend to grow exponentially, causing market bubbles. The development of the regulatory framework for managing risk will lag behind the growth of innovations in the financial markets.

A significant part of the world’s financial markets will transfer from developed to the more mature developing countries, enhancing the financial depth of the global economy. A polycentric reserve system and financial architecture should contribute to greater stability of global finance. Sophisticated systems of macro-prudential supervision will be developed at the national and international levels.

The resulting vector is one of a moderately increased volatility, lower than in the 1890s through 1940s, but higher than in the 1950s through 1960s, with periodic market booms—crashes, instances of markets getting out of control and falling into imbalances—similar to behavior in the first third of the twentieth century and the period starting in mid 1980s.

A SIGNIFICANT PART OF THE WORLD’S FINANCIAL MARKETS WILL TRANSFER FROM DEVELOPED TO THE MORE MATURE DEVELOPING COUNTRIES, ENHANCING THE FINANCIAL DEPTH OF THE GLOBAL ECONOMY.

The rate of global inflation will most likely remain moderate to 2035, lower than in the 1970s-80s. Global finance will therefore still be very active and unstable, as it was from 1980 to the 2010s. Despite the mitigation of cyclical movements and the expansion of “islands of stability,” it will remain in line with the logic of long cycles—a significant probability of a global crisis in 2030-40.

## Sectoral Outlook

Sectoral dynamics of global finance will be determined by long-term trends in the structure of world GDP including the decline in the share of household expenditures in the GDP (declining base of private finance); relative expansion of government spending (strengthening of the role of public finance); unstable growth of investment rates (the outpacing rates of growth of corporate finance and investments compared to other financial segments); and steady increase in the share of exports and imports of goods and services in the world GDP (accelerated growth of international finance, cross-border capital flows).

Financial services will account for an increasing share of the world’s GDP (from 6.5 percent in the 2000s among OECD countries; 6-7 percent in the 2010s; 7-8 percent in the 2020s; to 8-9 percent in the 2030s). Additionally, the growth of financial assets (primarily derivatives and securitized assets together with conventional securities) will outpace that of real assets. The growth of international financial markets will increase relative to national markets; foreign investment (both direct and indirect) will outperform global GDP; the share of commercial banks in the structure of financial assets will

decline,<sup>37</sup> the share of institutional investors in the global economy (investment funds, private equity funds and other pools of securitized assets, insurance companies, pension funds, endowments, etc.) will increase; the share of global central banks will decline in global financial assets and relative to the assets of commercial banks<sup>38</sup> and more dis-intermediation (an increasing share of financial transactions carried out without going through financial intermediaries) will occur.

Aging populations will increase the role of voluntary and private pension systems. The middle class—which will account for an expanding share of the world’s population—will constitute a greater niche market. Within this market, the niche for older age groups will enlarge. Moreover, the growth of the retail financial markets in emerging economies will exceed those of developed economies. Increasing urbanization can lead to a reduction in the share of informal finance.

If the Anglo-Saxon model is kept as the basic “platform” of global finance, the diversification of financial products will increase dramatically (as “applications” of the platform), reflecting interests of multiple groups (ethical finance, religious finance, gender finance, green finance, etc.).

“Nationalizations” of financial systems, which occurred in 2007-09, will be followed by the governmental strategies of exit from acquired financial assets—a trend that began in the 2010s and will continue into the 2020s. Additionally, deregulation, new liberalization, and a reduction of government ownership in financial assets is likely to occur in the 2020s. Public finances in industrialized countries will become “healthier” than at the beginning of the twenty-first century. The share of central banks in the financial assets will decrease (compared with 2010). The savings and investment rates will become higher in developed countries. Newly industrialized countries experiencing a reduction in economic growth and an increase in domestic consumption (along with a fall in the savings rate) will carry out financial reforms aimed at the reduction of the systemic risks and decrease in the volume of problem assets arising during the period of rapid growth (for example, Japan during last quarter of the twentieth century). Major countries will seek (through international law, common standards, and multilateral organizations)

to mutually coordinate monetary, interest, exchange rate, and fiscal policies, in the interest of excessive systemic risk reduction.

The share of non-transparent over-the-counter markets and the number of offshore zones will decrease. Increased availability of financial transactions and phasing in of new markets and assets from the “frontier” economies will lead to the accelerated development of microfinance, and the displacement of informal finance in the developing world. The “shadow banking system”, venture capital, mid- and small- caps segments, and M&A market will grow at an outstripping rate.

## Risks

Financial development will be combined with an increase in all types of financial risks. None of them (market, credit, liquidity, interest rate, operational, and others) will have a declining trajectory. Causes of this are: cyclicity (medium and long term), explosive accumulation of innovations and information revolution in line with the trends beginning in the 1970s-2010s, market bubbles associated with those trends, “financialization” and growth of systemic complexity inherent in times of technological revolutions; increasing complexity of the global economy and global finance as a system that gradually becomes difficult to keep in balance; and unevenness and high volatility in the development of countries and regions, generating high risks.

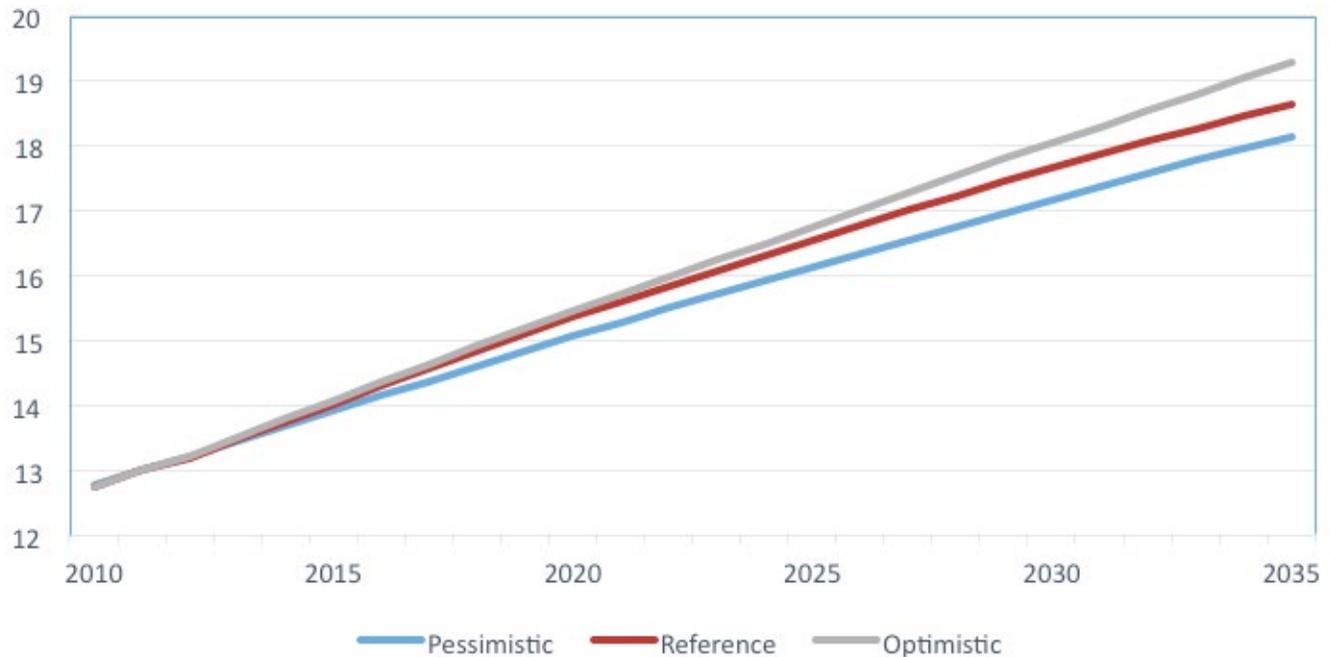
The aging population factor will contribute to the accumulation of risks and will emphasize the instability of the financial systems. Accumulation of risks in public finances (budget deficit, government debt) associated with the expansion of social obligations of governments will gradually continue, as it did towards the end of the twentieth and, increasingly so, at the beginning of the twenty-first century. These risks will be multiplied by expansion of shadow banking. The over-concentration of risks would result from growing securitization combined with increasing dominance of extremely volatile financial markets. Finally, the contribution to risk accumulation will be caused by future financial deregulation, in reaction to overregulation during 2010s and early 2020s.

As a result, systemic risks are likely to again accumulate in the period out to 2035. An almost instant chain reaction could occur repeatedly, leading to financial contagion, cross-border shocks, and crises of the real economy. As a consequence, two scenarios can be postulated. The first (a more likely) scenario is accelerated globalization characterized by increased quality and space of financial risk management at the macro- and micro-levels. In this case, risks in global finance will be mitigated, based on sound economic

37 In the United States, the share of commercial banks in financial assets decreased from 80-90 percent at the end of the XIX century to 22.5 percent in 2007 (US Census Bureau). This is a global trend following the financial development.

38 Beck, Demirgüç-Kunt, 2009, P. 8-9, 29

**FIGURE 2. DEVELOPMENT SCENARIOS FOR DEMAND FOR PRIMARY ENERGY SOURCES, BILLIONS OF TONS OF OIL EQUIVALENT**



Source: IMEMO Centre for Energy Studies

and financial policies at the macro-level, along with comprehensive and prudential supervision at the macro level. This scenario does not exclude multiple crises, however.

The second less likely but more dangerous contagion scenario if the local and cross-border institutions which are supposed to resolve the risks would decline. The regulatory framework would evolve in a direction that increases risks. Other major risks would transform the flow of financial (banking, debt, currency, etc.) crises and their effects, which would be transmitted to the real sector, causing a “waterfall” of social and economic crises. In this scenario, global finance and its risks would lead to the degradation of the global economy over the long term.

## Energy

The “shale gas revolution” in the United States and refusal of Saudi Arabia and other Arab monarchies to support high oil prices in 2014 led to a significant drop in oil prices and set off a restructuring process in the global oil market, as well as other energy markets. During the next few years, the global energy sector will experience price and investment uncertainty. Meanwhile,

the slowdown in the Chinese economy and its shift from extensive to intensive growth, technological developments that open the way to greater use of nonconventional hydrocarbons, and a strengthening global trend to save energy provide reference points for the global energy sector’s development during the coming decades.

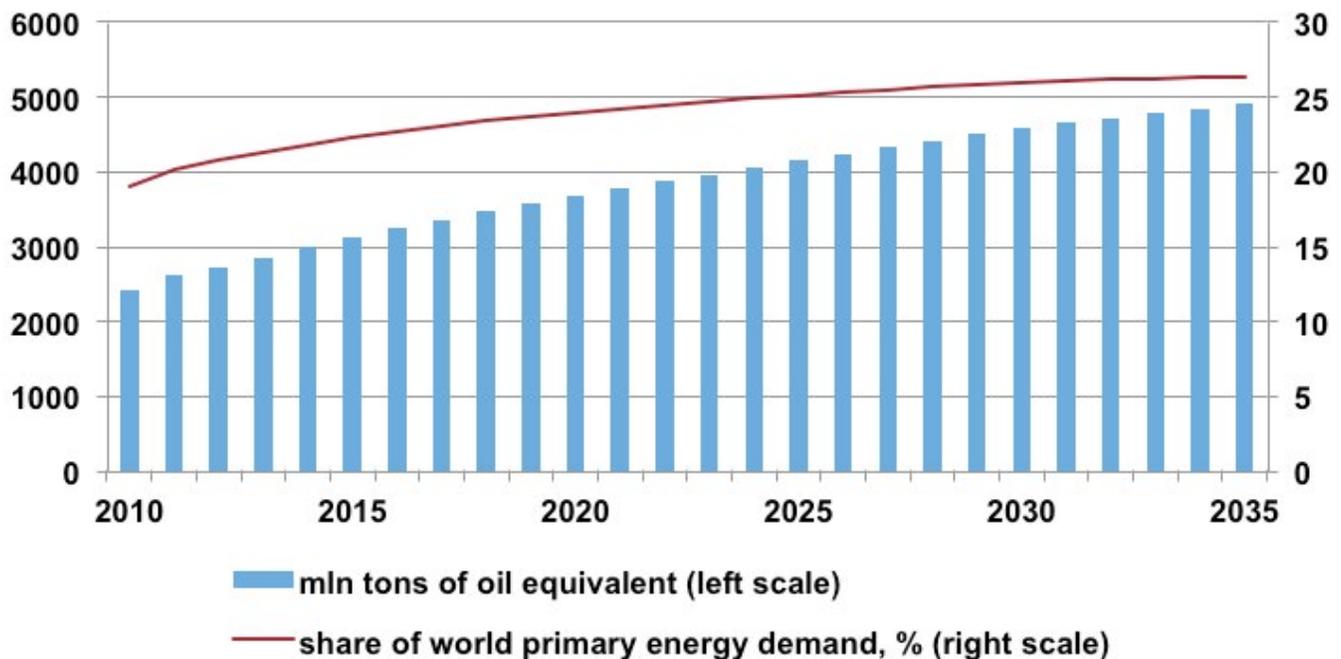
Time has conclusively disproved the theory that oil production would reach a peak, followed by a shortage of energy resources to sustain global growth. The theory, which was popular in the 1990s and first half of the 2000s, was mistaken from its inception. Energy resources will not limit the world’s economic growth. Over the long term, two main factors will shape the energy sector’s development: changing demand and technological progress.

- By 2020, global demand for primary energy sources will reach 15.1-15.4 billion tons of oil equivalent, and will reach 18.1-19.3 billion tons of oil equivalent by 2035 (Figure 2). Energy demand will continue to grow at a relatively high rate, though decreasing over time, in the range of 1.4-1.7 percent a year from 2011-35. This demand will be sustained by global population growth

**TABLE 10. AVERAGE GROWTH RATES OF GLOBAL DEMAND FOR PRIMARY ENERGY SOURCES, PERCENT**

	ACTUAL	FORECAST					
	1991-2010	2011-2020		2021-2035		2011-2035	
Pessimistic		1.7	1.2	1.4	1.7	1.2	1.4
Baseline	1.9	1.9	1.3	1.5	1.9	1.3	1.5
Optimistic		1.95	1.5	1.7	1.95	1.5	1.7

Source: IMEMO Centre for Energy Studies

**FIGURE 3. PROJECTED CHANGE IN CHINA'S DEMAND FOR PRIMARY ENERGY SOURCES TO 2035**

Source: IMEMO Centre for Energy Studies

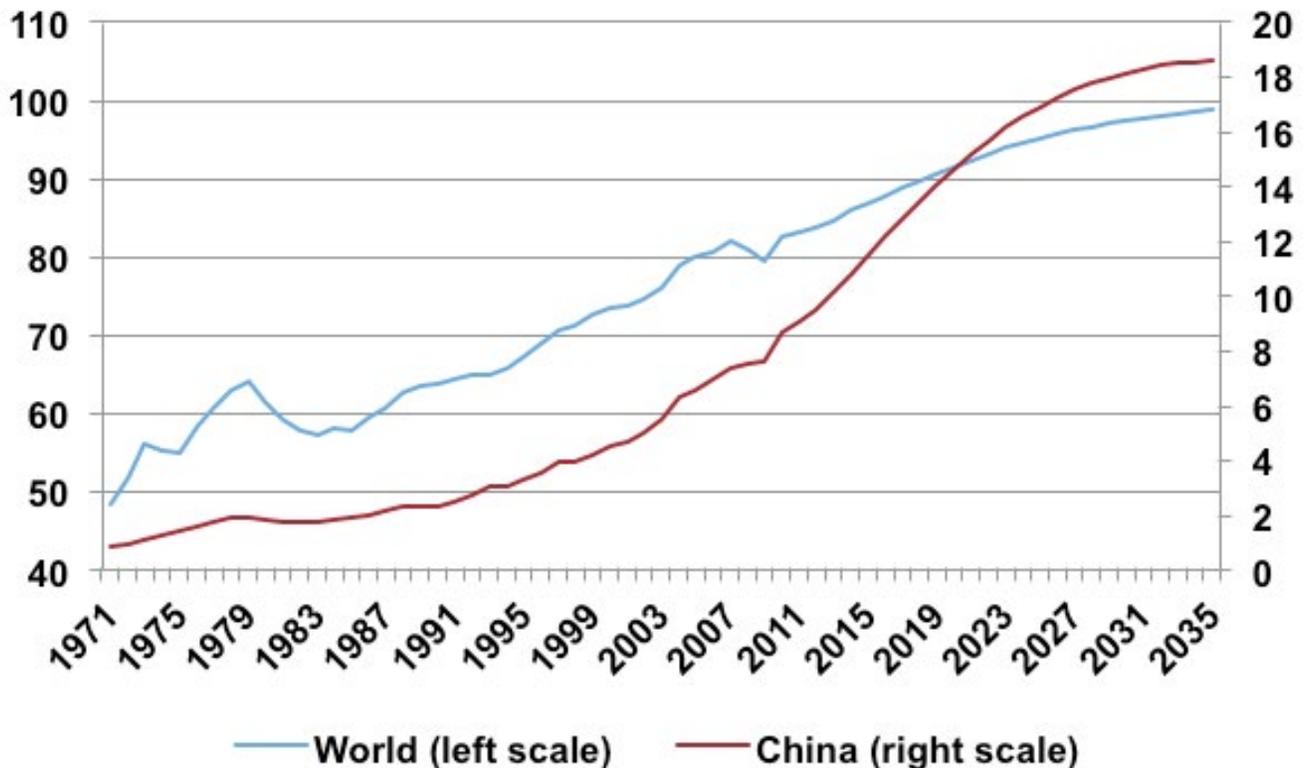
and continued economic growth in developing countries (Table 10).

Developing countries will drive the growth in global energy demand. China alone will account for more than two-fifths of total global energy demand growth over 2011-35. By 2020, China will account for 24 percent of

global demand for primary energy sources; by 2035 this figure will reach 26 percent.

During the next twenty years, mineral fuels such as oil, natural gas, and coal, will continue to form the bulk of the global energy balance. Oil and gas reserves are growing at a rate that outstrips current consumption rates. At the

FIGURE 4. PROJECTED GLOBAL AND CHINESE DEMAND FOR OIL TO 2035, IN MILLIONS BPD



Source: IMEMO Centre for Energy Studies

global level, proven oil reserves are sufficient to satisfy current oil consumption for fifty-three years; natural gas reserves are sufficient for fifty-five years. The shale gas revolution has demonstrated the possibility of rapidly developing production using breakthrough technological advances. Production technology developed in the nonconventional hydrocarbons sector will probably be used in the conventional oil and gas sector as well, increasing the amount of usable resources and helping to maintain the competitiveness of hydrocarbon fuels.

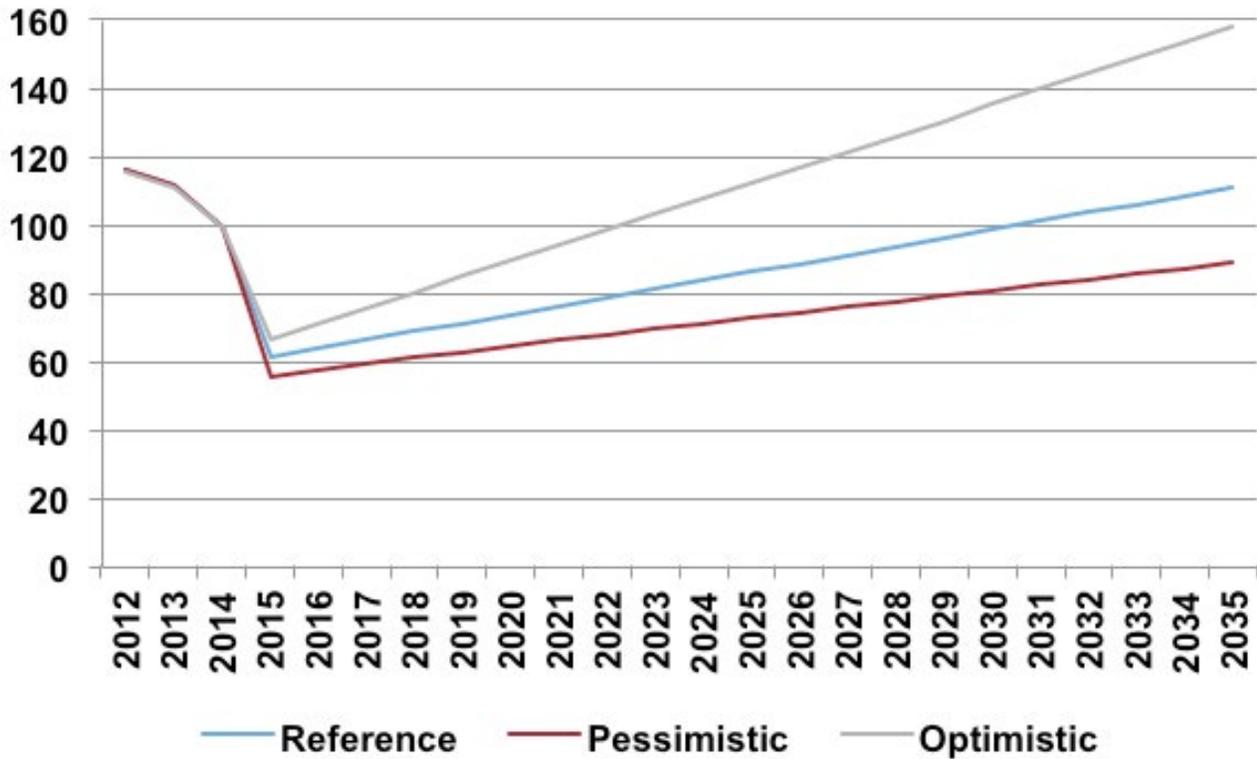
Global demand for oil (excluding biofuel and refinery gains) will increase to 91.5 million barrels per day (bpd) in 2020 and 99 million bpd in 2035 (Figure 4). China will account for nearly two-thirds of global oil consumption growth. At the same time, a peak in global oil consumption will become a greater risk; such consumption might peak sometime from 2035 to 2040. A peak in global oil consumption is particularly likely to occur if the Chinese economy slows down faster than expected and India’s economy fails to reach the high growth rates projected in most forecasts.

Taking into account structural transformation on the global oil market, long-term oil price forecasts are highly uncertain. According to the baseline scenario, however, the price of a barrel of Brent in 2014 dollars will break the \$100-threshold no earlier than the second half of next decade. In the pessimistic scenario, which sees apathetic global economic growth and increasing competition among oil exporters for markets, the price stays at \$80-\$90 through the end of the forecast period (Figure 5).

Demand for coal will peak sooner. The OECD countries, according to the most likely scenario, will pass their peak coal consumption by 2020. If international climate cooperation and the adoption of binding measures to limit greenhouse gas emissions become more active, China could pass its peak coal consumption in 2020-25; coal consumption in most developing countries will hit a peak in 2030-35.

Wind and solar energy will continue to grow at faster rates than previously, in part because thousands of

**FIGURE 5. DEVELOPMENT SCENARIOS FOR CHANGE IN THE PRICE OF A BARREL OF BRENT TO 2035, IN MILLIONS OF BPD**



Source: IMEMO Centre for Energy Studies

private companies work in this sector, and also because a diversified system for financing projects in this area has developed. However, owing to the small initial base and high production costs involved, renewable energy sources will not account for more than 2-3 percent of global energy consumption by 2020 and 4-5 percent by 2035. At the same time, the developed countries, especially the EU countries, are promoting the renewable energy sector through state subsidies and administrative levers. Thus, renewable energy sources could account for 6-10 percent of total energy consumption in these countries by the end of the forecast period.

- Lower oil and natural gas prices will slow down to some extent the advance of new energy sources in the transport sector, but such prices will probably not have an impact on development in the electricity sector, especially in Europe.

## A Technology Revolution Gathering Momentum

We are entering a period in which the economic and social impact of new technologies is taking a toll on existing jobs and it is unclear how or when new, good paying employment will be created to offset the losses. It is a future in which technology substitutes for labor and automation replaces not only jobs, but also knowledge. During the coming decade, robots will be replacing a wider array of jobs, posing both risks but also opportunities to deal with aging and the skills gaps that exist in many countries.

As mentioned in section of changing globalization, the specific impacts of this technology revolution—job displacement; slow creation of new jobs; increased inequalities; marginalized and left out areas—is helping to fuel a backlash against globalization and growing distrust of existing political and economic institutions.

As with previous technological revolutions, this one is characterized by an increasing synergy among a number of emerging technologies. This future has been enabled by the innovative application of decades of developments in information and communications technology (ICT) and artificial intelligence, as well as by big data and algorithms, the emerging Internet of Things, and new materials created through nano-manufacturing technologies, such as graphene.

This revolution involves not just a different way of using raw materials—steel, aluminum, plastic, and other materials—and fashioning them into different material objects. It also includes transforming digital information into material objects. Using 3D printing a computer-created design—or a scanned physical object—can be converted from digital bits into material atoms. This can be done remotely—the digital file for the 3D object can be sent over the Internet and rematerialized anywhere in the world, as a PDF file can be printed out in two dimensions.

## Robotics

Until now, the vast majority of industrial robots—more than 70 percent—have been used in auto assembly plants and more recently in electronics assembly. No standards or software applications have been developed for wide use in robotics, as was the case for personal computers in the 1970s. Each industrial task robot—a device with three or more axes of motion (think hand, wrist, and elbow) reprogrammable for different tasks—had to be individually developed.

Robotics is now at an inflection point. In terms of social and political impact, robotics should be viewed along with ICT and nanotechnology as an important economic enabler and a critical component of this historic technological transformation.

The advance of robotics, like the US shale gas revolution, is the result of substantive R&D efforts of governments, businesses, and universities during the past two decades. Government agencies and private companies in various quarters have driven investment for improvements in hardware (e.g., prehensile [capable of grasping] hand movements) and software: in the United States, the Defense Advanced Research Projects Agency (DARPA), and NASA; in Japan, FANUC Corporation and government funding; in South Korea, the Ministry of Knowledge Economy and firms such as Samsung and LG Electronics Company; and in Europe, firms such as ABB Ltd and the European Network of Robotic Research (EURON). The United States' DARPA, with a \$2.8 billion annual budget, has driven much robotics innovation. The US National Robotics Initiative, playing a venture capitalist role, is investing in dozens of robotics projects,

from its driverless car and robotics challenges to bots to disarm IEDs. Japan plans to invest \$350 million during the next ten years into humanoid robots alone; South Korea has invested \$100 million annually since 2002 into humanoid robots. The European Commission has invested \$600 million into robotics and cognitive systems in its Seventh Framework Program; it plans to invest \$900 million for manufacturing and robotics in its Horizons 2020 program.

Such investments and some remarkable contributions from small US start-ups are driving down prices exponentially (from the \$200,000-\$300,000 range to \$25,000 or less)—with faster and more sophisticated algorithms, sensor technology, and artificial intelligence (AI). These efforts result in more capable machines both qualitatively and quantitatively and at much lower costs.

## The Impact of Robotics

The workplace is being transformed not only by computers and the Internet, but also by increasingly sophisticated robots. From a concentration in the auto industry, robotics has spread to electronics assembly and to food and beverage production as well as other packing, distribution, and shipping operations. In the years ahead, more jobs that require low-skilled, repetitive physical labor will be done by robot, in what can be considered a qualitative leap in the pace of automation. Some have compared this leap to the economic transformation that took place at the beginning of the twentieth century, when the workforce engaged in agriculture dropped from 40 percent to 2 percent as industry took off and agriculture became mechanized.

Robotics has been a driver of “in-shoring,” returning manufacturing to the United States. About 150,000 industrial robots are “employed” in the United States; this figure is just behind that of China and Japan. FOXCONN, which employs 1.2 million Chinese and assembles some 40 percent of the world’s consumer electronics, has begun to purchase one million robots. Extrapolating from 2014 statistics of the International Federation of Robotics (IFR), over 1.4 million operational industrial robots exist worldwide.

The cost of robots is declining, enlarging the market for them. Now—for as little as \$15,000—telepresence robots can be used in hospitals and offices to perform functions remotely. Rethink Robotics has introduced Baxter, a human-like robot that is easily trainable and adaptable in interfaces with humans. Baxter—on the market for \$25,000—uses software that can be upgraded to enable the robot to adapt to the needs of its consumers.

Variations on Baxter’s capabilities are emerging. A number of small startup firms have developed robot arms. ABB Ltd has a prototype dual-armed robot that can assemble precision instruments. Some more expensive devices offer more precision than Baxter, but not the same degree of versatility. Japan’s Kawada Industries produces its Nextage robot, which has variable arm movements designed to be used for assembly, but Nextage costs much more than Baxter. The future of robotics might include an upgraded version of Baxter mated with the intelligence capacity demonstrated by IBM’s Watson; such a robot could perform sophisticated tasks such as medical operations.

ROBOTICS HAS BEEN A DRIVER OF “IN-SHORING,” RETURNING MANUFACTURING TO THE UNITED STATES.

During the coming decade, robots will be replacing a wider array of jobs currently performed largely by humans—and performing increasingly complex tasks. Warehousing, distribution, picking and packing agriculture, light manufacturing, surveillance and security (envision drone/robot teams), and data-entry and analysis jobs will be done largely by robots. Airplane pilots and truck drivers may also be replaced by robots. The world will move from “Roomba” or robotic vacuum cleaners, robot lawn mowers, single-task industrial task machines, and unmanned aerial vehicles (UAVs) to self-driving cars and personal service robots. Enhanced robotics software are translating languages and do legal research, with “e-discovery” sifting through legal documents that otherwise might occupy an army of legal researchers.

Healthcare will be populated by robots making diagnoses, delivering medication to patients, and helping take care of the elderly. Some robots can already perform surgery. Others, like IBM’s Watson, can help diagnose cancer. Japan’s robotics industry is heavily motivated by the need for robots to help in eldercare, such a robotic walkers that can help the incapacitated navigate even difficult terrain. Given the graying demographics in Japan and other OECD nations, robots are likely to play a rapidly growing role in this sector.

Robots will be downloading and uploading information to the cloud, sometimes via built-in software programming, some computer-controlled. Watson, for example, can

digest thousands of pages of medical literature that would take weeks for trained medical personnel. Robot-generated data on robots’ own activities will facilitate improvements in robots’ behavior and capabilities. In addition to militaries’ and law enforcement’s use of robots in dangerous situations, such as looking for improvised explosive devices (IEDs) or nuclear contamination, some analysts forecast that by 2025, a substantial proportion of soldiers on the battlefields of the future will be robots. Think of the movie *I, Robot* as life imitating art.

## Social/Economic Policy Implications

Transformational technologies, particularly robotics, pose both risks and opportunities to policymakers and to society writ large. In the past, transformational technologies tended to be part of the economic process of “creative destruction,” with old jobs replaced by whole new industries. Robots are increasingly part of what has been called a digital “second economy” of computers and networks that can perform services independent of most human activity—as in swiping a credit card, buying an online product or service, or getting an airline boarding pass online.

Mainstream economics has focused on how technological change deepens inequality in the labor market, contributes to financial crises, leads to job losses, and disadvantages low-skilled workers. This approach, however, does not address how the unprecedented technological transformation now under way will shape the jobs of the future. Some jobs, including those with a need for human judgment and human interaction (policemen, teachers, coaches, counselors, doctors, and nurses) and those that oversee, repair, and create technologies appear likely to endure—at least for the foreseeable future. However, experts do not know full range of implications of the expansion of robotics on the workforce. Microsoft co-founder Bill Gates in a speech that he gave in 2014 said that the new automation threatens all types of jobs, but added, “I don’t think people have that in their mental model.”

A debate is raging among economists and social analysts, and between “techno-optimists” and “techno-pessimists” about whether the technology transformation under way will free humanity to achieve new creative heights and enable civilization to flourish—or lead to a dystopia of increased poverty, purposeless, and unhappy people. The pessimists also focus on ethical, legal, and moral issues raised by the deployment of robots. The debate is complicated by the reality of a global slowdown and recession in much of Europe. Nevertheless, both sides make compelling arguments.

## Techno Pessimism: The Dark Side of Robotics

In their highly influential book *Race Against the Machine*, Erik Brynjolfsson and Andrew McAfee outline a future in which technology destroys an array of jobs, particularly low-skilled service and manual labor jobs. They point out that technology will upgrade some jobs, but their net assessment is that the proliferation of robots will lead to growing income inequality and a need to redistribute income as wealth concentrates among the technology owners. For example, Apple, Amazon, Facebook, Google, and Twitter have roughly \$1 trillion in market capitalization. However, together, they employ fewer than 150,000 people—less than the number of new entrants into the US workforce every month.

APPLE, AMAZON, FACEBOOK, GOOGLE, AND TWITTER HAVE ROUGHLY \$1 TRILLION IN MARKET CAPITALIZATION. HOWEVER, TOGETHER, THEY EMPLOY FEWER THAN 150,000 PEOPLE—LESS THAN THE NUMBER OF NEW ENTRANTS INTO THE US WORKFORCE EVERY MONTH.

A growing body of literature by economists and other social scientists explores the many real and potential downside risks and ethical and social implications of robotics apart from displacing human labor. Popular culture is filled with technophobic, demonic imagery of robots, from *Blade Runner* and *Terminator* to *AI and I*, *Robot*. The rise of drones has sparked intense debate about the morality of war by remote control; similar debates on automated warfare will undoubtedly occur when robots become infantry soldiers. Will smart robots make their own battlefield decisions? Could police robots have advanced enough AI to know whether an object pointed at them is a real gun or a water pistol?

Many questions surround the issues of efficacy and liability. However “smart” a machine might be, machines malfunction. Dependence on automated systems independent of human judgment and real-time monitoring, whether electrical grids or robot cars,

could pose risks and dangers. Given that artificial intelligence is about software, what risk do hackers pose? Could cyber thieves hack Google-type driverless cars and steal them or wreak havoc on traffic? If a robot surgeon errs, who will be liable? Even if robots are programmed to obey laws and norms, what about cultural differences: whose laws and whose norms? How would the nature of warfare change if some states used primarily robot soldiers and drones, removing the human risk factor from warfare, while other nations lacked such a capability? If military conflict did not affect humans, would conflict be more or less likely? Would such automated warfare, so removed from any personal impact (e.g. no friends or relatives dead or wounded) change the way in which citizens judge the necessity of particular wars and dilute government accountability?

In addition, the use of robots might generate unanticipated social effects. In the area of healthcare, for example, would dependency on robots lead to a decline in surgeons’ or other medical employees’ skills? Similarly, will increased use of robots and decline in direct human interaction in education alter the learning process in negative ways? Psychological and emotional issues will undoubtedly arise from the use of robot caregivers to assist the handicapped and elderly. Will the ill and elderly, who tend to be socially marginalized, suffer from a lack of human interaction, or will they develop affinities for robot caregivers?

## Techno-Optimism: The More Likely Long Term Case

On the positive side, robotics—combined with emerging technologies such as 3D printing, nanomanufacturing, nanobiotechnology, and more capable artificial intelligence—might reinforce a trend toward more local and customized production, marketing, and distribution. Such a development could spawn some entirely new industries, such as lab-manufactured food, vertical farming in cities, and changes in other fields that one cannot yet imagine. The commercialization of robots will almost certainly benefit—and probably facilitate the proliferation of—small- and medium-sized industries (some 300,000 currently operate in the United States, for example), and democratize the economy, widening opportunities for everyone. A business might, for example, have a cadre of 3D printers for manufacturing a range of products and a couple of Baxter-like robots to lift, pack, and help distribute the items.

“It is a safe bet,” writes *Wired* magazine’s Kevin Kelly, “that the highest-earning professions in the year 2050 will depend on automations and machines that have not been invented yet...Robots create jobs that we did not

even know we wanted done.” Kelly’s comment illustrates what might be called the techno-optimism argument. The robotics/digitized economy trend will play a large role in healthcare, particularly managing the wellbeing of graying populations.

The truth might lie somewhere in between the two views. In the near term, the pessimist argument is difficult to refute. New and emerging technologies are not creating middle class jobs on a large scale. Rather, the increasingly digitized economy has thus far been the opposite of labor intensive: not only are lower-skilled jobs disappearing, but the digital revolution is also replacing skilled service sector jobs.

## From Mass Production to Instant Customization

The 3D process is a seemingly simple one involving layering to make things (“additive manufacturing,” the more formal term for 3D printing) rather than carving things out of pieces of material (or “subtractive manufacturing”). The basic 3D printing technology was invented some three decades ago, but 3D printing has begun to move beyond being a niche product as other technologies have combined to enhance the capability and reduce its cost. The approaching tipping point towards use in mass production is being enabled by computer-aided design, big data and cloud computing, new materials, and reduced costs of many of these capabilities as well as of the printers themselves.

3D printing technology is happening from both “top down” and the “bottom up.” Leading global manufacturers such as General Electric, Boeing, EADS/Airbus Group, and Ford are using primarily high-end 3D printing machines to transition from rapid prototyping to producing critical parts for airplanes, automobiles, wind turbines, and myriad other machines. From the bottom up, the 3D printing has been driven by the “do it yourself” (DIY) movement: tens of thousands of users have bought personal 3D printers for experimentation or have started their own mini-manufacturing enterprises. And increasingly, small- and medium-sized businesses (SMEs) are using 3D printing machines as well.

Because printing one-of-a-kind products is no more costly than mass-producing the same object, 3D printing technology enables the design and efficient manufacture of personalized products. This unique capability of 3D printing is driving a transition from mass production to “mass customization”—from making prototypes to manufacturing finished products. Initially, 3D printing was referred to as “rapid prototyping” and was primarily used to quickly fabricate conceptual models of new products for form and fit evaluation. The use of 3D

printing technologies has evolved from solely creating prototypes to fabricating parts for functional testing, to creating tools for injection molding and sand-casting, and finally, to directly producing end-use parts.

3D printing is a “general purpose technology” that is likely to be used in numerous applications, from printing human organs and food to printing airplane wings and large structures, including houses, large buildings, and even bases on the moon and Mars. NASA recognizes 3D printing as a critical technology for space exploration. The space agency has already commissioned the development of 3D printers for the International Space Station (ISS). Although the first ISS 3D printers will be used to print spare parts, NASA has also commissioned the development of 3D printers for producing food and for building structures on the Moon; in addition, the space agency is exploring concepts for using 3D printers to fabricate large-scale structures in space with minimal amounts of materials.

Three-D printing could be especially transformative in the developing world. Many emerging market countries, especially in Africa, do not have significant manufacturing capabilities and therefore rely on massive imports, including of basic consumer goods. Such countries also have large numbers of unemployed, many with sufficient education and entrepreneurial drive to build new businesses around 3D printing. The cost of establishing a basic 3D printing facility—a computer, printers, materials, and Internet access—would probably be significantly less than \$10,000, while building a conventional factory might require millions of dollars of investment. Unlike a traditional factory, a 3D printing facility could produce an unlimited number of products without retooling—in some cases using recycled materials. A 3D printing facility could make products on demand for the local market, requiring a far less sophisticated and expensive infrastructure than that used by factories in China, for example. For some developing countries, 3D printing might be as economically transformative in the material world as the cell phone has been in the digital world, bringing many of the benefits of advanced manufacturing.

FOR SOME DEVELOPING COUNTRIES, 3D PRINTING MIGHT BE AS ECONOMICALLY TRANSFORMATIVE IN THE MATERIAL WORLD AS THE CELL PHONE HAS BEEN IN THE DIGITAL WORLD.

The pace of development and implementation of 3D printing is, of course, uncertain, and is likely to vary widely for different types of manufactured products. Many consumer products will continue to be cheaper to mass produce by traditional methods and ship to points of consumption for the foreseeable future, especially simple-to-produce items made in huge quantities. Nevertheless, tipping points are likely to occur in various fields of production, triggering manufacturers to change to the new process or lose their competitive edge. This will probably be an uneven process and could take many years longer in some areas than in others.



## PART IV

# The Future of the Regions

## EURO-ATLANTIC REGION

The Euro-Atlantic economic area contains three integration centers: the United States (the basis of the NAFTA), Western Europe (the basis of the EU) and Russia (the basis of the Eurasian Economic Union).

### EURO-ATLANTIC ECONOMIC AREA

NAFTA (United States)

EU (Western Europe)

Eurasian Economic Union (Russia)

Despite their political contradictions, these three centers have the greatest potential to **create a common economic space based on cultural and civilizational closeness**. This common economic space can demonstrate the most intensive trade and investment flows in the world even in 2035 despite the rapid strengthening of emerging markets and transnational corporations. Nevertheless, North American and European transnational corporations will retain their leadership, not only because of the elimination of barriers against trade and capital movement in Eurasia, but also because of the intensity of R&D in most developed countries. In positive scenarios for Euro-Atlantic area, the average level of R&D will exceed 3 percent of GDP in the next couple of decades. This tendency will lead to significant structural shifts in manufacturing and services. Most of these changes will serve the main aim of most developed societies: enhanced quality of life. For example, radical positive changes can occur in healthcare, especially affecting an aging population in Europe and North America. Internationalization of education is also evident under the umbrella of a common economic space of culturally close countries.

The Euro-Atlantic countries face many common economic and social challenges. If they find and implement adequate solutions, the region can maintain

its leadership in the global economy to 2035. If it fails to do so, Europe (including Russia) would be likely to fall further behind the United States. Without an economically integrated Euro-Atlantic region, the United States increases its risk of falling behind China and losing its leadership position in Pacific Asia.

Even with large influxes of immigrants, most Euro-Atlantic countries have **modest demographic potential** to offset aging compared to India and other developing countries (except China) who will remain more youthful. The region's share of global population will drop during the coming twenty years from 16.5 percent to less than 15 percent. Nevertheless, the Euro-Atlantic region can ensure that it maintains an important niche in the world economy through **technological and management innovation**. It can remain the main center of high value-added machinery and chemical industries. The development of a creative society can stimulate not only radical but widespread incremental innovations in various spheres.

THE HIGH PROBABILITY OF INCREASED ECONOMIC IMBALANCES OVER THE PERIOD THROUGH TO 2035 CREATES REAL RISKS OF STRONGER DISINTEGRATION TRENDS FROM VANCOUVER TO VLADIVOSTOK.

Stability in the region will depend on how the countries overcome key differences. The Euro-Atlantic region's middle classes has historically supported integrating the region more fully into the global economy and greater internal integration, but the rise in political populism could reverse that trend.

**Imbalances** in the Euro-Atlantic space are linked first to “quantitative differences”—i.e., economic gaps. For example, the gap in per capita GDP between Norway, which borders Russia, and Kyrgyzstan and Tajikistan, which want to join the Eurasian Economic Union, is twenty to thirty fold (in purchasing parity power terms). Even within the prosperous EU, large gaps exist between particular regions (the record is an eleven-fold gap between northeast Romania and the inner part of Greater London). This makes it very difficult for countries to harmonize economic policy, as the EU’s response to the Greek crisis demonstrated clearly. Problems of this kind **will continue** to undermine any plans for regional integration, even over the long term.

Second, “qualitative imbalances” will most likely not be overcome by 2035. A diverse range of countries in the Euro-Atlantic space are home to large urban populations that make successful use of globalization’s fruits. Their populations already live in the post-industrial society. However, the region also has many peripheral areas characterized by agrarian-industrial economies and traditional industries. These areas lose out in the competitive struggle to new industrial countries, have weak links to the main research and development hubs, and make only very limited use of the information revolution’s achievements.

In theory, the hierarchical wave innovation diffusion model should work. This model does not abolish regional inequalities; rather, it creates mechanisms for constant spread of innovation from the center to the periphery. In practice, however, many countries in the Euro-Atlantic space are shut out of this process, and this situation is unlikely to change during the next twenty years. Thus only some territories will be able to close the gap in per capita GDP and other development indicators between them. The creation of a Euro-Atlantic common market would not only open up greater opportunities for the region’s companies to expand, but would reduce energy, raw materials and even in part demographic limitations on countries’ successful development because about 10 percent of the population will probably lack jobs over the long-term. The widespread welfare state model, meanwhile, tends to keep some social groups bound to a dependency mentality. By 2035, without increased educational investment, millions of people in the most developed countries will be functionally illiterate and unable to make use of many of the benefits of technological progress.

The difficulties associated with integrating different ethnic groups in various Euro-Atlantic countries could become the greatest challenge during the next twenty years. Growing immigrant communities from other

cultures have difficulty integrating into the recipient countries’ economic and political lives. This problem is typical for all three integration hubs in the region—the United States, Western Europe’s main countries, and Russia (though immigration comes from different sources in all three cases).

There are no easy answers to this dilemma. Formal attempts to close the doors to immigration, as the EU has tried to do with regard to immigrants from North Africa and the Middle East, have not resolved the multiculturalism crisis. EU expansion to better integrate its neighbors also creates its own problems, deepening economic and social divisions within the broader EU. The lack of robust economic growth compounds the difficulties of integration.

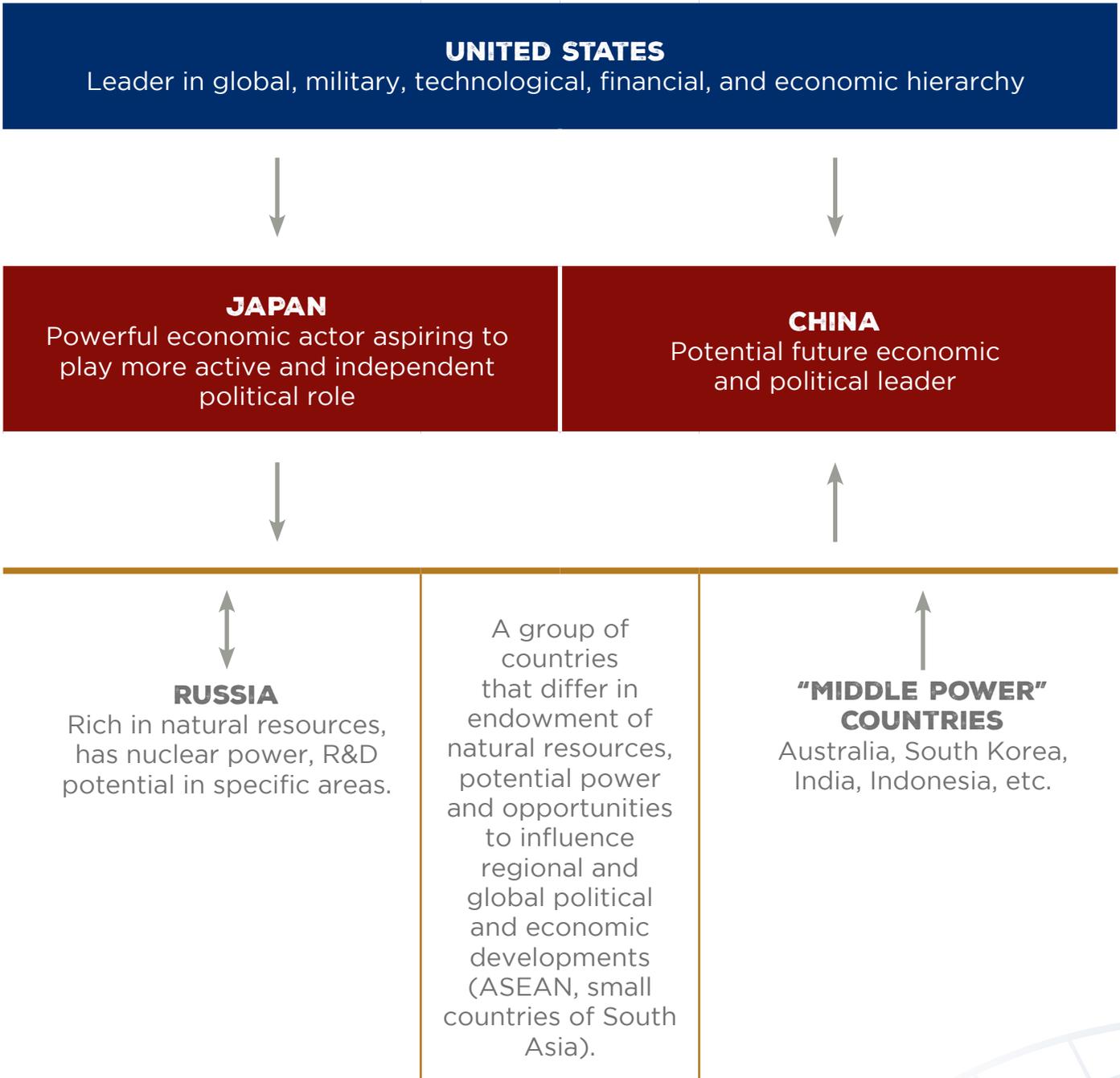
IF IT FAILS TO ACHIEVE THIS KIND OF INTEGRATION, THE EURO-ATLANTIC REGION, WHICH CURRENTLY ACCOUNTS FOR MORE THAN HALF OF GLOBAL GDP, COULD LOSE ITS GLOBAL ECONOMIC LEADERSHIP.

## ASIA PACIFIC REGION

During the next two decades the Asia Pacific region will be one of the world’s fastest-growing regions, which will considerably enhance its role in the global economy. However, within the region significant changes are likely to occur in the relative strength and roles of its main countries.

The **United States** will continue to be a leading economic, technological, and military actor strongly engaged in regional affairs. However, the gap that separates the United States from other advanced regional economies will narrow in relative terms. **China** will firmly establish its role as the locomotive of regional economic growth. In 2035, China will be the biggest economy in the Asia Pacific in terms of the scale of its own economy and aggregate national power—both of which will significantly surpass those of Japan. In twenty years, China’s living standards will be comparable to that of a middle-level European country.

## REDISTRIBUTION OF ROLES



**Japan** will retain its position as a powerful economic actor with global interests. However, its political role in the region will remain limited. Japan will maintain focus on its relations with neighboring countries and rely on its alliance with the United States to ensure military security.

As China gains more military, economic, and political power, the so-called **"middle power" countries** will also increase their role in regional affairs.

Finally, a group of less developed economies of South and Southeast Asia will most likely remain in their present position in the regional hierarchy of opportunities, power, and responsibilities.

## Redistribution of roles

In the next two decades **China** will maintain relatively high growth rates and make the most significant contribution to global economic growth, accounting for 20-25 percent of the total increase in the world's GDP.

The main **drivers of the Chinese economy** are:

- High consumer demand due to rapid urbanization and growth of China's middle class. By 2035, the structure of China's population will change drastically. The share of rural population will drop to approximately 25 percent.
- Infrastructure investment brought about by urbanization and state-sponsored development of backward regions.
- Liberalization of financial markets and structural reforms in industrial and financial sectors.

China will continue to develop and implement a *proactive innovation strategy*. It will not become the world's top innovator, but it could maintain a leading position in certain areas of applied R&D for the consumer market and the "green economy." However, China will continue to lag behind in fundamental research, thus motivated to strengthen R&D cooperation with the United States.

*Internationalization* of the Chinese economy will progress. Activities of the largest Chinese companies will be increasingly transnational. Some of them will become global technology leaders in specific areas. By accelerating overseas expansion of Chinese capital, China will be able to partially compensate for the slowdown in its exports to Europe and Japan. Chinese renminbi has a good chance of becoming a strong currency increasingly used in international transactions as a "second tier" reserve currency on par with the British pound, Japanese yen, and Swiss franc.

Economic growth will be sluggish in Japan because of the country's unfavorable demographic situation. Japan's overall population is projected to decline by 2035 while the share of its population in the elder age brackets will increase. This will put pressure on the country's social security system and government finances. Additional burden on the Japanese economy and consumers will be brought about by swelling public and social services sector. Growth of disposable incomes will slow down in real terms and incentives for individual business activity will weaken. Business activity will flow to other countries. As a result, Japan's share in the global GDP by 2035 could decrease behind levels to be achieved by some of the faster growing developing economies, first and foremost that of India.

However, the Japanese government will attempt to improve the efficiency of its economy through intensive promotion of private sector business activities and innovations. In the next few decades, Japan will most likely maintain its leading position in a number of high-tech fields (robotics, medicine, medical equipment/technologies and biotechnology). High-tech products will increase their share of Japan's GDP and exports.

**South Korean** corporations also will strengthen their positions in high-tech production and exports, thus becoming a leading innovation center in the Asia-Pacific region (number of R&D personnel per 1,000 workers employed; high level of R&D expenditures, number of registered patents, etc.).

Possible re-unification of North and South Korea initially would slow the pace of South Korean economy because of huge cost of market modernization in the North. However, in the longer term unification could become a positive factor for Korean economic development.

**India** and countries constituting the economic core of ASEAN (**Malaysia, Indonesia, the Philippines and Singapore**) will remain committed to the policy of achieving high economic growth.

Regional cooperation based on the liberalization of international trade and investment will contribute to dynamic economic growth in the Asia Pacific.

The United States and the other economies in the region could greatly benefit from liberalization and harmonization of business climate and activities in the Asia Pacific. The United States will continue to be economic and political leader in the region, maintaining and developing standards, specifications, and regulations.

REGIONAL COOPERATION  
BASED ON THE LIBERALIZATION  
OF INTERNATIONAL TRADE AND  
INVESTMENT WILL CONTRIBUTE  
TO DYNAMIC ECONOMIC  
GROWTH IN THE ASIA PACIFIC.

China, for its part, will become the main competitor of the United States in military, economic, and technological fields. China's desire to improve its position relative to the United States will determine Beijing's view of regional

## REGIONAL INTEGRATION



integration projects and frameworks. China will face a choice: either to join the frameworks initiated by the United States (e.g., the Trans-Pacific Partnership [TPP]), or rely on free trade agreements initiated by China itself in which the United States is not welcome (China plus ASEAN, Shanghai Cooperation Organization) or bilateral free trade agreements. With the first option, China risks finding itself in a position subordinate to US regulators; with the second, China's partners might switch for economic and political reasons to areas and associations subject to US regulation.

During next twenty years, Japan will play a somewhat less important role in the Asia-Pacific region, largely because of its dual goals. The need to maintain alliance with the United States to ensure military security coexists with the hope to uphold and strengthen ties with China to promote sustainable economic growth. Refusing to allow large-scale influx of foreign laborers and open traditionally closed sectors to foreign competition makes uncomfortable Japan's involvement in multilateral projects aimed at deeper liberalization.

ASEAN will safeguard its interests but will not be able to become the locomotive of Pacific integration. ASEAN will focus on removing internal barriers and promoting cooperation within the association, as well as on developing existing frameworks in which ASEAN takes the lead (ASEAN plus 3, RCEP, et al.).

Under these circumstances frameworks of regional cooperation with extensive lists of participants, primarily Asia-Pacific Economic Cooperation (APEC) members, will not be able to comprehensively consolidate the potential of multilateral cooperation and economic interaction in the region. Better results could be expected

from multilateral and bilateral agreements and regulatory frameworks that were more limited in scope.

Subregional integration projects, which in theory should be accommodated into a bigger "Free Trade Area of the Asia Pacific" (FTAAP), are difficult to coordinate and integrate and will, in fact, be implemented as competing frameworks. As one of those competing frameworks, the TPP could produce significant results. This framework aspires to ensure very deep liberalization of trade and investment and harmonization of rules and standards of business conduct in the region.

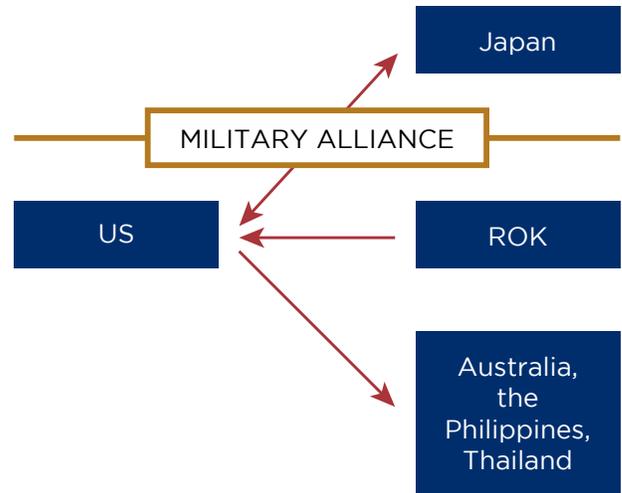
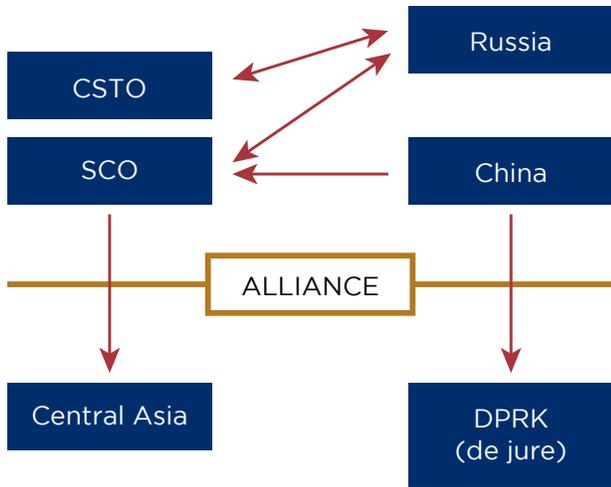
The establishment of such regional frameworks as an Economic Union of ASEAN will be constrained by institutional problems within the association. In the longer run such a union could address tangible content but to a lesser extent than TPP. A tripartite free trade agreement covering China, Japan, and South Korea could be implemented only in the long run on a limited basis and would be hindered by multiple contradictions.

Nevertheless, new concepts of regional integration could emerge, in particular the idea of PEP (I), as well as some sector-wide associations, such as energy alliances and transport, telecommunications, and technological unions as well as others. Whether a monetary union is established will depend on the degree of interaction in other sectors.

Regional economic cooperation will be complicated by continuing political and security imbalances.

In the security area, the United States' military and political alliances are likely to be consolidated with those of Japan and South Korea. On the other hand, these

SECURITY IMBALANCES



developments will not be balanced by symmetrical or similar alliances involving China and Russia. Military and political alliances involving these two countries (for example, the Collective Security Treaty Organization) extend to Central Asia and Eastern Europe and are not directly linked to security in the Asia-Pacific region.

In the medium term, debates on the future of collective security in the Asia-Pacific region will intensify. In this context the idea of establishing an Asian version of the Organization for Security and Cooperation in Europe (OSCE) could become attractive. However, the possibility of creating an Asian OSCE depends very much on removing military and political barriers and reducing the intensity of local conflicts and confrontations in the region.

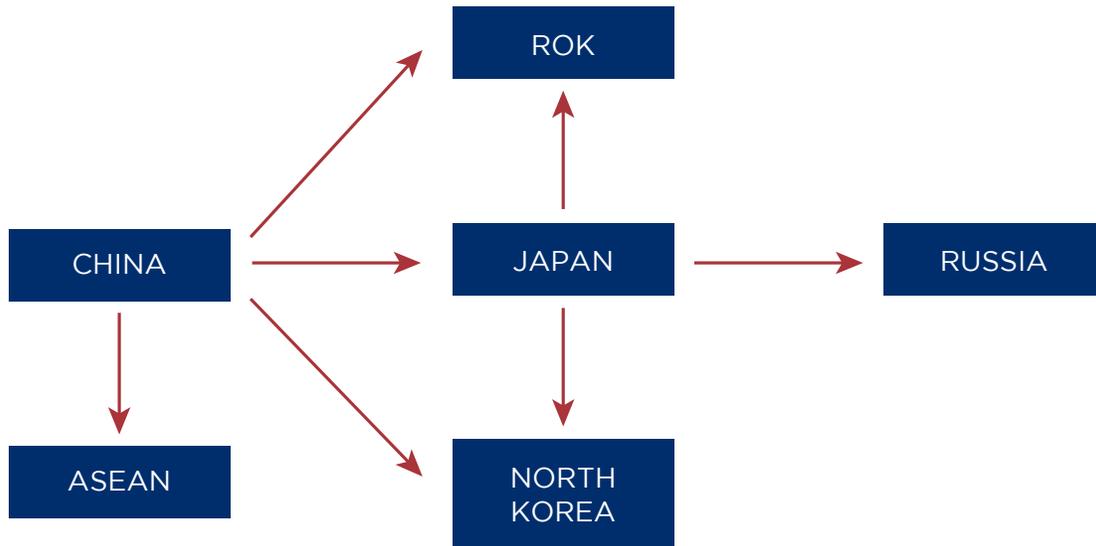
Regional conflicts with no visible prospects for solution are likely to deepen during the next twenty years.

**Tensions on the Korean Peninsula**—one of the most acute security issues in the Asia-Pacific region—involve uncertainties relating to North Korea’s nuclear program. Attempts to address the issues of the Korean Peninsula through negotiations among major regional powers will not be successful because sharp contradictions among the parties persist.

The fundamental solution to the problem of tensions on the Korean Peninsula would be the reunification of the country. The most likely outcome is the absorption of the North by the South as a result of acute collapse of North Korea’s economy. However, this development will most likely be preceded by a long period of crisis and economic disintegration in the North. In particular, such a collapse could result from an expanding “gray” and “black” economy, rampant corruption, and aggressive involvement of security officials and party and civil bureaucrats in spontaneous quasi-market activities. The collapse of an exhausted North Korean social and political system will be accompanied by various inherent hazards and risks.

THE FUNDAMENTAL SOLUTION TO THE PROBLEM OF TENSIONS ON THE KOREAN PENINSULA WOULD BE THE RE-UNIFICATION OF THE COUNTRY.

## TERRITORIAL CLAIMS IN EAST AND SOUTH-EAST ASIA



Territorial disputes will also continue to be a critical security issue. Such disputes transform vast areas adjacent to disputed geographical features into problem areas.

### Territorial Claims in East and Southeast Asia

In theory, the most desirable option might be the establishment of a common framework allowing joint efforts to develop resources of disputed territories and adjacent waters while maintaining *status quo* control over them. However, current contradictions among the parties involved could not be resolved through a medium-term consensus solution. During the next two decades, a quest for compromise will continue while all concerned parties seek to claim “historical” and other rights to disputed areas.

Overcoming or ignoring existing political and economic imbalances as well as resolving territorial disputes will not be achievable. New ideas, and above all a change in strategic thinking is needed to reduce the severity of conflicts. Achieving positive outcomes will depend on whether regional leaders can abandon their mindsets aimed at domination and start thinking in terms of responsibility, following the logic of globalization.

The key to establishing a new security architecture in the Asia-Pacific region could be security dialogues between China and Russia on the one side and United States,

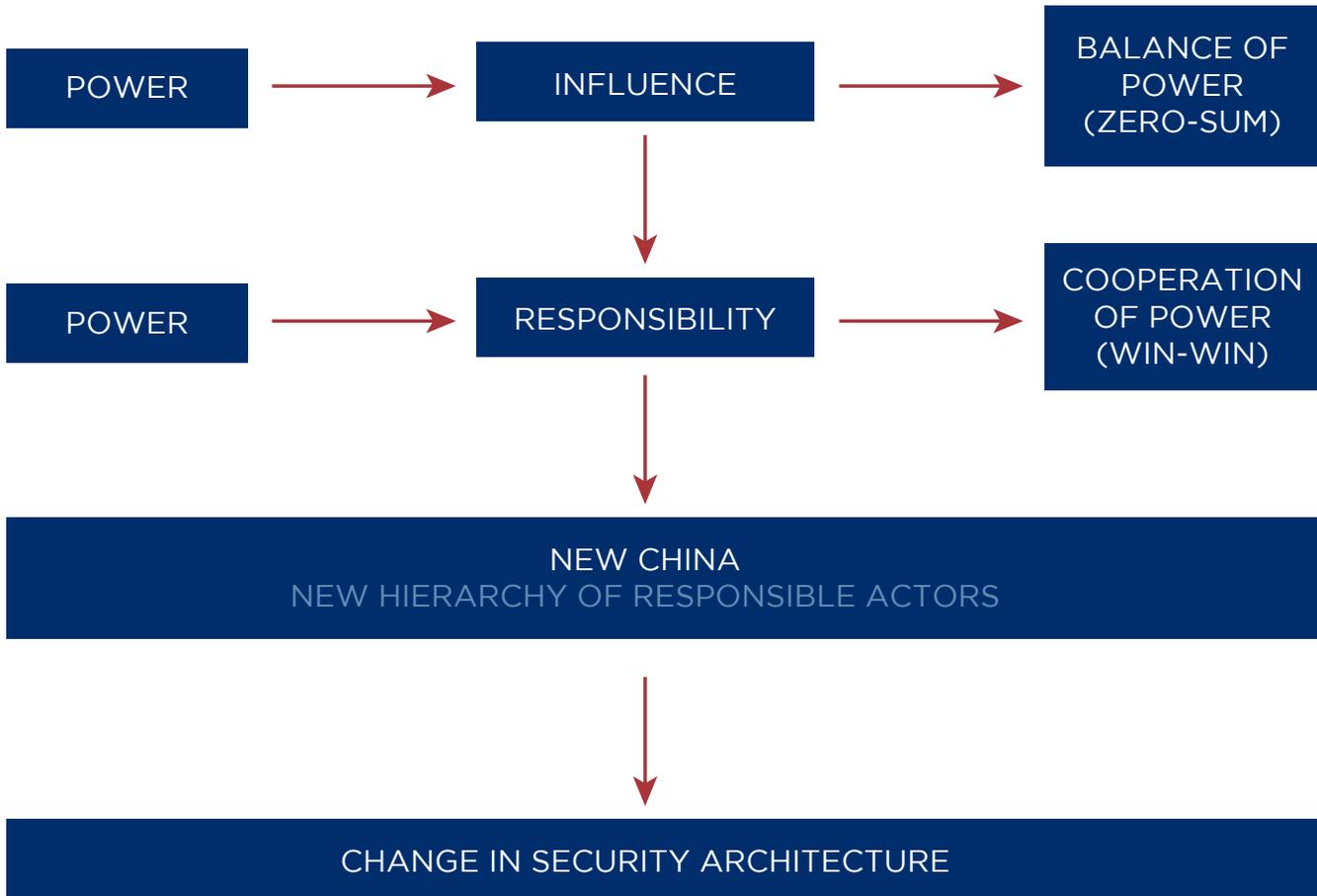
Japan, and South Korea on the other, as well as involving China in international talks on strategic stability.

Domestic political developments in major Asia-Pacific countries will be the background for the aforementioned developments and processes.

With growing capitalism in **China**, there will be an increasing need for political reforms, particularly as it seeks to develop its innovation capacity. “Socialist values” in official rhetoric will conflict with capitalist patterns in everyday life. The fight against corruption is a means of preserving the legitimacy of the Communist Party in the eyes of the populace. However, anti-corruption measures might provoke resistance from traditional party, bureaucratic, and military elites. In 2022, the structure of governance will change: Xi Jinping will be the sole person controlling every promotion. Despite the growing divisions, the most likely scenario is that China avoids economic and political instability.

China will not become the leading power in international relations comparable to the United States. Worries about becoming too overextended will act as a constraint on Chinese foreign policymaking. China wants to avoid what it sees as the United States’ entrapment in global problems like the Middle East. The present concept is based on maintaining the Communist Party’s monopoly on power. Beijing has difficulty addressing key issues pertaining to China’s political reform, such as: whether

LOGIC OF GLOBALIZATION



the party will share power, whether competing political forces will be allowed to function, or whether there will be enough responsible voters to ensure that elections are free, etc.

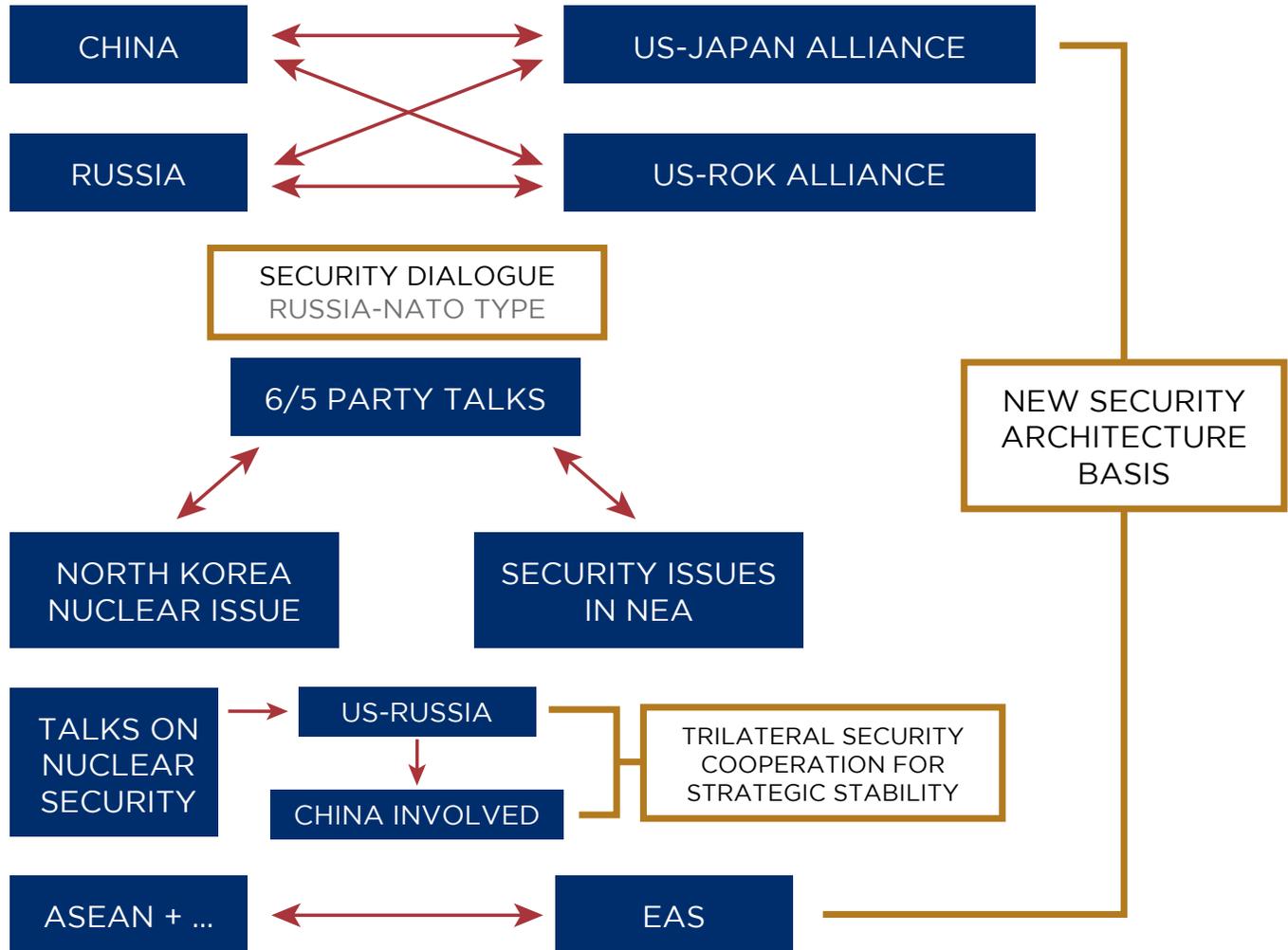
Traditional forces will continue to dominate **Japan's** political system. However, the social and economic difficulties caused by the negative impact of demographic and economic trends could lead to greater polarization of opinions among political groups. The most likely changes in the configuration of Japan's party system are: the consolidation of opposition forces around one of the existing parties, followed by its rise to power, or the division and/or regrouping of forces within the ruling nucleus and the establishment of a new party able to fight for a majority in parliament. More incentives would emerge for a shift toward a stable two-party system. Nevertheless, the decline of Japan's global status amidst the rise of China and growing regional

competition will probably result in Japan's nationalist and isolationist forces increasing their influence.

The political situation on **the Korean Peninsula** will largely depend on the expected unification of the two parts of Korea on a democratic market platform during the next fifteen to twenty years. However, fundamental differences in the administrative, political, social and economic systems of the two parts of Korea will require a long period of adaptation of North Koreans to a new environment. During the transition period North and South will most likely remain separated administratively, although allowing more coordination and integration through deepening social, economic, academic, cultural, and humanitarian exchanges and interaction.

Political processes in the countries of **Southeast Asia** will be greatly influenced by their more influential neighbors using instruments of "soft" and "smart" power. Despite all contradictions and inconsistencies, political developments in Southeast Asia will be directed toward

## FUTURE SECURITY ARCHITECTURE



establishing greater tolerance and political competition within the framework of parliamentary democracies.

In **India**, expanded involvement of new urban and rural social groups into economic and social activities will require searching for new “equilibrium points” (i.e., finding ways to balance the interests of major social and political groups in the country). The “lower classes” in Indian society will account for a major portion of the net increase in the country’s population. Given the ethnic, religious, and regional diversity of Indian society, the transformation of the country’s political system into an authoritarian one appears unlikely. Social and political developments in Asia-Pacific countries will also affect international relations in the region.

The United States will continue to focus on the Asia-Pacific region. Washington will seek to strengthen multilateral cooperation with US allies (Japan, South Korea), partners (Australia, the Philippines, and others), and other countries in the region that it cooperates with in particular areas. Relations with China will combine constructive interaction with competition, which may become very harsh in some instances. The United States will emphasize the importance of engaging China to maintain stability and security in the region based on respect for international law and international acceptance of major decisions having a significant impact on regional affairs.

The main trend in **China’s** international behavior will be its increasing activities to defend its overseas interests; propose its own international agenda and solutions

for crises; establish a new global architecture; and implement strategically important projects (“the New Silk Road Economic Belt,” “the Twenty-First Century Maritime Silk Route Economic Belt,” etc.)

However, China will not become a leading power in international relations comparable with the United States. Traditional ideological constraints pertaining to Chinese foreign policymaking will be a hindrance. Old communist recipes are not suitable for tackling global problems. Beijing will require time to learn ways to cooperate with leading market democracies. As a result, China is unlikely to propose its own original recipes for tackling major international issues.

OLD COMMUNIST RECIPES ARE NOT SUITABLE FOR TACKLING GLOBAL PROBLEMS.

The main challenge for Chinese foreign policy is to adapt Beijing’s vision of its national interests and desires for global development to the positions of other regional players, primarily the United States, Russia, and the ASEAN countries.

Japan will continue to place a high priority on maintaining its military and political alliance with the United States, viewed by Japanese policymakers as a guarantor of Japan’s security and territorial integrity. At the same time, Japan will assume greater responsibility for maintaining its own security, leading to a rebalancing of the two countries’ roles within the framework of the alliance. Despite the United States’ proclaimed commitment to build a more mobile, diversified, and frequently rotated armed force, a major portion of US military bases will continue to be located in Japan. As a result, the United States will continue to exert a decisive influence on Japan’s defense and foreign policy.

Increased uncertainty regarding the regional situation will force the Japanese to seek ways to consolidate Japan’s own security base beyond the scope of the US-Japanese alliance. Tokyo will strengthen its own defense capabilities and augment the alliance with other bilateral and multilateral initiatives. Japanese policymakers probably want more freedom to make foreign policy decisions, enhanced by an increased role for Japan’s defense institutions, as well as by the gradual removal of restrictions imposed on Japan’s military capabilities after the Second World War.

China will continue to be the main strategic challenge for Japan. Contradictions that arise due to the difference in the perceptions of each other’s strategic aims and intentions, as well as disputes over territorial and historical issues, are likely to lead to periodic crises in bilateral relations. However, projected social and economic difficulties in both countries may create the need for bilateral cooperation to address development issues.

**South Korea** will continue to pursue its multi-directional diplomacy. Ensuring security and establishing an environment for the peaceful integration of North Korea into South Korea’s economic and political system will remain Seoul’s top foreign policy priority. For its part, the North Korean leadership—facing a domestic crisis—will seek to balance between major powers in the region, using its nuclear and missile programs to blackmail them and receive economic assistance without making any political commitments. This approach would be facilitated by a long-term deterioration of US-Russia relations.

The ASEAN countries will focus on positioning ASEAN as an influential center of a new polycentric world. ASEAN will try to increase its involvement and influence on regional and global development. These tasks will not be easy to achieve, however, in view of the great diversity within the association and obvious differences among the interests of its individual members.

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## THE MIDDLE EAST: UPHEAVAL WITH NO CLEAR FUTURE

The Middle East will be the region that will be the most unrecognizable in 2035. The nation-state is under more threat there than anywhere else. Today’s national boundaries—many of which were set after the end of the First World War—are unlikely to survive intact; the formation of new states or the fragmentation is likely to occur. By 2035, fossil fuel use may have peaked, eliminating a key revenue source for many Middle Eastern states. The youth bulge will be disappearing but without having delivered a demographic dividend. The big question will be whether conflict has spread, engulfing the whole region or whether it has been contained and will die out by 2035. Today’s terrorist groups—ISIS and al-Qaeda—will have morphed into new ones or disappeared altogether. Terrorism itself might decline by 2035 if there is greater regional peace and cooperation. A non nuclear Iran would increase the chances for greater regional security, but equally plausible is a scenario in which Iran produces or comes

near to developing nuclear weapons, setting off a more enduring nuclear arms race. A Sunni-Shia “cold war”—if not escalating into a hot conflict—is also not beyond the realm of possibility. Positive scenarios for the region are not impossible, but less likely in the near term.

How the Middle East evolves has huge implications for the broader international system. Large-scale conflict would increase the likelihood of a more rapid spread of jihadism leading to terrorist attacks in Europe and the United States. The global economy would take a big hit if a conflict resulted in the closure of the Straits of Hormuz, cutting off oil supplies from reaching customers in Asia and Europe. Ironically, a full-blown conflict in the Middle East might cement closer ties among the great powers—the United States, Europe, China, Japan, India, and Russia. All these countries’ interests would be hurt by such a conflict; thus the great powers would have an increased interest in banding together to try to arrest a global descent into further chaos.

## The State Under Assault

In recent years, the Arab state has come under more threat than ever before. In the past, Arab states proved to be resilient, but in the years ahead Arab states are unlikely to hold their own. The state is now much weaker than ever before in terms of ensuring physical security. **Syria and Iraq** can no longer project power within their borders, let alone outside their borders. In Iraq, for example, since the fall of Saddam, the Kurds have laid the foundations for autonomy, if not independence. The Syrian civil war will probably continue for the foreseeable future with neither pro- nor anti-Assad forces able to prevail. If the Syrian civil war follows the pattern of other such civil wars, it could take as long as six to nine years to extinguish. Outside powers, including the United States, Europe, and Russia, will most likely try to arrange ceasefires which, if adopted, will probably be temporary. In a final settlement Syria will probably be remade into a federation with a few de facto autonomous regions rather than returning to a centralized authoritarian state. A decentralized Syria and Iraq increase the chances for an independent Kurdistan to eventually become established.

Syria and Iraq are not the most extreme examples of growing state failure in the region. **Yemen**—with an exploding youth population and dwindling vital resources, such as water—could splinter completely, becoming a long term source of instability and worry for the Saudis. Libya has more resources—mainly energy—but it is teetering on the brink because of a lack of functioning state institutions since Qaddafi’s fall in 2011. Well before 2035, the conflict among militias will have abated and a strongman will most likely have come to power.

**Lebanon and Jordan**—despite their internal religious and ethnic schisms—will probably muddle through despite the recent influx of refugees to both countries. Jordan will be aided by outside powers, particularly the United States, Europe, and Israel. By 2035 a de facto Palestinian state could emerge as a result of Arab-Israeli exhaustion and a desire to end the fighting. Big issues such as “the right of return,” demilitarization, and Jerusalem may still not be resolved; nevertheless, Israel—wanting to remain a Jewish state—may have moved out of most of the West Bank. Palestine’s economic future will be uncertain because Palestine will need to cope with its high number of unemployed youth to 2035 and beyond.

**Saudi Arabia and the Gulf states** are in a stronger position today than the rest of the Middle East, but their economic prospects to 2035 are questionable because of their reliance on energy exports to fuel their economies. The IMF assesses that the trajectory for oil prices is the main uncertainty for region. Rising US unconventional oil production has already reduced demand for OPEC oil, as witnessed in the recent fall in oil prices; worldwide demand may never recover fully in view of the growing supplies of conventional and unconventional energies and China’s effort to increase its energy efficiency.

Most of the Middle East producer states have sought to diversify, but with limited success. Nevertheless, Gulf Cooperation Council (GCC) sovereign wealth funds, which have built up sizable assets, are a magnet for investments from Asia, Europe, and elsewhere. The biggest threat that GCC countries face is probably a slow decline in living standards, sparking high levels of discontent.

Internal dissent has been on the rise in the Gulf countries and elsewhere. Owing to the spread of the Internet and growth of Al-Jazeera and a wide array of other competing news services, publics are much better informed and more critical of their governments. A turning away by Saudi Arabia and Gulf state monarchies from undertaking political, social, and educational reforms would intensify public dissatisfaction, particularly among the large youth cohorts. Whether women gain an increasing economic and political role remains controversial. Young girls and women are becoming much better educated, and a large number obtain PhDs in Saudi universities. However, women have fewer opportunities than men or Western women in the workplace. A strong backlash against women’s empowerment is likely to persist throughout the Arab world, particularly as long as employment opportunities for young men remain limited.

**Egypt's** domestic challenges prevent it from providing strategic depth for its Gulf allies. The government's moral authority has weakened significantly as economic prospects have dwindled for all but a very small group of elites at the top. In the 1950s and 1960s, the Egyptian and other Arab governments were largely able to provide economic security to a middle class that in return showed deference to their rulers. According to the Arab Human Development reports, this social contract has been coming under increasing pressure since the 1970s. No longer can the Egyptian government "co-opt the educated youth into what used to be a relatively well-paid civil service." The state no longer has sufficient means to do so, and the number of graduates angling for well-paid employment has exploded. In undertaking market liberalization in the early 2000s, the situation worsened: only a tiny segment—many of whom were political cronies—benefited from the reform. In 2008, the top ten companies on the Egyptian stock exchange were controlled by less than twenty families and some 40 percent of private sector credit was provided to just thirty companies.

Ironically, the most stable states in the region could turn out to be non-Arab—Iran, Israel, and Turkey—although each of them faces major challenges. Turkey's dream of developing peaceful relations with all of its neighbors has been dashed by the Syrian civil war, a deepening crisis with Israel, diminishing prospects for EU membership, and clashes with Sunni Arab states over Ankara's support for the Muslim Brotherhood. At one time in early 2000s, Turkey was seen by moderates in the region and outside in the United States and Europe as a model for the successful blending of the religious with the secular governance. The increasing religious cast and growing authoritarianism of the Turkish government under Prime Minister Recep Tayyip Erdogan has cast doubt on the government's ability to strike a balance between secular urban elites and the country's more religious Anatolian base. Over the longer run, the specter of an independent Kurdistan in neighboring Iraq could reignite tensions with Turkey's substantial Kurdish minority.

Israel faces a two-fold demographic challenge. On the one hand, if it holds onto the West Bank, it risks becoming a non-Jewish country because of the much higher Palestinian birth rates. Economically, Israel's future is less assured as long as the ultra-conservative Haredim are not encouraged to join the economic mainstream and work for a living. Nevertheless, Israel has the largest high-tech sector in the Middle East and the brightest economic prospects. An economically and politically strong Iran—not inconceivable in fifteen to twenty years' time—would probably not pose the security

threat it does today, but Iran could overshadow Israel as a regional power, particularly if Tehran normalizes its ties with the West.

Iran's growing importance derives from its relative gains in regional power as Iraq and other Arab states have grown weaker. The US war in Iraq in 2003 had the strategic effect of removing an important balance against Iranian regional hegemony, namely Saddam's Iraq. How Iran steers a path in the next two decades will affect the broader regional trajectory.

Iran might focus on modernization and domestic reform. Current policies as well as the isolation caused by sanctions have hollowed out the Iranian economy and created a sea of dissatisfaction among large segments of Iranian society.

The nuclear agreement—in providing an immediate payoff by lifting sanctions—*could* further bolster the moderates, positioning them to introduce domestic reforms, including economic liberalization. Iran desperately needs technical help to modernize its oil and gas production facilities. Increased Iranian gas exports would help diversify supplies for both European and Asian customers. Iranians outside Iran are poised to help expand the economy with investment capital if the economy is opened up.

A positive feedback loop would be established that begins to steer Iran along a path towards economic development. Fifty years ago, China, Israel, Korea, and Finland were relatively non-industrialized, scientifically unsophisticated, raw material exporters. Agricultural products, for example, constituted approximately 70 percent of Israel's exports during the 1960s. Today, knowledge-intensive products constitute more than 50 percent of Israel's exports. With a relatively well-educated population that has one of the highest levels of IT connectivity in the Middle East, Iran could take off the same way that other regional countries have.

The challenge for the moderates to use the agreement to carve out a path for Iran should not be minimized. Hardliners within the regime such as the Revolutionary Guard are not going to be easily convinced that Iran will gain the most by reconciling with the West and will see the national interest more in pursuing an expansionist policy throughout the region.

### Alternative Regional Scenarios

The Middle East is the region with the widest array of potential futures because of the dual-edged nature of many of the drivers of change and the possibility of devastating scenarios if conflict spreads. Three potential

futures are outlined below. Of the three, the first one—“sectarianism on steroids”—is among the more likely and potentially the most dangerous.

**Sectarianism on Steroids.** Rising sectarianism—which is currently fueling internal separatist conflicts in Syria, Iraq, and Lebanon—could spark a major conflict between Sunni and Shia powers. This could spell the end of the post-World War I Sykes-Picot division of the Middle East into multi-ethnic and/or mixed sectarian states. In the new Middle East in this scenario, states would probably consist of a collection of autonomous regions with ongoing conflict among them. The Kurds—big losers in the post-Ottoman era of new states—could be the big winners.

**New Authoritarianism.** A “new authoritarianism” in certain states—in part as a response to growing disorder elsewhere—is also likely. This trend is already evident in Egypt, where the middle classes have withdrawn their support for new democratic freedoms and appear, for the moment at least, to favor stability. In this scenario, an Israeli withdrawal from the West Bank gives a boost to the Palestinian Authority. With Iran’s help, Iraqi Shia reassert power over Sunnis and Kurds.

**Turning the Corner.** The most positive scenario, “turning the corner” is unfortunately the outlier in the short-to-medium term, even though this scenario’s emphasis on economic development is closer to the global norm. In this scenario, investor confidence in the region is ignited because Iran and the P5+1 reach a deal. The efforts to diversify economically in the GCC begin to pay off. Efforts to increase energy efficiency and slow domestic consumption are implemented in GCC countries, strengthening their fiscal positions. The uptick in the GCC’s economic growth spills over into the broader region.

The first two scenarios overlap in that both include continuing sectarian conflict and fragmentation within the core Levant region, especially Syria. In the second scenario, however—owing to the return of authoritarianism in the periphery, including Egypt and the Gulf monarchies—instability in the core areas might be more manageable and contained.

The first scenario describes a Middle East in which Sunni-Shia sectarianism has eclipsed Islam vs. the West and the Arab-Israeli conflict as the most salient conflict in the Middle East. This is a fair description of the region today. Looking to 2035, given that a major driver of rising sectarianism is the regional cold war between Saudi Arabia and Iran, the future direction of Iran will have a decisive impact on the trajectory that sectarianism takes.

Economic problems are structural—not cyclical—thus a turnaround in the next five to ten years is unlikely. At best, an economic recovery might occur around 2035, provided that much-needed reforms start being implemented soon. Absent a more promising economic outlook, political will and leadership are likely to be the most important determinants of whether the future of the Middle East is more positive or negative.

Outside actors—especially the United States, Europe, Russia, and Asia—are likely to play critical roles in the region. Clinching a major agreement with Iran could be an important confidence-building catalyst for reorienting the Middle East on a more positive path. Should the first scenario unfold, no outside actor, including the United States, could easily quell a major conflict that spawns an endless number of mini-conflicts across a wide swathe of the region. Ironically, Iran is the one country in which the United States, European countries, and Russia could use many tools to bring about a positive scenario that enables the region to turn the corner. Alternatively, a large-scale Sunni-Shia war could threaten the global economy and spur greater terrorism outside the Middle East. In such a scenario, all the great powers would have an interest in banding together to arrest a descent into global chaos.

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## AFRICA: CONTRASTS AND CONTRADICTIONS

To understand Africa’s likely trajectory, it is useful to see the variegation of the continent. A vast region of fifty-four nations ranging from mini-states like Gambia to mega-states like Nigeria with a booming population approaching 200 million, Africa is a region of contrasts and contradictions:

- In economic terms, Africa is one of the fastest-growing regions of the world, yet sixteen of the top twenty states on *Foreign Policy* magazine’s Fragile States Index are African.
- The continent contains most of the world’s uncultivated arable land, yet it has the lowest agricultural productivity and is a net food importer.
- Africa is a major energy exporter, yet half its energy use is biomass and one in four Africans lacks electricity.
- Democratization has taken root in many African countries, yet a governance deficit exists in others; up to one-third of the region’s countries are mired in civil conflict of varying degrees.

## African Diversity

The enormous size, scope, and diversity among Africa's fifty-four countries helps to explain the continent's contradictions. Sci-Fi novelist William Gibson has said, "The future is here—it's just not evenly distributed." The same can be said for Africa. A 2010 McKinsey Global Institute (MGI) report, *Lions on the Move: The Progress and Potential of African Economies*, offers a useful framework for thinking about Africa's diverse prospects. MGI suggests that most African nations fall into one of four clusters: diversified economies, oil exporters, transition economies, and pre-transition economies. These categories are somewhat fluid, but this approach provides a useful framework.

**Diversified economies** include the four most industrialized states (Egypt, Morocco, South Africa, and Tunisia) and Namibia, with Ivory Coast also a candidate. These economies are relatively globalized and urbanized. Manufacturing and growing construction, banking, telecommunications, and retail sectors have accounted for the bulk of their GDP growth. Ninety percent of families living in these countries have discretionary income. Their key challenges, looking to 2035, is to first invest adequately in education in order to create the necessary skilled workforce. Secondly, African countries need large scale infrastructure investment in communications, rail and road and power generation.

**Oil exporters**, led by Nigeria and Angola, as well as oil and gas exporters (including Algeria, Congo, Equatorial Guinea, Gabon, Libya, and Republic of the Congo) have benefited enormously from the boom in prices from 2002 until 2014. They are plagued, however, by the "oil curse": one-dimensional economies and limited public accountability are exacerbating corruption and excessive government spending. Nigeria, for example, which relies on oil for 95 percent of its exports and 75 percent of its budget, has taken some hard hits to its economy owing to steep declines in the price of oil.

Unless they qualitatively improve the use of their petro-dollars to diversify their economies and achieve more accountable and transparent governance, the exporters risk difficult futures. This situation will be intensified if global demand for oil peaks while the US-led "shale revolution" continues to transform global oil and gas markets.

As Africa's largest state and second largest economy, Nigeria is a bellwether for the whole region. The country has made some modest strides to address corruption and enhance transparency, and is often viewed as a desirable investment destination because its economy has become diversified to include manufacturing

and services. Nevertheless, Nigeria's socioeconomic situation remains disproportionately shaped by its petro-wealth and it faces continued ethnic and religious divisions. One measure of Nigeria's governance deficit is its inability to address the Islamist threat to stability from Boko Haram, which now controls swaths of territory in northeast Nigeria—in one estimate upwards of 15 percent of the country.

UNLESS THEY QUALITATIVELY IMPROVE THE USE OF THEIR PETRO-DOLLARS TO DIVERSIFY THEIR ECONOMIES AND ACHIEVE MORE ACCOUNTABLE, TRANSPARENT GOVERNANCE, THE EXPORTERS RISK DIFFICULT FUTURES.

**Transition economies** are best positioned to sustain the recent boom and take off economically. This group includes those in the fledging East African Community (EAC) Burundi, Kenya, Rwanda, Tanzania, and Uganda--as well as Cameroon, Ghana, and Senegal in West Africa. Ethiopia and Mozambique, though not designated as such by the McKinsey report, also can be considered transition states, albeit at an earlier phase in the process than the other states cited above. These nations have generally achieved relatively effective governance with improved education and healthcare and have begun to diversify their economies to include manufacturing and processing commodities as well as providing services. These states have also developed a dynamic entrepreneurial and financial strata and are home to growing middle classes. In addition, one of these countries—Ghana—has already benefited from significant oil discoveries and several of these states, including Mozambique, Tanzania, and Uganda are developing substantial oil and gas finds. Their challenge is to avoid the oil curse.

**Pre-transition economies** are the most problematic. These nations—Sierra Leone, Mali, Democratic Republic of the Congo (DRC)—and others such as Burundi, Niger, South Sudan and Sudan, for whom the term "pre-transitional" is a euphemism, have several common features. Several are landlocked (i.e., Burundi, DRC, Mali, Niger, Central African Republic) in the least integrated region in the world. Many are engulfed in internal civil

conflict of varying severity (DRC, Mali, Burundi, Central African Republic, DRC, Mali, and South Sudan), and suffer from political instability and/or poor governance. They are among the world's poorest countries, with per capita incomes under \$400, largely rural, and dependent on agriculture and raw materials exports. These states also tend to be among the lowest in human development metrics—education, health, access to clean water and/or modern energy services.

## Africa's Challenges

To sustain and modernize its diverse economies and societies, Africa will have to address a panoply of challenges. These range from addressing basics such as upgrading agriculture and water, improving access to electricity, better transportation infrastructure, and increasing regional integration.

**Agriculture** employs up to 70 percent of the work force in some African states. In a region with growing food needs, increasing agricultural productivity from its low base will be an important element in any African success story. African farm yields are the lowest in the world: less than half of the amount produced by farmers in India, one-fourth of the output of Chinese farmers.

Climate change, which causes droughts, extreme weather, and increasing aridity, is a factor in Africa's farming equation. However, the principal causes of the continent's agricultural challenges are emblematic of Africa's broader structural problems: small farm owners with low commercialization levels; lack of inputs such as fertilizer; dependence on rainfall and lack of irrigation technology; and inadequate financing, especially poor transportation infrastructure, that all raise costs. Poor soil quality combined with these other factors have resulted in a flat-lining of agricultural production during the past two generations.

At the same time, however, Africa is ripe for its version of the "Green Revolution," which benefited other parts of the world in the 1960s and 1970s, an imperative for sustaining growth. Raising production levels to those of India or China would mean a doubling or more of African grain, and by some estimates, a 10-12 percent increase in global food production. Moreover, as higher-yield seed varieties become available along with increased fertilizer inputs (African farmers use 1/10 the amount of inorganic fertilizer used in the developed world, 20 percent of that used by South Asian farmers), the potential for boosting productivity will grow. New GMO seeds, including those that need substantially less water than non-GMO seeds, can tolerate hotter climates and increase yields. Some, such as "golden rice," can also supplement key vitamins to enhance diets. Wider

acceptance of GMOs, which have generated ideological opposition despite the absence of scientific evidence of any harmful effects, could greatly benefit Africa.

**Energy** in Africa reflects many of the same problems—and enormous potential—as agriculture. Energy is a key enabler of development. With 14 percent of the world's population, Africa accounts for only 4 percent of global energy production—even after a 45 percent increase in African energy use since 2000. Despite the richness of its energy resources, both fossil fuels and renewables, Africa has an energy deficit resulting from poor supply. Less than 300 million of Africa's nearly one billion inhabitants have access to electricity. Africa is defined today by energy poverty with the majority of people in Sub-Saharan Africa lacking access to modern energy services. Instead, Africans rely on local biomass—such as firewood—for 48 percent of their energy needs. Tariff policies, inadequate transmission infrastructure, and distribution issues compound Africa's energy problems. Hydropower supplies 20 percent of the continent's energy, but Africa is only using about 10 percent of its potential hydropower resources.

Africa's **infrastructure** expenses are substantially higher than the world average, reflecting a lack of economies of scale and competition. The continent's infrastructure needs for 2035 are estimated at \$93 billion annually. This, melded with qualitative advances in regional and subregional integration, hold the key to Africa's future.

On a positive note, Africa has achieved great success in telecommunications. The mobile phone revolution—seven in ten Africans now has a cellphone—is a key factor in Africa's economic growth surge. Mobile telephony has had an economic ripple effect, boosting financial services, education, and healthcare and even helping farmers to be better informed about prices. Mobile phones have also boosted African access to the Internet. Though estimates vary, a still relatively low 25 percent use the Internet daily.

Although Africa has made great strides in telecommunications, the continent's energy infrastructure is inadequate for its needs: electric grids and mini-grid and off-grid systems need to be modernized and expanded. Constant power outages are a regular feature in Sub-Saharan African nations, and those outside cities have little access to electricity. South Africa and Egypt account for roughly two-thirds of the continent's electricity production. To provide Africans with near-universal access to electricity, which could boost the continent's GDP by 30 percent in 2040, some \$450 billion will be required in power sector investment.

The development of solar and wind energy—which together now supply less than 2 percent of the continent’s energy—could enable Africa to “leapfrog” as it has done in telecommunications and to build off-grid distributed energy. The International Energy Agency (IEA) forecasts that Africa could increase its wind power sixteen fold by 2035 to 16 gigawatts. The US Energy Information Agency (EIA) projects that solar energy generation in Africa will increase threefold by 2040, with large solar projects planned for Ghana, Morocco, and South Africa. East Africa’s Rift Valley is one of the world’s largest sources of geothermal energy, with an estimated 15,000 megawatts of potential clean energy that could be used by Kenya, Uganda, Rwanda, Tanzania, and other East African nations.

In addition to power, health/sanitation, water, and transport are in dire need of investment. Just 20 percent of Africa’s roads are paved, transportation links among the continent’s regions are poor, and those among various countries are even worse. Africa’s port-rail links are also underdeveloped compared to those of other developing regions such as South Asia. All these deficits would benefit from policy and regulatory reforms designed to improve the business environment in the respective African states.

With sixteen landlocked nations and the vastness of the African continent, **regional integration** is imperative for Africa’s success. Intra-African trade is the lowest of any region, 12.8 percent, and much of that comprises manufactured exports from South Africa. Adopting common customs, tariff and non-tariff politics, regulatory and travel procedures, and compatible and coordinated rail and road infrastructure are all essential features of regional integration. Such measures could enable Africa to attain economies of scale on a regional basis, as urbanization does within nations. Yet in Africa, all are lacking. Coordinated intra-Africa policies in rail, road, and energy infrastructure across the region are at an embryonic stage.

Several major subregional groupings encompass most of the nations on the continent: the Common Market for Eastern and Southern Africa (COMESA), the Southern African Development Community (SADC), and the Economic Community of West African States (ECOWAS). Each of these major groupings has made only rudimentary progress owing to legal and infrastructure deficits. The other major grouping, the East African Community (EAC), has made the most progress, creating a single EAC tourist visa, adopting a customs union, working toward a single currency, and trying to coordinate budget and fiscal policies.

## Potential African Futures

Since the onset of this century, Africa’s economy has been one of the world’s fastest-growing, averaging about 5 percent annually. The region’s increasing attraction of foreign capital flows, nearly \$80 billion in 2014, now exceed that of its foreign aid. Whether Africa’s economic dynamism is sustainable to 2035 or merely a result of temporary circumstances, however, is an open question. Some of the region’s success has been driven by a commodity boom. Other positive factors are an explosion of mobile phones that has allowed Africa to leapfrog technologically and accelerated the growth of financial, telecommunication, and other services. In addition, debt relief conditioned on reform, the culmination of conflicts, and improved macroeconomic policies have been important factors in Africa’s newfound advancement.

WHETHER AFRICA’S ECONOMIC DYNAMISM IS SUSTAINABLE TO 2035 OR MERELY A RESULT OF TEMPORARY CIRCUMSTANCES, HOWEVER, IS AN OPEN QUESTION.

Although Africa’s recent successes point to its potential, the enormous challenges facing the continent suggest that by 2035 it will still be a work in progress. Some analysts believe that Africa will continue its economic rise; others are pessimistic.

## Africa Rising?

In the view of many experts, the next twenty years will continue to see an Africa Rising, an emerging market with great potential. Western investors have begun to focus on the region as a magnet for investment. China, in a quest to meet its booming demand for natural resources, has pledged nearly \$200 billion in aid and investment in Africa. China now rivals Europe as the continent’s largest trading partner, and is building significant infrastructure in the region associated with the extraction of oil as well as minerals and agricultural commodities.

Twenty-seven of Africa’s thirty largest economies have grown at a rate of 5 percent or more during the past decade, twenty non-oil-producing states among them. Africa boasts 10 percent of the world’s oil, with new

discoveries of large reserves of oil and gas in East Africa, as well as an array of minerals from gold and chromium to platinum group metals and rare earths. In addition, Africa also has immense potential wind, solar, hydro, and geothermal energy resources. The region also contains more than 40 percent of the world's non-cultivated arable land.

Africa's prospective demographic dividend is another source of optimism: its annual population growth rate is 2.2 percent, more than double that of Asia's 0.9 percent. Though Africa's population growth rate is expected to slow to 2 percent according to UN projections, by 2030, the region's population is projected to reach 1.6 billion. The region already has the youngest population in the world: more than half of its total population is under twenty-five, and the median age is eighteen. There are almost 200 million Africans between ages fifteen and twenty-four.

Some demographic experts are increasingly worried that the expected decline in fertility rates assumed in the UN projections are overly optimistic. Some assess that the decline in fertility rates will stall. Under that pessimistic scenario, most Sub-Saharan countries would see their populations double by 2030-35, versus almost double in the more optimistic scenario of more rapidly declining birth rates. In either case, most countries, particularly those in East and West Africa where growth will be concentrated, will find it extremely difficult to deal with such large explosions in populations.

In the 2035 time frame, under the median projection, Africa's urban population will increase from 40 percent at present to about 50 percent by 2035, as its working age (twenty-four to sixty-five) population also grows. This has led to speculation about the rise of African consumers and a burgeoning middle class, already estimated to be in the range of 100-150 million.

For an outcome approaching an "Africa Rising" scenario, sustaining the growth trajectory seen over the past decade for the continent writ large will require a combination of three inter-related factors: steadily improving governance and resource management; substantial structural transformation; and a qualitative leap in functional regional integration.

## Afro-Pessimism

An equally persuasive array of evidence can be marshalled to sketch gloomy visions of Africa's future. According to the World Bank, the rate of poverty—people living on \$1.25 a day—in Sub-Saharan Africa is 47 percent, over 40 percent in twenty-four African countries. Agricultural productivity lags far behind that of the rest

of the world—grain production is less than one-half the world average. Although primary school enrollment increased 50 percent between 2000 and 2008, completion rates for many sub-Saharan African countries for which data are available are below 60 percent. One-third of primary students drop out without obtaining basic reading and math skills. Endemic corruption permeates all aspects of society in many African states, particularly the largest and most developed economies such as Egypt, Nigeria, South Africa, and Egypt.

South Africa alone accounts for 40 percent of the continent's manufacturing (over 80 percent of manufacturing is concentrated in South Africa, Egypt, Tunisia, and Morocco). As a percentage of GDP, industrial production accounts for roughly the same modest share of African GDP as it did in the 1970s.

With sixteen landlocked nations and only rudimentary regional integration, inter-African trade is only 10 percent of its total, much of that South African industrial exports. The informal sector contributes about 55 percent of Sub-Saharan Africa's GDP and occupies 80 percent of the labor force in Sub-Saharan Africa. Governance remains a significant problem, with corruption a factor inhibiting growth.

Moreover, Africa is one of the regions that is most vulnerable to climate change, putting multiple stresses on food and water. Arid and semi-arid regions continue to become drier, impacting agriculture and reducing the availability of water. While Africa has ample water resources, they are unevenly distributed, with about 25 percent of the population, especially in North Africa and parts of the Horn of Africa and Sahel, already water stressed.

## The Bottom Line

Governance will be a critical factor determining Africa's future. Africa's success in this century has resulted in large measure from reform pressures in exchange for debt write-downs and democratization, which has led to more transparent and accountable governments. Many of Africa's deficits in water, electricity, education, and healthcare are to a large extent the result of governance issues, that is, a mix of corruption and policies designed to benefit small elites.

As discussed above, African demographics can produce a dividend—if the burgeoning "youth bulge" coincides with education and healthcare policies that foster a cadre of skilled working-age Africans. But a youth bulge can also produce chaos and disorder, as evident in much of the Middle East, particularly one armed by information age technology.

The political trend lines in Africa are unclear. In North Africa, Tunisia and Morocco appear to be on a stable trajectory. Egypt appears to have airbrushed away the “Arab Spring” and stabilized a pre-uprising status quo. These three countries’ geographic proximity to Europe and role as energy suppliers offer an opportunity for deeper trans-Mediterranean integration. Whether Egypt’s Sisi regime can reform and manage the economy is uncertain. The “youth bulge” and urbanization are pronounced in West and East Africa, increasing risks of instability. Southern Africa, where much of the continent’s industrial capacity is concentrated, has been stagnant. Zimbabwe’s economy has been degraded by a generation of misrule.

Owing to its diversity, Africa is unlikely to have a single trajectory. Those nations in the diversified category or near the transition category discussed above are the most likely to remain stable and to advance their economic growth to 2035—pending progress in structural reform and sub-regional integration. Those nations in the oil exporter and pre-transition categories are the most problematic in regard to stability to 2030 at high risk for instability. The best-case scenario for these states to 2035 is muddling through; the worst case, continued internal instability and possible state failure in some cases.

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## LATIN AMERICA: WILL IT CATCH UP WITH THE WEST?

Latin America has made incredible economic progress during the past decade. The prolonged commodity boom in the 2000s fueled higher growth than the OECD average. The above average growth generated a drop in the poverty rate and a huge explosion of the middle class. Two hundred million people—one out of every three Latin Americans—is in the middle class. This constitutes “the second largest proportion” compared to other developing regions. Latin America now comes just after Eastern Europe in the percentage of the population that is middle class. The size of its middle class has doubled since 2001. As Michael Penfold and Harold Trenkunas noted in their article, “this is remarkable considering that the number of middle class Latin Americans had remained flat for the last two decades of the twentieth century.”<sup>39</sup> Similarly, there has

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39 Michael Penfold and Harold Trenkunas, “Prospects for Latin America’s Middle Class After the Commodity Boom,” Brookings Institution, February 10, 2015, <http://www.brookings.edu/research/articles/2015/02/10-lat-in-america-middle-class-prospects>.

been remarkable progress on the political front. With a few exceptions, dictatorships—military or otherwise—are largely a thing of the past, although democratic institutions remain weak in many countries.

The key question for the future is whether the region can maintain its economic momentum, particularly with China’s slowing growth which fueled the commodity boom. The OECD and IMF both see a slowing pace of Latin American growth; previous forecasts have been cut by more than half.<sup>40</sup> Even during the boom years, Latin American countries—with the exception of Chile, Uruguay, and some Caribbean states—struggled to get out of the middle-income trap and close the gap with advanced countries.<sup>41</sup> Looking back over the long term, Latin America has fallen behind Asia in catching up with the West. Brazil and South Korea, for example, both had similar income levels and rates of growth in the 1960s, but Brazil’s economic development stalled during the second half of the twentieth century. Brazil’s middle class comprised only 29 percent of its population, in contrast to South Korea’s 53 percent in the 1980s. Brazil has now caught up with South Korea; over 50 percent of its population is in the middle class, but its per capita income remains substantially less than in South Korea.<sup>42</sup>

The OECD believes the biggest economic challenge for the region is its modest productivity growth, which is lower than the OECD median. To boost productivity, Latin American countries will need to spend more on education—on top of their recent increased investment. Latin American educational rates are still below par compared with those of advanced economies. Although the region has achieved universal access to primary education, enrollments remain low in pre-primary as well as secondary and tertiary institutions. The quality of education also remains a problem. Out of sixty-five countries that are represented in the 2012 Program of International Student Assessment (PISA) exam, “seven of the top 15 performers in mathematics were Asian,

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40 *Western Hemisphere Regional Economic Outlook*, International Monetary Fund, October 2014, p. 4, <http://www.imf.org/external/pubs/ft/reo/2014/whd/eng/pdf/wreo1014.pdf>.

41 *Latin American Economic Outlook 2015: Education, Skills and Innovation for Development*, OECD, p. 3, [http://www.keepeek.com/Digital-Asset-Management/ocd/development/latin-american-economic-outlook-2015/executive-summary\\_leo-2015-4-en#page3](http://www.keepeek.com/Digital-Asset-Management/ocd/development/latin-american-economic-outlook-2015/executive-summary_leo-2015-4-en#page3).

42 Mario Pezzini, “An Emerging Middle Class,” *OECD Observer*, 2012, [http://www.oecdobserver.org/news/fullstory.php/aid/3681/An\\_emerging\\_middle\\_class.html](http://www.oecdobserver.org/news/fullstory.php/aid/3681/An_emerging_middle_class.html).

while all eight participating Latin American countries fell among the bottom 15.<sup>43</sup>

Moreover, the region's R&D expenditures remain low. Latin America invests 13 percent of its GDP in innovation capital versus the 30 percent average invested by the OECD.<sup>44</sup> Efforts to improve R&D investment are also highly concentrated. "In 2007, 60 percent of the region's R&D spending was made by Brazil, which invests 1.09 percent of GDP on R&D."<sup>45</sup> Latin America has an extremely low production of patents. On average, OECD countries registered 132 patents per year per million inhabitants in the 2000s, up from fifty in the early 1990s. In Latin America, only 0.9 patents are currently registered per year per million inhabitants, up from 0.3 in the early 1990s. Without more innovation capacity, it is unclear whether the region can compete with advanced countries.<sup>46</sup> Even compared to other developing countries, Latin America is not keeping up in building human capital. According to the OECD, Latin American firms in the formal economy are three times more likely than South Asian firms and thirteen times more likely than Pacific-Asian firms to "face serious operational problems due to a shortage of human capital."<sup>47</sup>

## Demographic Trends

"Population trends in Latin America have never been as favorable as they are today, and they may never be as favorable again."<sup>48</sup> Latin America has experienced one of the most rapid fertility declines anywhere. "Over the past three decades, fertility rates have fallen by at least half in the majority of countries, sinking beneath 3.0 everywhere except Bolivia, Paraguay and a few Central American countries..."<sup>49</sup> In Brazil and Chile, the fertility rate is below replacement level; Mexico's rate is only a little above replacement level. For the next decade or so, most Latin American countries will still be experiencing a demographic dividend. The Latin American workforce will grow, even though those aged over age sixty will

double from 43 million in 2000 to 83 million in 2020.<sup>50</sup> The median age will climb from twenty-six to forty by 2030. Latin America does not have an aging problem on the scale of Europe or East Asia. Thus Latin American countries have a comparative advantage over countries in Europe and Asia where the size of the workforce is already peaking.<sup>51</sup> However, the populations of Brazil, Chile, and Mexico may be older than that of the United States.<sup>52</sup>

The size of the working-age population of the region as a whole will increase proportionally to the rest of the population until approximately 2025. Chile's large demographic dividend will bottom out around 2030, whereas Brazil and Mexico will continue to enjoy their demographic dividend until around 2030.<sup>53</sup> Latin American countries will need to work hard to realize a demographic dividend during this relatively short remaining window. Up until the last decade of rapid economic growth, the region largely squandered the opportunity. Between 1,075 and 2,007 per capita GDP grew at just one-sixth the rate of that of East Asia.<sup>54</sup>

...LATIN AMERICA FACES THE CHALLENGE OF SPEEDING UP DEVELOPMENT BEFORE ITS AGING POPULATION REDUCES THE POTENTIAL FOR RAPID ECONOMIC GROWTH. IN OTHER WORDS, THE REGION COULD AGE BEFORE IT GROWS RICH.

The share of Latin America's population age sixty-five or over will triple from 6.3 percent in 2005 to 18.5 percent in 2050.<sup>55</sup> Like many other developing states outside of South Asia and Africa, Latin America faces the challenge of speeding up development before its aging population reduces the potential for rapid economic growth. In

43 Sergio Bitar, "Latin America in a Changing World," Inter-American Dialogue, Washington DC, March 14. PISA results can be found at OECD, "PISA 2012 Results in Focus." December 2013. <http://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf>, p.9.

44 OECD, *Education, Skills and Innovation*, p. 139

45 Red Interamericana de Competitividad, "Senales de competitividad de las Americas 2012," [http://www.riacreport.org/INFORME\\_FINAL.pdf](http://www.riacreport.org/INFORME_FINAL.pdf). See also Sergio Bitar's "Why and How Latin America Should Think About the Future," Inter-American Dialogue, Washington DC, December 2013.

46 Ibid, p. 137.

47 Ibid, p. 15.

48 Richard Jackson, Rebecca Strauss and Neil Howe, *Latin America's Aging Challenge*, CSIS, March 2009, p. 13. [http://csis.org/files/media/csis/pubs/090324\\_gai\\_english.pdf](http://csis.org/files/media/csis/pubs/090324_gai_english.pdf),

49 Ibid, p. 3.

50 Guillaume Corpart, "Latin American Consumer of 2020," [http://www.americasmi.com/en\\_US/expertise/articles-trends/page/the-latin-american-consumer-of-2020](http://www.americasmi.com/en_US/expertise/articles-trends/page/the-latin-american-consumer-of-2020).

51 *Global Growth: Can Productivity Save the Day in an Aging World*, McKinsey Global Institute, January 2015, p. 4.

52 Ibid., p. 1.

53 *Latin America's Aging Challenge*, p. 13.

54 Ibid., pp. 14-15

55 Ibid., p.1.

other words, the region could age before it grows rich. As the working-age proportion of the region's population shrinks, per capita income could decrease dramatically unless a boost in productivity occurs. McKinsey estimates that per capita income could drop by 30 percent in Brazil and Mexico—two of Latin America's current brighter economic spots—if productivity does not improve during the next fifty years.<sup>56</sup>

## The Governance Deficit

Latin America has made much greater strides toward good governance in recent decades than anticipated by most experts. Military dictatorships, which are no longer the norm, are being replaced by free and fair elections. In its latest 2015 survey, Freedom House still lists only one Latin American country as “not free” (Cuba) with the majority (68 percent of countries and 71 percent of the region's population) “free” and smaller portions (29 percent of countries and 28 percent of population) “partly free.”<sup>57</sup>

Nevertheless, democratic institutions in many Latin American countries are weakening. The most recent (2014) Latin America public opinion surveys show a weakening of public support for democracy—one of the lowest levels in a decade.<sup>58</sup> Legislatures and political parties are not the object of much public trust. “The most precipitous drop was in trust in elections.” The capacity of law-and-order institutions—the armed forces, national police, and justice system—have also declined in the last few years.

This popular backlash against the late Hugo Chavez and his legacy may signal the bottoming out of populism and Chavez's regional appeal. Chavez's recipe for using elections to justify the augmentation of executive powers and weakening of institutional checks and balances has resonated to varying degrees in Argentina, Bolivia, Central American countries, and Ecuador. Throughout the region, a strong trend has taken hold to increase the power of executives by changing constitutional norms to lengthen leaders' tenure.<sup>59</sup> Public apathy and a relatively weak civil society help to explain the lack of opposition to growing executive power. However, as shown by the

Venezuelan election, voters are increasingly worried about their economic prospects and when populists can no longer deliver, they face the same public ire as directed to any other political grouping that can not boost the economy.

Populism has flourished, especially in countries facing big economic challenges. Unfortunately, populist leaders and measures have usually exacerbated economic conditions over the longer term even if such leaders have provided short-term relief to their core supporters. Venezuela now faces economic collapse. Even before the recent drop in oil prices, the lack of investment in Venezuela's energy infrastructure by Chavez was undermining the country's capacity to produce oil. The long-term damage to governance—especially rule of law—from Chavez and his successors is likely to be even harder to repair.

With many in the recently emerging middle class vulnerable to falling back into poverty, the appeal of populism is likely to grow throughout the region. According to one estimate by Brookings scholars, 39 percent of the total middle class population in Latin America could see their newly found middle class status taken away from them as economic growth ebbs in coming years. The potential loss of income and status is compounded by the fact that the middle class in countries such as Brazil acquired high levels of consumer debt during the boom years in the 2000s.

High levels of organized crime and related violence in Mexico and Central America pose another major threat to governance. A persistent theme in the public surveys is that of personal insecurity. One out of two Latin Americans on average expresses dissatisfaction with the police.<sup>60</sup> Concerns about impunity increased in 2014, reversing a trend in which the public trusted that the guilty would be punished.<sup>61</sup> Public trust in the police and judicial systems is now so low that many prefer “hardline techniques to confront issues of crime and violence.”

Unfortunately, historically organized crime has been hard to uproot. Colombia took more than a decade to quell its organized criminal gangs and insurgency, but “organized criminal groups [still] remain an important source of instability.”<sup>62</sup> Mexico's current problem is partially

56 *Global Growth: Can Productivity Save the Day in an Aging World*, McKinsey Global Institute, January 2015, p. 8

57 *Freedom in the World 2015*, Freedom House, Washington DC, <https://freedomhouse.org/report/freedom-world-2015/regional-trends#.VOY1Wk10yUk>.

58 Elizabeth J. Zechmeister, “The Political Culture of Democracy in the Americas, 2014: Democratic Governance across 10 Years of the Americas Barometer,” *AmericasBarometer Insights: 2014*, Number 108, p. 9 <http://www.vanderbilt.edu/tapop/insights/10908en.pdf>.

59 Unpublished Club of Madrid Report. (Burrows was one of the contributors.)

60 *Ibid.*, p 5.

61 *Ibid.*, p. 5.

62 Maria Llorente, Jeremy McKermott, Raul Benitez Manaut, Marta Lucia Ramirez de Rincon, John Bailey, “One Goal, Two Struggles: Confronting Crime and Violence in Mexico and Colombia,” Wilson Center, Washington DC 2014, p. vi, [http://www.wilsoncenter.org/sites/default/files/Colombia\\_Mexico\\_Final.pdf](http://www.wilsoncenter.org/sites/default/files/Colombia_Mexico_Final.pdf).

blamed on traffickers seeking new smuggling routes. In both cases, building up an effective justice system and law enforcement are prerequisites for success in combating organized crime. Most experts project that organized crime will continue to have the upper hand in Central America, especially Mexico, for years to come. Institution-building is a long term process that takes years to accomplish and Central American countries, particularly, lack the resources to devote to the effort.

WITH MANY IN THE RECENTLY EMERGING MIDDLE CLASS VULNERABLE TO FALLING BACK INTO POVERTY, THE APPEAL OF POPULISM IS LIKELY TO GROW THROUGHOUT THE REGION.

### Regional Splits Could Deepen

Latin America is increasingly divided. Pacific Rim and northern countries are attracted to and enmeshed in the US-driven and Asian-focused trade initiatives. Brazil has looked to Europe, although it has grown increasingly dependent on commodity trade with China. Latin America is also divided in terms of development models. Over half of regional GDP comes from those countries in Latin America promoting free and open markets. The other half is tied to regulated economies in which there is a large amount of state control. Finally, regional integration has been attempted without a lot of success. South American countries often see themselves as having a separate identity from Mexico and Central America and vice versa.

Most of these trends are unlikely to be reversed easily in the coming years. Only Chile, Mexico, and Peru are currently in the TPP negotiations. Brazil, for the moment, is left out of the Transatlantic Trade and Investment Partnership (TTIP). Brazil's potential marginalization is greater because of Mercosur's stalled negotiations with the EU. Brazil has a strategic alliance with the EU outside of Mercosur, which it could use to bolster ties, avoiding isolation. Over time, Brazil could be brought into a three-way free trade area with the United States and Europe, but Brazilian leaders are uncertain about the country's direction. At times, through its BRICS membership, Brazil has been seen as aspiring to global leadership. Former President Luiz Inacio Lula took on global missions to act as a middleman between the P5+1 and Iran but

without much success. Currently President Dilma Rousseff has taken a much lower international profile, eschewing being a diplomatic "go-between." Perhaps in light of the historical and linguistic differences with its Spanish-speaking neighbors, Brazil's commitment to regional integration has never been strong. Finally, many Brazilians see a role for the country in strengthening ties with Africa, where some opportunities for synergies exist. For example, Brazil is a leader in developing new plant strains and seedlings that could help with Africa's growing food security problem.

Despite frictions pertaining to the US-Mexico border, drug trafficking, and immigration flows, US-Mexican ties have grown stronger since the 1994 NAFTA agreement and will be even tighter in the future. "Over the past few years, manufactured goods from Mexico have claimed a larger share of the American import market, reaching a high of about 14 percent, according to the International Monetary Fund, while China's share has declined."<sup>63</sup> Mexico's links with its northern neighbors will grow stronger because it looks increasingly like the "most competitive place to manufacture goods for the North American market."<sup>64</sup>

The scale of its problems—particularly violence associated with organized crime—sets Central America apart from the rest of Latin America. Crime rates in El Salvador, Guatemala, and Honduras are among the highest in the whole Latin American region. Crime rates in Costa Rica, Nicaragua, and Panama are significantly lower than those in the countries listed, but they have been rising in recent years.<sup>65</sup> Crime and violence weakens governing institutions; corruption in turn undermines public trust. Few of the killings have been investigated, let alone punished, for example, in Honduras.<sup>66</sup> The economic toll is also substantial—and will persist as long as the violence continues. The World Bank assesses that a 10 percent drop in the homicide rate could boost per capita annual income growth by a full 1.0 percent in El Salvador and by 0.7 percent in Guatemala and Honduras.<sup>67</sup> Except for Haiti, no Latin American country ranks high on any list of potential state failures. Central American economies have continued to grow despite the gang violence; economic growth has been fueled in part by the high level of

63 "As Ties with China Unravel, US Companies Head South," *New York Times*, June 1, 2014, [http://www.nytimes.com/2014/06/01/world/americas/as-ties-with-china-unravel-us-companies-head-to-mexico.html?\\_r=0](http://www.nytimes.com/2014/06/01/world/americas/as-ties-with-china-unravel-us-companies-head-to-mexico.html?_r=0).

64 *Ibid.*

65 "Crime and Violence in Central America," World Bank, Washington DC, 2011, p. ii

66 "Out of Control," *Economist*, March 9, 2013

67 "Crime and Violence in Central America", p. 9.

remittances coming back from Central Americans who have immigrated to the United States. Nevertheless, security and governance will remain fragile, particularly as long as drug traffickers continue to use Central America as a key transshipment route. Owing to its lack of competitiveness and sole reliance on US markets the Central American economy is not likely to grow at the rate that it needs to attract investment and generate jobs for its youthful population—more youthful than elsewhere in the region.<sup>68</sup>

Because of these sharp intra-regional divisions, region-wide platforms such as the Community of Latin American and Caribbean States (CELAC) have had only limited success. Given the diversity and discordant perspectives of Latin American countries, whether such platforms will ever achieve their goal of projecting a unitary political voice is questionable.

### **A Maturing Relationship with the “Yanks” in the Wake of Growing Chinese Influence**

For Latin Americans, who have historically dealt predominantly with a domineering United States, the advent of a polycentric world in last decade or two has opened a new chapter in regional development. The United States is likely to remain Latin America’s biggest trading power, but the region’s economic dependence on the United States will continue to lessen, particularly in South America.

China, particularly, has played a dramatic role in broadening the region’s geopolitical horizons. China is Latin America’s largest trading partner and the region’s second largest investor, behind only the United States. China is also a creditor of several Latin American countries. In addition, Chinese leaders have also stepped up their diplomatic engagement with their Latin American counterparts. Chinese presidents have “visited Argentina and Venezuela on five occasions”<sup>69</sup> in 2006–14, with Brazil and Cuba hosting them on four occasions in the same time period.<sup>70</sup> Chinese and Latin American leaders have agreed to establish a China-Community of Latin American and Caribbean States (CELAC) foreign ministers forum, allowing China to engage the region as a whole.

China is especially interested in Latin America’s raw materials, which will remain important to Beijing even as Chinese demand for them declines owing to China’s lowered economic growth. Observers have noted a deepening Chinese understanding of Latin American politics. After stumbling badly in its initial approaches, “China’s mining firms in Peru, for instance, have learned valuable lessons about effective community engagement and environment” and are “now effectively integrating themselves into established resource supply chains.”<sup>71</sup> China’s new-found interest in countries such as Venezuela and Cuba has given them a critical boost. In addition to benefiting from Beijing’s economic support, the fact that China has paid great much attention to a number of Latin American countries has provided a psychological boost to those countries, which have been stigmatized as “pariahs” by Washington. China has been a lender of last resort for Venezuela, providing \$50 billion in loans since 2005.<sup>72</sup> However, as both economic growth rates in China and Latin America slow, the degree to which China can or will continue to back economically challenged countries such as Argentina, Cuba, and Venezuela is unclear.

The ambivalence of many Brazilians toward China points to more complicated relations between the two sides. Brazil welcomes the geopolitical stature gained by co-membership with China in the BRICS group. At the same time, Brazil worries that China’s exports—which are increasingly high tech—are undermining Brazil’s manufacturing capabilities. Brazilians are also concerned that China’s investment has been focused exclusively on natural resources and related infrastructure development rather than in its fledgling tech sector.

Clearly, China will remain a fixture in Latin America, providing an alternative to the region’s sole reliance on Washington. At the same time, over time, the competition from China may force the United States to pay greater attention to the region’s perspective. The recent US opening to Cuba was a recognition by the Obama Administration that sanctions were not working.

68 *Global Trends 2030*, US National Intelligence Council, p. 85.

69 Margaret Myers, “In Latin America Tour, China’s Xi Shows Maturing Approach to Region,” *World Politics Review*, July 15, 2014.

70 *Ibid.*

71 *Ibid.*

72 *Ibid.*

## PART V

# What Kind of New Order—Four Scenarios

For the first time since the end of the Cold War, competing visions of world order are on the horizon. In addition to the reemergence of major powers such as China and India, a burgeoning strata of pivotal states—dynamic rising middle powers (particularly, Brazil, Indonesia, Saudi Arabia, South Africa, South Korea, and Turkey)—are likely to play an increasingly important role in regional security and global rules-shaping. Some of these emerging states—democracies (liberal and illiberal) as well as authoritarian regimes—harbor resentments against the US- and Western-created and controlled global institutions whose governing structures have remained largely static since 1947. Globalization does not necessarily mean Westernization, but rather is occurring increasingly on terms set by non-Western cultures as wealth and technology spreads to the East and South. Whether it is the BRICS launching their own organization and development bank, China initiating an Asia Infrastructure Investment Bank, Turkey becoming an illiberal democracy and distancing itself from the United States and the EU, or radical Islamists increasingly intent on bringing about a clash of civilizations, a paradigm shift in global governance is unfolding.

Ironically, the United States is experiencing an economic resurgence in 2014-15—it is unquestionably the most dynamic OECD economy—one that has closed the growth gap with emerging economies. The successful deleveraging of the US economy post-2008; the unanticipated shale revolution, which has boosted the economy; cheap natural gas, which has led to a surge in US manufacturing; and sustained technology innovation have put the United States in the best economic position of any of the major powers. Would Xi Jinping rather have China's economic predicament or that of the United States?

Nevertheless, the United States' situation does not alter the polycentric trends evident in the world. Moreover, the United States' political dysfunction, combined with Europe's economic stagnation and political divisions, is tarnishing the allure and soft power of the West. The surprising buoyancy of authoritarian capitalist nations

such as China and illiberal democracies like Turkey have left many analysts speculating about the future of the liberal world order. Today's world is a fragmented, messy, but not a classically multipolar one, in the sense of one with relatively equal poles. The United States remains the sole military superpower, with a defense budget larger than the rest of the world combined. Yet, as evident in the outcomes of the wars in Iraq and Afghanistan, military force is often of limited use in solving regional problems. As some pundits have said, "Just because you have a hammer does not mean every problem is a nail." A stable, modernizing Middle East is not an outcome that the application of external military power can achieve. Solving global problems such as poverty, disease, or climate change may lie more in public-private partnerships than diplomatic arrangements among states.

## Fraying Global Rules, Rising Global Uncertainty

Geopolitical uncertainty will be a feature of the coming fifteen years. The post-9/11 era has yielded to a low-level, but persistent and intensifying Islamic terrorist threat, principally to the United States and Europe, but global in scope. Experts do not have a clear sense of how political Islam will evolve to 2035 or whether the Middle East will come to terms with modernity. As elaborated in section on the Middle East—"Upheaval With No Clear Future"—of this report, how the political cauldron of the region plays out will be an important determinant of global stability. Widespread conflict in the Middle East could become a major threat to the international system or could become a unifying factor among the major powers. Whether US relations with China, and to a lesser degree, Russia, move in a more cooperative or confrontational direction is a key part of the cloudy picture. The fate of Europe—whether the European Union recovers economic dynamism, strengthens, muddles through, or moves toward renationalization—will also be a critical factor that will shape the world order. The protracted recession and Europe's anemic recovery raise the question of whether the EU can sustain its social welfare economic model.

Both the future of the euro and the idea of Europe as an experiment in meta-sovereignty are being challenged.

The Middle East and South Asia are the regions undergoing the most profound political transformation as they try to grapple with modernity. These interconnected regions will be turbulent over the coming decade: the Arab Spring that turned out more like winter is resulting in volatile, weak, Islamic-oriented governments during the near-to-mid-term. Internecine conflicts in Syria and Iraq suggest that the Arab state system in place since the Sykes-Picot agreement carved up the Ottoman Empire after World War I may be unraveling. Over the longer term, a key question will be whether Islamist ideology can substitute for good governance and economic growth or whether publics in areas under Islamist control—such as the caliphate in parts of Iraq and Syria—will not tire of the ideology and demand better living standards. Whether the demographic youth bulge in Southeast Asia becomes an asset fueling these nations' economic growth or a liability fueling conflict is a key question that will probably be settled by the quality of governance in those regions and the pace and inclusiveness of economic growth.

Major emerging economies such as China and India are approaching inflection points as they seek to sustain their economic dynamism and avoid the “middle-income trap” or stagnation—unable to compete with low-income, low-wage nations yet also unable to compete with advanced, innovative economies. The outcomes of the ambitious market-reform agendas of President Xi Jinping in China and of Prime Minister Narendra Modi in India will be key to whether they remain politically stable. A less stable China or India would increase chances of regional conflict, undermining global security.

Governmental weakness and dysfunction around the globe is a growing threat to international security out to 2035 as much as strategic competition between regional powers. The fault lines of the international system will continue to center on weak and failing states on the periphery of the global system. Indeed, the number of failing states seems to be increasing, encroaching on what were once considered stable regions such as Europe. Indeed, Greece's economic crisis and continued stagnation in parts of southern Europe is testing the viability of the European Union.

History suggests that on all these fronts, strategic surprise is likely. For example, the world will face growing and potentially destabilizing strains from rapid urbanization, especially exploding mega-cities, exacerbating these pressures: By the 2030s, 60 percent of the world's population will be living in cities, up from

50 percent today. By 2035, in China alone the urban population is expected to expand by 300 million out of a projected 1.5 billion new urbanites. Many of the major global challenges—from energy security to potential food and water shortages to governance and technological innovation—will be determined by how the world manages these urban regions.

### **History suggests that on all these fronts, strategic surprise is likely.**

In this increasingly post-Western world, what appears most in question are Western policies and norms that are viewed as threats to national sovereignty. Thus values-based issues such as democracy promotion and the Responsibility to Protect (R2P) tend to spark opposition from many developing states who still resent Western colonialism and equate any intrusion with past historical wrongs. Even tolerant democracies like India are reluctant to “name and shame” other nations or favor regime change. Similarly, fiascos like the ostensibly “humanitarian intervention” in Libya that resulted in the overthrow of Muammar Qaddafi and subsequent violent internal conflict have undermined the sense of legitimacy of such interventions.

### **Global Governance Deficit**

All the uncertainties outlined above—the problematic nature of governance at all levels, new economic dynamics, and emerging powers' efforts to redefine global institutions—make achieving a new international order among the growing number of major and middle powers virtually impossible. This diffusion of power will likely probably persist throughout the period to 2035. It has led some observers to conclude that we are in a “G-Zero world,” defined as “one in which no single country or bloc of countries has the political and economic leverage—or the will—to drive a truly international agenda.”

This is an exaggerated notion: on issues such as countering terrorism; combating maritime piracy; forging myriad regional free trade agreements; imposing and enforcing sanctions on nuclear proliferators such as North Korea and Iran; and even garnering initial G-20 financial cooperation in 2008, the United Nations P5 has often provided leadership and many emerging and developing countries have cooperated.

For illustrative purposes, the “G-Zero” concept highlights a substantial underlying cause of what is widely considered to be a global governance deficit. The UN had fifty-one members at its founding in 1945; it now has 193 member states. It would be considerably more difficult to write, much less achieve consensus on, the UN Charter

today. It is not an accident, for example, that countries involved in the current Doha Global Trade Round have failed to reach an agreement. As the chart below shows, each trade liberalization round since the 1940s has involved more nations, taken progressively longer, and has been more difficult to conclude.

The largely static global institutions such as the UN Security Council, World Bank, and IMF still largely reflect the power realities of the immediate post-World War II world, nearly seven decades later. The International Energy Agency (IEA) created by OECD consumer nations in response to the 1974 oil crisis, even now does not count two of the world's largest energy consumers—China and India—among its members. Yet it has proven too difficult bureaucratically to restructure the IEA to include the world's largest energy consumers. As a result, both China and India are free-riding on the Strategic Petroleum Reserves of the twenty-seven IEA members. Many countries call for “democratizing” the international system, even though some, like China, refuse to do so at home. However, more pluralistic decision-making in mechanisms to address global problems would not necessarily be more effective. Indeed the track record in the Doha Round failure or even the difficulty of reaching a partly legal-binding follow-on agreement to the the Kyoto Protocol on Climate Change at the recent COP21 summit suggests the opposite.

The lag between the diffusion of power in the international system and the distribution of power in the structure of multilateral institutions fosters resentment in emerging economies, complicating efforts at global problem-solving. It is relatively easy for nations to block global outcomes whether the Kyoto accord on climate change, the Doha global trade round, or UN efforts to reach a treaty to cutoff production of fissile material. The growing trend of trying to fashion alternative institutions—from the Chiang Mai Initiative spurred by the 1997-98 Asian financial crisis to China's AIIB—increases the difficulty of forging cooperation for effective action to address global problems.

Nonetheless, the world is not in a state of anarchy. There are dozens of obscure mechanisms, such as the International Civil Aviation Organization (ICAO) whose rules allow world airline flights, the Internet, international mail, global use of credit cards, patent and copyright protection, nuclear safety, and myriad other transnational activities that most people take for granted. This “plumbing” of the international system has enabled the daily functioning of globalization even though some of these mechanisms, as evident in the global debate over the future of the Internet, are being contested.

## GLOBAL GOVERNANCE: THE “PLUMBING” OF DAY-TO-DAY GLOBALIZATION

Arctic Council, European Union, World Health Organization (WHO)

World Intellectual Property Organization (WIPO)

World Trade Organization (WTO)

International Atomic Energy Agency (IAEA)

International Maritime Organization

International Civil Aviation Organization (ICAO)

International Telecommunications Satellite Organization (INTELSAT)

International Committee of the Red Cross (ICRC),

International Maritime Satellite Organization

Internet Corporation for Assigned Names and Numbers (ICANN)

European Bank for Reconstruction and Development International Court of Justice (ICJ)

The notion of a governance deficit most properly refers to global problem-solving. Avoiding the worst-case 2035 scenarios discussed below requires adjusting the global order in ways that more accurately reflect the influence of emerging G-20 powers and regional groupings. The United States will be tested to share power in global institutions with China, Russia, India, Brazil, and others. Those emerging and middle powers that have been more comfortable as free-riders will be challenged to do their part. The best case would be a world in which emerging states and nonstate actors become responsible stakeholders and stewards of the global system.

One key problem in updating institutions is that a tradeoff occurs: on the one hand, the institutions are viewed as being more legitimate; on the other, the effectiveness of those institutions can be hindered when additional states play bigger roles in decision-making.

Efforts have been under way for a generation, all unsuccessful, to reform the UN Security Council (UNSC). However logical it might be to include Brazil, Germany, India, and/or Japan in the UNSC, would adding more veto-wielding UNSC members make the Security Council more effective?

Similarly, post-2008 efforts to reform the international financial system, much of it centered in the G-20, have seen limited success. Accommodating the “rise of the rest” will come at the expense of Europe, which is in many instances (e.g., two EU members on the UNSC) over-represented in post-World War II institutions. In the IMF, an 85 percent supermajority is required for major decisions. What happens when the US vote in the IMF—currently 16.75 percent of the total—falls below the 15 percent required for a veto? The US Congress has failed for two years to pass IMF reform legislation that would change voting rights. As a result, China has fewer votes in the IMF than France, and the gentlemen’s agreement between the United States and Europe still dictates who leads the Bretton Woods institutions. This inertia helps explain and provides a veneer of legitimacy to efforts by the BRICS, and China, in particular, to fashion parallel institutions.

## Power Realities

Globalization, the dispersal of economic strength beyond the West, and not the least, the growing role of nongovernmental organizations and empowered individuals, have changed the nature of how power is exercised—the ability to obtain desired outcomes. Rather than a G-Zero world, major and middle powers will increasingly have to navigate a world that might be characterized by “situational power.” In such a world, the United States’ overwhelming military preeminence will not translate into the ability to determine outcomes. Different issues and problems will require different tools and different constellations of actors to obtain results. The operative principle should be that form follows function: who has a seat at the table depends on what they bring to the table on a given issue. The test of leadership will be the ability to mobilize partners to solve problems. For example, in addressing the conflict in Syria and reaching a stable outcome, Turkey, Saudi Arabia, Qatar, or Russia may be at least as important partners for the United States as Europe, if not more so. The “5+1 talks” on the Iran nuclear issue is the sort of ad hoc diplomacy likely to be a feature of future global problem-solving. On some issues, such as climate change, global health, and education, nonstate actors and super-empowered individuals like Bill Gates and the Gates Foundation may be important partners.

Although efforts to update the UN system will remain an important challenge, and the UN umbrella is often an important source of legitimacy, the utility of the United Nations is limited. UN specialized agencies monitoring nuclear weapons, helping refugees providing food aid, and fighting disease will remain important institutions that should be strengthened. Since the end of the Cold War, however, ad hoc multilateral cooperation has frequently been the most effective mechanism for global problem-solving. This was evident in the East Timor Crisis in the 1990s, the coalition of naval powers cooperating in the 2004 Tsunami relief effort, the 2001 SARS (Severe Acute Respiratory Syndrome) pandemic, the 2007 H1N1 virus pandemic threat, and the fight over maritime piracy in the Gulf of Aden, just to name a few. The sixty nation anti-ISIS counterterrorist coalition is the most recent example of the application of situational power and ad hoc multilateralism. The coordinated effort of sixty nations combating piracy off the coast of East Africa is facilitated by several UN Security Council resolutions giving it a hybrid ad hoc/UN character. Many such exercises can be conducted under Chapter VIII of the UN Charter, which authorizes regional groups to take action and can thus offer UN sanction as an important source of legitimacy.

Applying the ad hoc multilateral principle more broadly, it made sense to form a Major Emitters Group: sixteen of the largest emitters account for 85 percent of greenhouse gas (GHG) emissions. Given the unwieldy nature of the Kyoto climate change process involving 193 UN members, agreement among the key players would be a predicate to success in reducing the accumulation GHG emissions. Similarly, despite their inconclusiveness, the Six-Party (US, China, Russia, Japan, North Korea, and South Korea) talks on denuclearizing the Korean Peninsula have included the appropriate players. A framework along these lines is likely to remain an important mechanism to manage the situation in northeast Asia when Korean reunification occurs. On the other hand, success on some issues can better be ensured by expanding the number of nations that participate. The United States launched the Proliferation Security Initiative in 2003, a network of countries willing to cooperate to halt the trafficking in weapons of mass destruction technologies. From an initial ten members, the network has expanded to ninety-eight countries.

US primacy may remain—particularly in the military sphere—but on an increasing array of issues, the operational meaning of US leadership will be a *primus inter pares* relationship with partners, state and nonstate actors, and networks. In some spheres, Washington may need to share leadership. Regardless of the degree to which some partners may be much less

than equal, reaching consensus for cooperative action will often require that more players have a sense of enfranchisement. Operationalizing *primus inter pares* is an art, not a science.

## Four Potential New Worlds

The potential for breakdown of the international liberal order is greater than ever before. The possibility of turning the clock back to a more inclusive, integrated world order, in which interstate competition was kept in check and there was more scope for cooperation, seems remote. We paint a picture below of different global orders and how they come about from the same starting point—the current fraying international order.

THE WORST OUTCOME WOULD BE THE EMERGENCE OF A NEW BIPOLARITY PITTING A GROUPING AROUND CHINA OR RUSSIA AGAINST THE UNITED STATES.

## A New Cold War

In a repeat of Churchill's 1946 dictum: a new curtain descends across the world. As was in the first half of the earlier Cold War, establishing an equilibrium in this world order would be an immense feat. Countries do not know each other's redlines. Major state-on-state conflict is no longer unthinkable. Nationalism is rearing its ugly head. Revisionist history is afoot. Globalization is seen as a sham—despite the numbers of people who have climbed out of poverty, the East and South see globalization as a device that has promoted Western interests. In the West, globalization is seen as benefitting the United States' and its allies' enemies.

In this scenario, war breaks out between the major powers, first on Russia's borders in the wake of the ongoing crisis in Ukraine and then in Asia, where the United States and China come to blows. The UN is immobilized. The G-20 is a shell. Only half of the member countries show up when a meeting is held in a Western capital. China is talking about pulling out of the IMF and the World Bank. The number of Chinese students in the United States has plummeted.

Globalization had been cyclical—the last big burst ended with the First World War—but at the beginning of the twenty-first century, it was thought to be everlasting.

## Eurasia Leading the Way

US-led sanctions against Russia at the time of the Ukraine crisis drives Russia to look East, particularly to China, India, and Pacific Asia as a whole. Russia sees its long-term energy future in Asia, and nearly half a trillion dollars in gas and oil deals with China has bolstered a shaky economy.

China gains a valuable partner—instead of a rival—for stabilizing and modernizing Eurasia—which China no longer sees as a backwater, but as its economic future. China's "One Road, One Belt" or "pivot West" to Eurasia is turning a vulnerability—a border with fourteen nations—into a strategic asset.

A successful partnership in Eurasia boosts what had been an ailing backward region by putting in infrastructure and serves a double purpose: economic development there helps counter what has been a growing trend of extremism that threatens Moscow, Beijing, and numerous Central Asian regimes. China and Russia use their success to showcase the non-Western model of authoritarian-style state-centric capitalism. Africa and Latin America—where China development largesse has already made inroads—are reaping lessons from Eurasia's rapid development.

Sino-Russian cooperation extends into other realms, including the UN, WTO, and other Bretton Woods institutions. More importantly, Russia and China develop the SCO into the premier regional body, overshadowing the TPP. India and Pakistan joined SCO years ago: it has become the place that China and India are beginning to settle their differences and build cooperation. SCO could become a body where India-Pakistan tensions could calm down, just like how the EU and NATO canceled the centuries old-conflict between Germany and France.

## A New Global Concert

For the first time since the 2008 financial crisis—when the global economy was threatened and G-20 leaders were forced to work together to prevent a worldwide depression—the prospect of a nuclear war brings Western leaders and the leaders of emerging powers together. Alone, the West has neither the will nor capacity to defuse the military escalation in the Middle East and South Asia. As nuclear powers, Russian and Chinese leaders have a motive for preventing proliferation and an outbreak of war between Israel and Saudi Arabia against Iran in the Middle East. As in 2008, such a war would

undermine the global economy, potentially destabilizing the economies of China and Russia, as well as their political positions. The stakes for Western leaders are equally high.

No agreement is perfect, but the newly established “global concert” starts anew a global process of arms control and nonproliferation. The G-20 is beefed up and becomes the new UN Security Council. Asians are given a much bigger role in the Bretton Woods institutions. Most importantly, the peacekeeping force sent to the Middle East reflects the strong multipolar effort. NATO, the Chinese People’s Liberation Army, India, and Russia command and coordinate the effort as a group. It is as if the Congress of Vienna had been updated for the global multipolar world.

### Coming Apart at the Seams

Most observers expect that the great powers are on a collision course with one another—until each of them starts to collapse from within. The great powers all start to topple like bowling pins. The wrecking ball is not a war with one another; rather, it is the internal decay that has been festering within each country for some time, the result of social cohesion being ground down by globalization, the technological revolution taking away jobs, and the inability of governments to rise to those challenges in the eyes of the citizenry. The advanced democracies prove to be just as vulnerable as the authoritarian states.

Owing to the dysfunction of all the major powers, the simmering Sunni-Shia conflict eventually leads to a nuclear war. Climate change promises are not kept, and there are no extra efforts made to keep the rise in temperatures to below two degrees. The world is on track to a four-degree climb in temperatures by the end of the century—something future generations are left to deal with.

## RECOMMENDATIONS

We see a rich and critical agenda of shared interests, which cannot be ignored during this period of heightened global tensions. Without leadership from the United States, Russia, Europe, and China, as well as from other countries, these issues cannot be tackled:

- Stemming nuclear and weapons of mass destruction (WMD) proliferation
- Countering religious-based violent extremism
- International trade
- International environment (e.g. oceans, climate change)
- Global Commons—move toward new norms, rules, codes of conduct in maritime, air, cyberspace, and outer space

A world in which there is no agreement among the major powers would be harmful to everyone’s interests and future. Developing inclusive mechanisms—such as those that existed with the P5+1 engagement with Iran over its nuclear program—to deal with major issues will be critical for successfully resolving them and may help to resolve existing differences. Another example is the six-party process (China, Japan, Republic of Korea, Russia, and the United States), which has gradually lessened differences between the parties and established a consensus among the five principal outside actors on their policies toward North Korea. The worst outcome from the current differences would be the emergence of a new bipolar division between Russia and China on one side and the United States and Europe on the other.

The risk of fragmentation in the global system is increasing, despite economic, technological, and environmental interdependence. In a fragmented, bipolar world, competing ideas of regional and global order and norms (e.g. precepts of European security versus the Sinocentric institutions proposed by Beijing) are only likely to grow in intensity. As a brake on further fragmentation, the G-20 should be institutionalized as the central forum for global economic management, expanding its role to be able to forge more political consensus.

Both the United States and Russia face critical strategic choices if they want to successfully navigate the increasingly treacherous seas of global interdependence.

**Russia's strategic choice:** Russia is both a European and Pacific power with substantive economic and security interests in the East and compelling historical, economic, cultural, and security interests in Europe. Securing inclusion in a broader transatlantic economic and security architecture will remain critically important as Russia explores a broader agenda of cooperation with its Eurasian neighbors, including China.

**The United States' strategic choice:** In moving from primacy to *primus inter pares*, the United States needs to update the international system to reflect the new weight of emerging economies. Finding ways to overcome differences in interests and values will ensure that an international system does not fragment and remains open to the free flow of commerce, technology, and new ideas. The conflict in Ukraine has now become the focal point for renewed tensions between Russia and the United States/Europe, though it may well change in a long term perspective. In this regard, there are areas where US and Russian interests on Ukraine overlap, areas where there is a wide gap, and areas where efforts to reconcile them are needed:

- Neither the United States nor Russia want Ukraine to become a failing, unstable state or the economy in eastern provinces to remain shattered.
- In regard to trade, Ukraine (and Russia) could have trade agreements with both the EU and the Eurasian Union. Ukraine's trade goes in both directions.
- Minsk 2 and future formal processes should seek to find a balance of US, EU, and Russian interests. To the United States and the EU, Russia's actions constitute a violation of another country's sovereignty; for Russia, it is about historical interests, culture, identity, and respect for Russian interests in the post-Soviet space.
- A stable, prosperous, and military-neutral Ukraine that is integrated into the regional and global economy is in everybody's interest. There is a need to move beyond another "frozen conflict" and define mutually acceptable understandings and commitments on European security and an inclusive Russian role.
- Knowledge of the forces eroding the foundations of the post-Cold War international system can serve to animate a sense of mutual responsibility. This can narrow the gap in global governance and motivate efforts to develop an inclusive, rules-based multilateral order that can lower the risks of conflict, while providing the basis for global cooperation.
- Keeping the communications channels open is critical for both sides. A lack of mutual understanding can only aggravate the sense of resentment and hostility on both sides. The US, Russian, European, and Chinese governments should encourage efforts by universities, think tanks, and scientific and business organizations to step up their exchanges. These exchanges remain critical at this time of heightened tensions.

