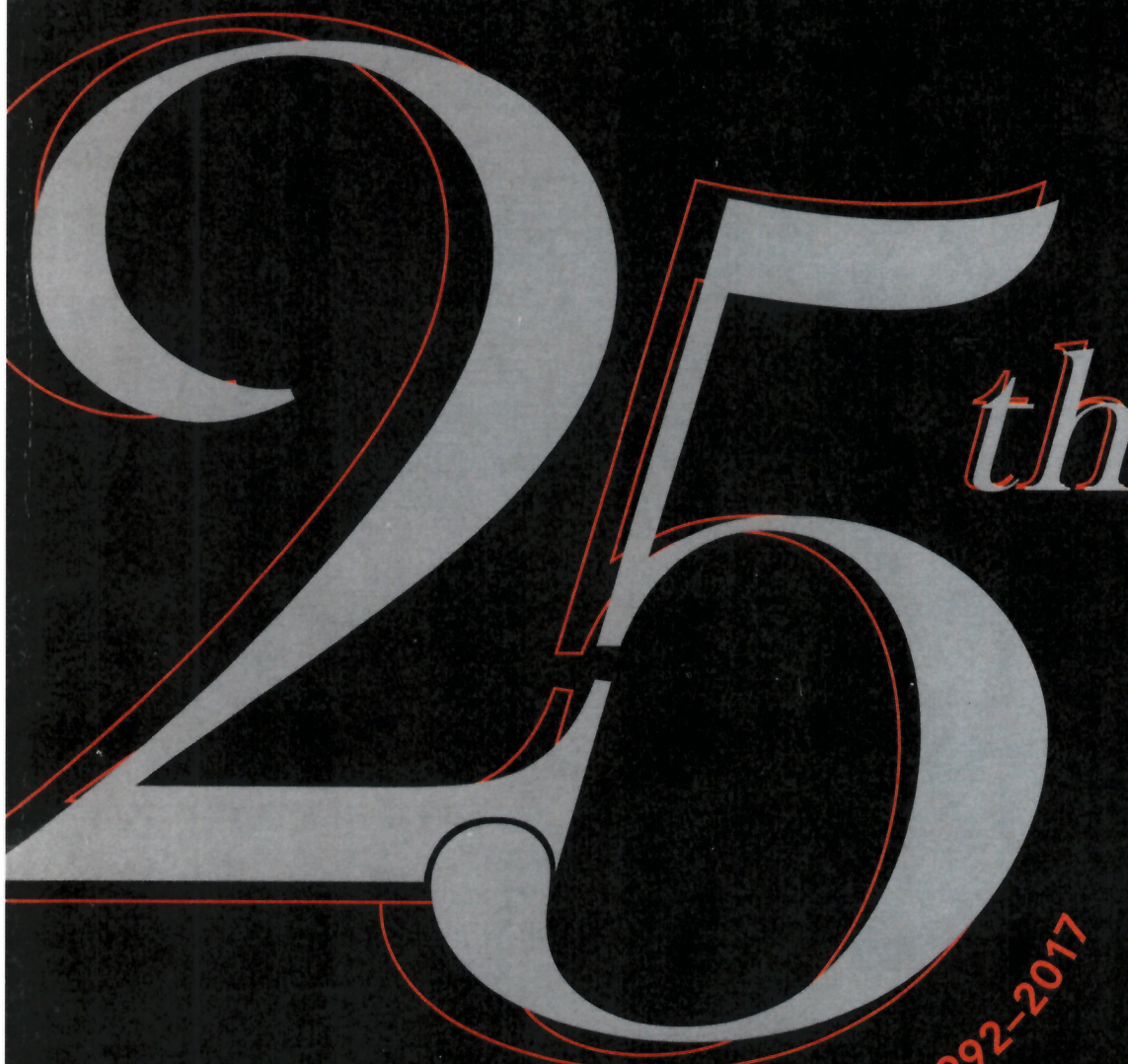


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Looking Both Ways: A Quarter Century in Emerging and Frontier Markets

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*"Whenever you find yourself on the side of the majority,
it is a good time to pause and reflect."*

—Mark Twain, June 10, 1878¹

Crossing any street in Lagos, Lusaka, Dhaka, Dar es Salam, Nairobi, or Saigon, it is always a good idea to look both ways. You might get run over by a matatu, a tro tro, a dala dala, or a danfo. These battered minibuses, packed with people, are often the only public transportation. It is a matatu in Kenya, a tro tro in Ghana, a dala dala in Tanzania, and a danfo in Nigeria. All are uncomfortable, unsafe, uninsured, and probably driven by madmen—but they are cheap and convenient.

Having journeyed in emerging and frontier markets for more than 25 years, we have gotten used to looking around carefully. Although investing in developing markets has not been embraced by the majority, this is a good time for us to pause and reflect. It is also a good time to adjust our glasses for a look at tomorrow.

In 1990, I was working to launch equity funds for China and the Soviet Union (Le Baron [2002]). Then, in the mid-1990s, I worked with global emerging market funds. Ten years ago, we began specializing in the frontier markets with our firm, Frontier Market Asset Management.

Along the way, we have been among the few voices making the case for these less-popular

developing stock markets. We thought then, and we think now, that these markets present unique opportunities for investment. Within them, active stock-picking can be rewarded by inefficient pricing, and across them, low correlations provide outstanding diversification. Today, many emerging markets have developed and become recognized; frontier markets are following the same path, which has been made easier by the pioneering done by China, India, Poland, and others.

Over the years, we have traveled in more than 50 countries. We have eaten scorpions, worms, sea slugs, and hairy crabs. We have encountered election violence in Malawi, food poisoning in Kiev, terrorist threats in Dhaka, a company protesting witchcraft in Pakistan, and crowds of schoolkids clamoring for photos in Ghana. We have sat in hundreds of on-site company meetings. And we have found some good ideas.

THE WORLD AS WE KNEW IT

Looking back to 1990, it is easy to forget the primitive world in which we lived. My cell phone was bigger than a brick, with a handset and a cord that plugged into the cigarette lighter in my car. The box office hit was *Home Alone*, and Mike Tyson was knocked out by "Buster" Douglas. A first-class stamp cost 25 cents, and a gallon of gas cost \$1.16. The Internet was just beginning, and emails were

unheard of. DVDs would not be introduced for three more years, and Viagra for eight. In countries with developing markets, Nelson Mandela was freed in February 1990. In March, Lithuania declared independence from the USSR, and in August, Iraq invaded Kuwait, causing a jump in oil prices from \$17.50 to \$25.60/bbl.

The world population was 5.2 billion in 1990; now it is 7.2 billion, and by 2050 it will be 9 billion, as shown in Exhibit 1. Fortunately, with falling birthrates,

population should peak around 2100 at 9.2 billion. Exhibit 1 shows that in 1990, India had only 74% as many people as China, and Africa had only 55%. Now, India has caught up to China and in another 15 years will have surpassed it, and the African continent will have surpassed them both.

THE GREAT DIVERGENCE

After thousands of years of zero growth and Malthusian economics, incomes began to rise in the late 18th century with the Industrial Revolution (De Long [1988]). The benefits, however, were skewed toward the countries that were already the most advanced, as shown in Exhibit 2. By the 1850s, for example, it was cheaper to manufacture textiles in Britain than in India, even though British workers' pay was five times that of Indian workers (Broadberry and Gupta [2005]).

The *great divergence* shows the widening gap in the 19th century between incomes of developed countries,

EXHIBIT 1

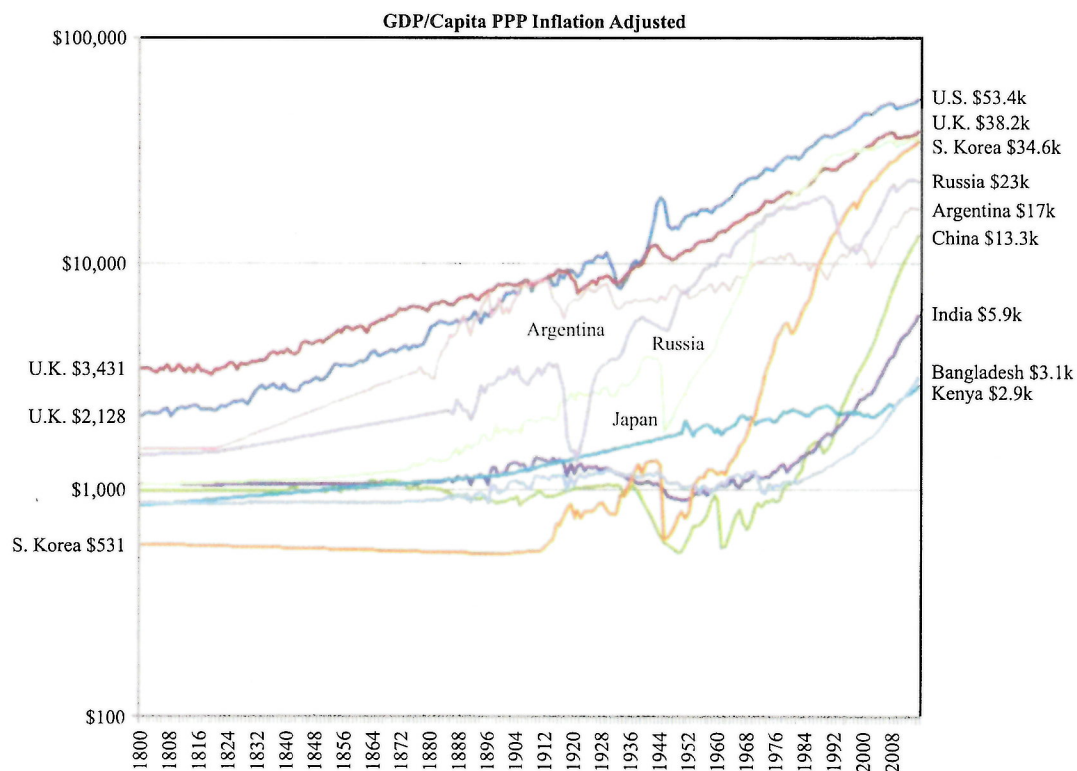
World Population

Year	World	China	India	Africa
1990	5,279,519	1,155,305	849,415	635,685
2015	7,219,431	1,392,080	1,318,439	1,150,707
2030	8,199,104	1,432,149	1,541,760	1,571,907
2050	9,075,903	1,393,942	1,736,226	2,214,067

Sources: UN Population and ChinaPop 1210.

EXHIBIT 2

The Great Divergence



Source: Gapminder, 2016, gapminder.org/data/, Outlook/gdp_per_capita.

represented by the United States and United Kingdom, and those of “third world” countries, which were stuck around \$1,000 GDP per capita.

After World War II, Argentina fell under the sway of the statist, protectionist policies of Peronism and lost half a century of growth. Meanwhile, “Japan Inc.” became an economic powerhouse until its asset bubble burst in the 1990s. Exhibit 2 also shows the collapse of Russia after the breakup of the Soviet Union. Most significant in the last 50 years, however, is the convergence of incomes due to growth in the developing world. South Korea is most dramatic example because it began from the lowest level, but the progress of China since the Cultural Revolution has been called the greatest movement of people out of poverty in the history of humankind. Exhibit 3, from *The Economist* [2016], shows that in 1990, China and India each had three quarters of a billion people living below the poverty line of \$1.90 per day. Now, most people in China are above the line, whereas India and the rest of the world have only made small gains. We hope that this could change now, given recent reforms in India.

In addition to the opening of China, with its 1.1 billion people, the fall of the Iron Curtain 25 years ago unleashed the potential of another 350 million people in Eastern Europe (Congressional Budget Office

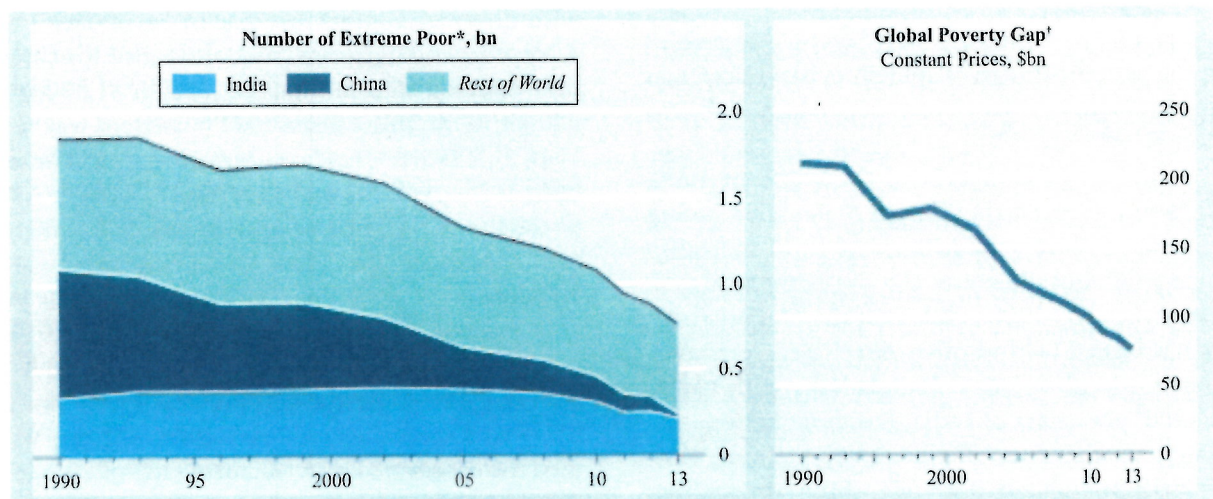
[1977]) who had been shut off from global commerce. Suddenly, workers in the West faced competition from workers in emerging and frontier countries whose wages were less than a quarter of the Western level. The consequences of this competition on blue collar workers are still being felt—and reflected in elections.

Another story in the data of Exhibit 2 is amplified in Exhibit 4, which compares growth in the past 10, 25, and 200 years. During the past 25 years, growth rates for the United States and United Kingdom have remained similar to those of the prior 200 years, but Japan slowed sharply. Meanwhile, China and India have accelerated dramatically. The past 10 years have seen a general slowdown because of the 2008 financial crisis and its aftermath. Lately, China, the leader of the convergence of incomes for three decades, has slowed, but many developing economies, such as India, Kenya, and Bangladesh, have continued to accelerate their growth through better government, education, technology, and reforms.

PROGRESS IN HEALTH

Although GDP per capita is an important measure, money is not everything. Improved health is much more important to quality of life, and those improvements

EXHIBIT 3 People Below the Poverty Line



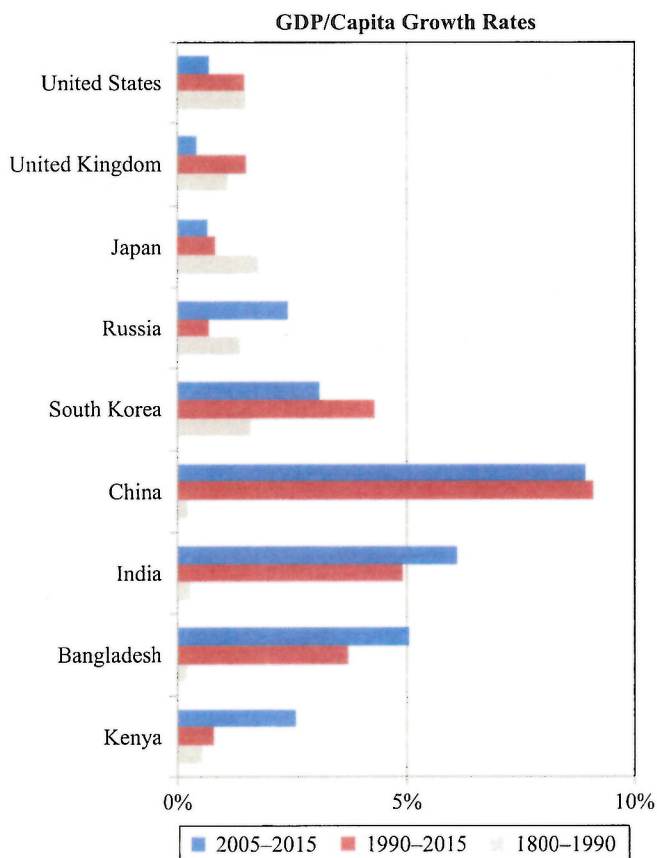
*Living below \$1.90 a day, using 2011 \$ at purchasing-power parity.

†The aggregate amount by which the global poor fall short of the poverty line (calculated at market exchange rates).

Sources: World Bank; IMF; The Economist.

EXHIBIT 4

GDP per Capita for Selected Countries



Source: Gapminder, 2016, gapminder.org/data.

takes many forms, including the day-to-day risk of malaria, the periodic threats of epidemics like Ebola, and the tragic problem of infant mortality, which is shown in Exhibit 5.

It is difficult to comprehend the world of 1800, when 46% of infants in the United States died before age 5. Exhibit 5 shows the history of child mortality rates since 1800 and illustrates the dramatic improvements since the early 1900s. Whereas the United States recently has lagged behind other developed countries, China has made great gains. Bangladesh, with barely half the GDP per capita of India, has done better, cutting infant mortality from 224 per 1,000 births in 1970 to 38 in 2015; India's rate is 48 per 1,000. Meanwhile, Nigeria is still at 109, and Kenya is down to 50.

The bar chart in Exhibit 6 shows the accelerating rates of improvement in child mortality for many

countries in both the last 25 years and the last 10. China shows a 7.8% annual rate of reduction in child mortality in the past 10 years, whereas the rate of improvement in the United States has been flat at roughly 2% per year since 1800.

Another standout country recently has been Rwanda, where mortality dropped from 110 per 1,000 births in 2005 to 42 in 2015. This is still poor compared with developed countries, but its rate of improvement is more than 9% per year.

Exhibit 7 shows evidence of a relationship between economic progress and progress in health. Although many observers prefer to make charitable donations to help poor countries, we believe that investment to stimulate economic prosperity is at least as important. Exhibit 7 shows that some countries, like Rwanda, are doing better than their income level would suggest, whereas others, like Nigeria, Botswana, and South Africa, are lagging behind.

PROGRESS IN LITERACY

"If you think education is expensive, try ignorance."

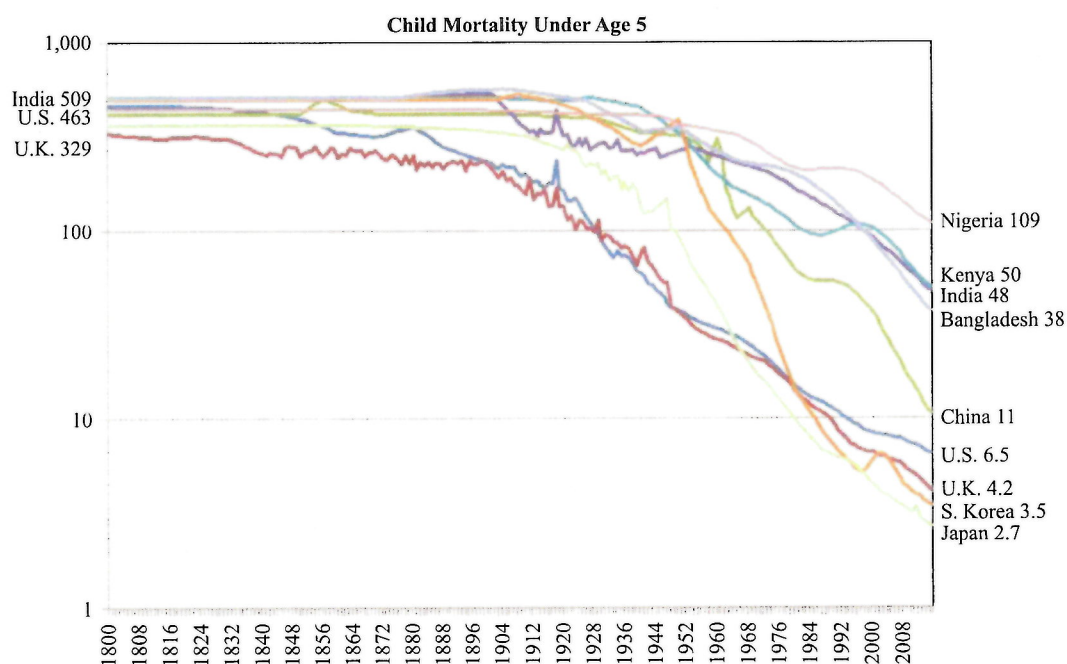
—Robert Orben (1927–)²

Schools do not need to be fancy to be effective. In Ghana, black paint on a cement wall suffices for a blackboard. In Bangladesh, one-room schools with corrugated metal walls and bars at the windows are brightly decorated with the children's handiworks. In 2010, I met with Shyamal Ghosh, director of Secondary Primary Education in Bangladesh, who described his challenges in overseeing 16.5 million students in 81,500 primary schools, with 361,000 teachers (a student teacher ratio of 46:1). Teacher attendance is critical (in Pakistan it has been as low as 50%) and keeping students in school is essential, but the good news in Bangladesh is that youth (age 15–24) literacy is now 81%, compared with 60% for adults.

Data on literacy are imperfect because surveys are not done regularly, and they are often subjective rather than objective (i.e., asking someone if they can read is likely to have a positive bias). Nevertheless, we have used the data available to calculate rates of change in literacy, and the results are encouraging. Exhibit 8 shows countries with the greatest annual rates of improvement in literacy from the earliest to the latest data points. Although many countries have a long way to go before

EXHIBIT 5

Child Mortality



Source: Gapminder, 2016, gapminder.org/data/, Outlook/gapminder under5.

their literacy reaches even 90%, the gains are nonetheless impressive.

CORPORATE EARNINGS— DELIVERING ON GDP GROWTH

For investors, there needs to be more to the story than general economic and social progress. Investors need to see results in the bottom line of investible companies. To understand this, we downloaded 10 years of data for more than 9,000 companies from Bloomberg, including 450 in the frontier and 3,500 in emerging markets. These companies had revenue and earnings data for both 2005 and 2015, allowing us to calculate growth rates in local and U.S. dollars.

The results in Exhibit 9 show that emerging and frontier earnings have performed well over the 2005–2015 period. The local earnings growth reflects what the companies are capable of doing, whereas the U.S. dollar growth includes the impact of the recent strength of the U.S. dollar and the drop in commodity prices. For example, the sharp declines in oil and copper prices

have had a harsh impact on companies exposed to the Nigerian Naira and the Zambian Kwacha.

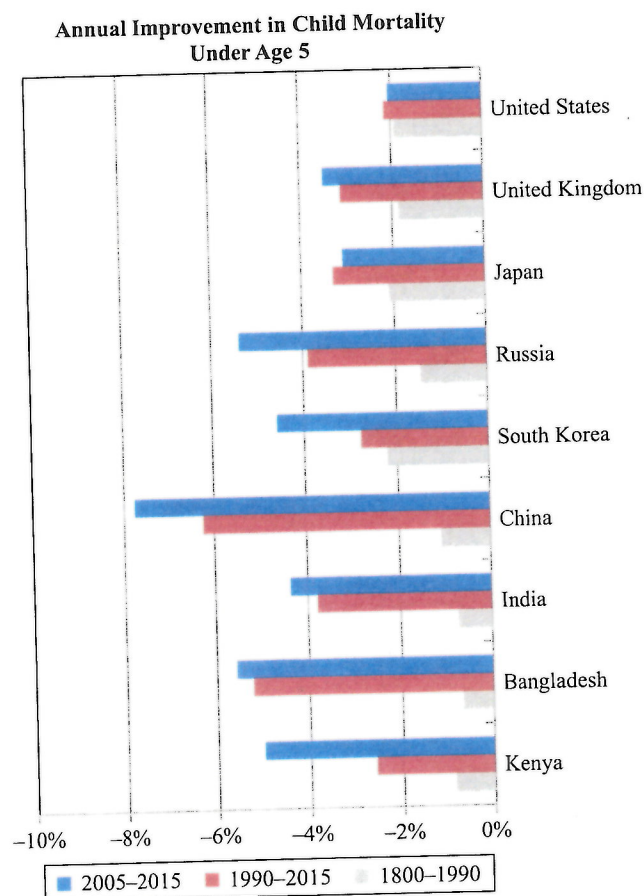
In local currency terms, frontier countries had the highest growth at 10.3%, compared with 8.7% for emerging markets and 1.3% for developed countries. Converted into U.S. dollars, the results were lower, but frontier companies still managed 4.7% annual earnings growth, whereas emerging market companies achieved 7.3% growth compared with 1% for companies in developing countries.

Exhibit 10 shows earnings and revenue growth for the larger countries in each category. China, with average earnings growth of 18% in U.S. dollars, was the driver of earnings growth in emerging markets overall. Meanwhile, in the frontier, Vietnam, with 20% earnings growth, was the strongest contributor. On the other hand, Argentina, Pakistan, Egypt, and Nigeria suffered the most from their weak currencies.

It is interesting that earnings growth has been lower than revenue growth in most cases, except for Japan, Vietnam, and Nigeria. Nonetheless, emerging and frontier companies have done well. This has been a

EXHIBIT 6

Annual Percent Change in Child Mortality



Source: Gapminder, 2016.

good period for overall growth of revenues and earnings for the companies in developing countries.

DEVELOPING STOCK MARKETS RISE, FALL, RISE AND FALL AGAIN

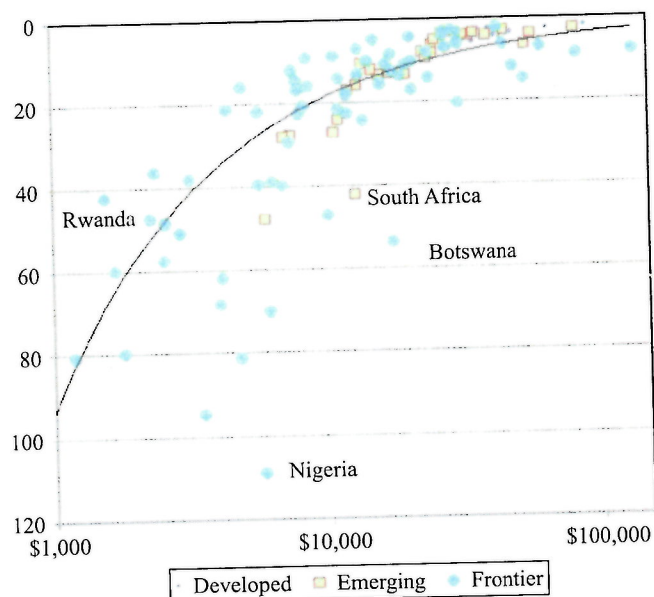
"It is not so long ago that a member of the Diplomatic Body in London, who had spent some years of his service in China, told me that there was a Chinese curse which took the form of saying, 'May you live in interesting times.' There is no doubt that the curse has fallen on us."

—Sir Austen Chamberlain, The Yorkshire Post, West Yorkshire, England, March 21, 1936³

It has indeed been an interesting 25 years in emerging and frontier markets. Exhibit 11 shows the ups and downs of international investment returns relative

EXHIBIT 7

Child Mortality versus GDP per Capita



to the S&P 500. The EAFE Index has had a rough time throughout the period, but emerging and frontier markets have looked like heroes twice and dunces twice.

After soaring 74% in 1993, emerging markets ran into a succession of crises and devaluations: the Turkish Lira crisis (March 1994), the Mexican Tequila crisis (December 1994), the Thai Bhat crisis (July 1997), and the Russian Ruble crisis (August 1998). Governments changed, currencies floated, International Monetary Fund (IMF) aid was sent, and some countries learned hard lessons about the dangers of dollar pegs and fickle capital flows. Next came Y2K jitters and the tech bubble, which burst in early 2000. Investors were panicked and confused, but emerging markets were waiting for their attention. They had a trailing MSCI price-to-earnings ratio (PE) of 13.0× in July 2001 when the PE of the MSCI US Index was at 32.6×. This 60% discount was at a record level, and it was followed by a 10-year bull market in emerging and frontier market stocks.

FINANCIAL MARKET EVOLUTION

As for the markets themselves, much has improved lately. Emerging and frontier stock markets were opened in many countries in the 1980s and 1990s, thanks to encouragement by the International Finance Corporation (IFC—part of the World Bank). At Batterymarch

EXHIBIT 8

Rates of Gain in Literacy

		First	Last	First Yr	Last Yr	Years	Annualized Change	Chg
Frontier	Morocco	52.3	67.1	2004	2011	7	3.6%	28%
Frontier	Mozambique	27.1	50.6	1980	2009	29	2.2%	87%
Frontier	Ghana	57.9	71.5	2000	2010	10	2.1%	23%
Frontier	Nepal	48.6	59.6	2001	2011	10	2.1%	23%
Frontier	Bangladesh	47.5	59.7	2001	2013	12	1.9%	26%
Frontier	Saudi Arabia	79.4	94.4	2000	2013	13	1.3%	19%
Frontier	Tanzania	69.4	79.0	2002	2012	10	1.3%	14%
Emerging	India	61.0	69.3	2001	2011	10	1.3%	14%
Frontier	Oman	81.4	92.0	2003	2014	11	1.1%	13%
Frontier	Tunisia	74.3	79.7	2004	2011	7	1.0%	7%
Frontier	Guatemala	69.1	77.0	2002	2013	11	1.0%	11%
Frontier	Bahrain	86.5	94.6	2001	2010	9	1.0%	9%
Frontier	Jordan	89.9	97.9	2003	2012	9	1.0%	9%
Frontier	Qatar	89.0	97.7	2004	2014	10	0.9%	10%
Emerging	Peru	87.7	93.8	2004	2012	8	0.9%	7%
Frontier	Iran	77.0	83.6	2002	2012	10	0.8%	9%
Frontier	El Salvador	80.8	86.8	2004	2013	9	0.8%	7%
Frontier	Senegal	39.3	42.8	2002	2013	11	0.8%	9%
Frontier	Bolivia	86.7	94.5	2001	2012	11	0.8%	9%

Sources: WDI Database, 2016, WDI Data Analysis Literacy.

EXHIBIT 9

Ten-Year Earnings Growth

	Earnings (local)	Earnings (USD)
Developed	1.3%	1.0%
Emerging	8.7%	7.3%
Frontier	10.3%	4.5%

Financial Management, I helped to launch one of the first equity funds for China in 1991, and we worked on a Soviet Companies Fund (doomed by collapse of the Soviet Union). I recall visiting the Thai stock exchange when it was a chaotic room ringed by white boards where traders frantically scribbled prices in response to a shouting crowd. In the early 1990s, our team tried to sell a Latin America fund to a state board where the former governor had been led at gunpoint from his condo in Mexico—it was an uphill battle.

When we began frontier investing in the fall of 2006, we were fortunate to find Auerbach & Greyson and Securities Africa Limited, which were among the few firms offering broker networks for trading through

local brokers. They even offered custody services through Pershing and Barclays, respectively. Unfortunately, custody was a bit primitive: It once took two weeks for cash wired from Barclays in Ghana to show up at Barclays Mauritius. Now there are more than a dozen broker networks facilitating frontier trading for global investors, and BNY Mellon and State Street have been active custodians in the frontier for many years.

We typically set up our own trips with help from the local brokers, but sometimes in the early frontier days, we had to set up meetings on the fly. When we arrived in Dar es Salaam in March 2009, the local broker at Orbit Securities handed us his Rolodex and told us to use his telephone to get some meetings. Often, when we would ask local brokers about stocks, they would begin by recommending only the largest stocks because they wanted a big ticket. When pressed for more interesting ideas, they would offer several names that had just doubled in price—while insisting they had recommended them all along. Finally, things would get interesting when we asked for names in their personal accounts.

EXHIBIT 10

Ten-Year Earnings and Revenue Growth

Countries	Percent of Categ. Market Cap	10-Year Annualized Growth Rates			
		Earnings (local)	Earnings (USD)	Revenue (local)	Revenue (USD)
Developed		1.3%	1.0%	4.0%	3.3%
United States	52%	2.2%	2.2%	4.0%	4.0%
Japan	11%	5.7%	5.4%	3.0%	2.7%
France	4%	-0.5%	-1.6%	3.2%	2.0%
Germany	4%	1.0%	-0.1%	3.9%	2.8%
Emerging		8.7%	7.3%	12.7%	11.0%
China	51%	15.0%	18.1%	15.6%	18.6%
India	9%	9.7%	5.9%	17.4%	13.9%
South Korea	7%	4.2%	3.2%	6.1%	5.1%
Taiwan	5%	6.2%	6.3%	6.9%	7.0%
Brazil	4%	-16.5%	-18.9%	13.6%	10.3%
Russia	3%	11.9%	2.2%	18.1%	8.6%
Frontier		10.3%	4.5%	13.1%	8.3%
Vietnam	16%	23.5%	19.6%	21.9%	18.0%
Argentina	13%	15.3%	3.0%	22.5%	9.4%
Pakistan	12%	10.2%	4.4%	14.3%	8.3%
Morocco	8%	4.6%	3.6%	9.3%	8.2%
Egypt	7%	4.3%	-0.8%	10.4%	6.5%
Nigeria	5%	16.9%	12.4%	14.5%	10.3%
Jordan	5%	1.8%	1.7%	7.4%	7.5%
Sri Lanka	2%	13.4%	10.3%	15.0%	11.8%
Kenya	3%	14.3%	11.9%	14.6%	12.5%

In many markets, however, brokers were forbidden from owning stocks, so they had no idea what was happening. In Bangladesh, brokers were forbidden from writing research reports because they had felt entitled to front-run their clients. At many companies, getting annual reports was a challenge, as the concept of investor relations was unknown. Some companies simply did not want to disseminate financial results. We had to ask brokers to send runners for copies and then have them make PDF versions for us.

Fortunately, we found ways to invest despite these obstacles. We would often ask brokers for a comparison sheet of listed stocks and then dig into the ones with low relative valuation multiples, decent operating performance, and the potential to deliver strong earnings growth. Today, we have more data at our disposal, and most companies use “Big Four” audit firms who apply International Financial Reporting Standards accounting standards. However, we still ask brokers for that “comp sheet.”

VALUATION—THE DEVELOPING MARKET OPPORTUNITY

“In a diamond, size isn’t everything, but it’s not a bad place to begin”

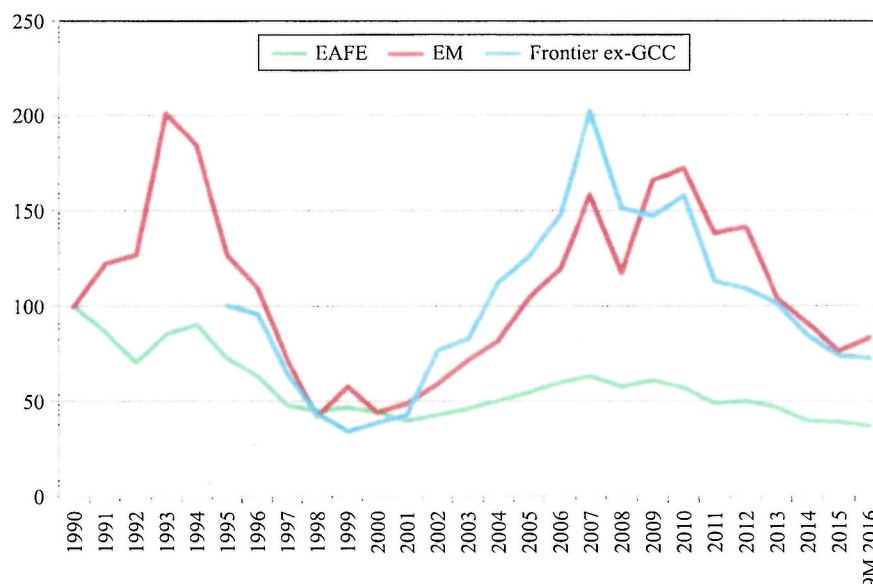
—Lauren Bacall

For investors, valuation is not everything, but it is not a bad place to begin. Exhibit 12 shows trailing PE ratios from MSCI since 1990. The premium of EAFE in the early 1990s was driven by Japan, whereas the tech bubble peak in 2000 affected everything except frontier markets.

As of October 2016, emerging markets were at a 34% discount to the MSCI US PE whereas the discount for frontier markets was 46%. Exhibit 13 shows these discounts over time. Although the trend lines are far from precise, they suggest that the discounts today are high, especially relative to the past 10 years.

EXHIBIT 11

Relative Index Levels versus the S&P 500



Source: Bloomberg, MSCI, S&P, Russell, 2016.

Since 2006, the PE of the U.S. market has risen by 29% (from 18× to 22.6×), the EAFE PE is up 28% (from 14.3× to 19.8×), the emerging market PE is up 3% (14.9× versus 14.3×), and the frontier market PE is down 26% (to 12.2× versus 17.2×).

For a look at the future, we screened more than 19,000 developed, emerging, and frontier equities in the Bloomberg database. This screen resulted in more than 10,000 companies with forward estimates from analysts for the next fiscal year, denoted as FY + 1, which is the December 2016 fiscal year for most companies. This universe included nearly 4,000 emerging markets companies and 500 frontier ex-GCC (Gulf Cooperation Council) companies.

The bar chart in Exhibit 14 shows the historical PEs at January 1990, October 2006, and October 2016, along with the forward PEs for 2016 and 2017 (unfortunately, my data do not include the historical emerging and frontier PEs prior to 1995).

It is interesting that the forward PEs of frontier markets for 2016 and 2017 are at roughly a 30% discount whereas emerging markets, EAFE, and the MSCI US are roughly in line with one another. Breaking down these forward PE estimates by country provides an interesting universe of “value” markets, shown in Exhibit 15.

Twenty-two markets are selling below a PE of 10× on FY + 1 earnings. Sixteen of these markets are in the frontier, and the other six are emerging. These countries face many individual problems, including credit and political risks, as well as military and terrorist threats. They are also affected by global challenges such as the economic slowdown in China, negative interest rates in Europe, and protectionist threats to globalization. However, effective investing depends on diversification.

All of the macro-level problems will not prevent good companies in developing countries from delivering strong results, and we should not rule out positive surprises in many of these markets where expectations are low.

THE WORLD AHEAD

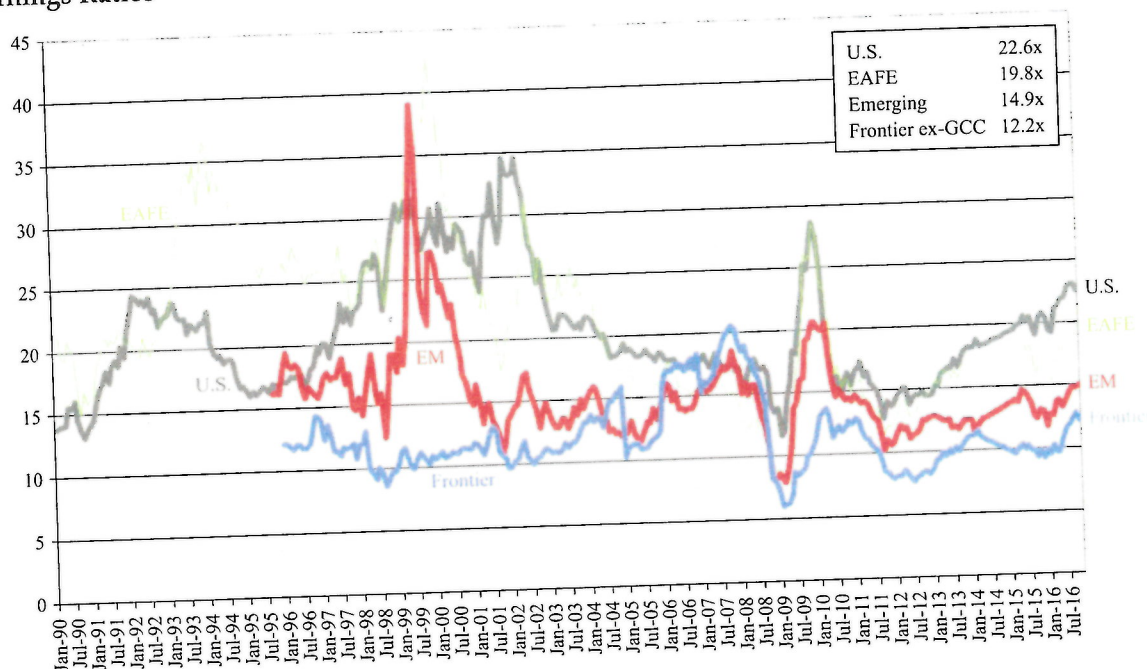
“Trends, like horses, are easier to ride in the direction they are going”

—John Naisbitt, *Megatrends*, 1982⁴

Like a battered matatu, the minibus of our planet rolls on. We are packed in more tightly than ever before, and the crowding will increase before the population

EXHIBIT 12

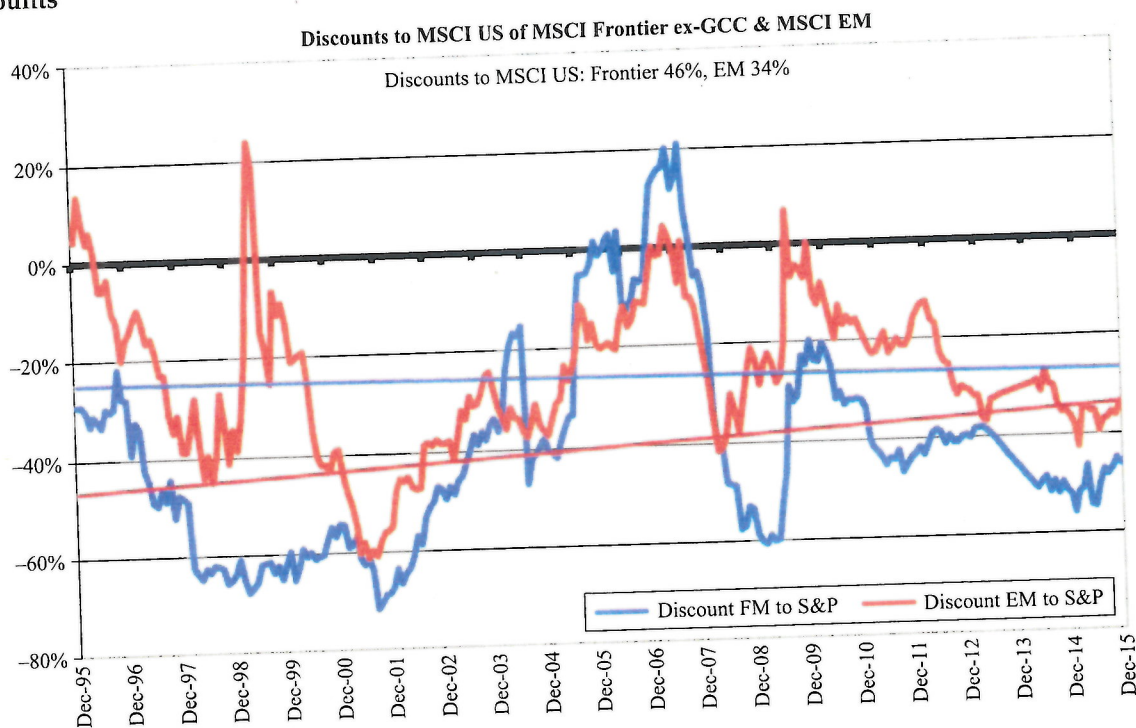
Price/Earnings Ratios



Source: MSCI, Oct 2016.

EXHIBIT 13

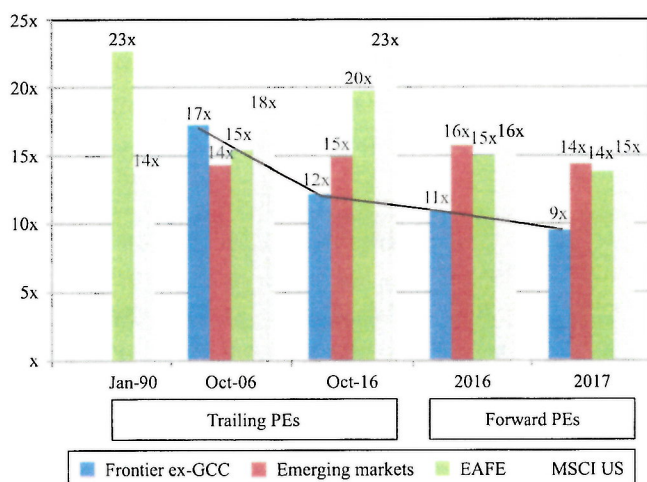
PE Discounts



Source: MSCI, Oct 2016.

EXHIBIT 14

PE Ratios



Source: MSCI, Bloomberg, Oct 2016.

explosion is spent sometime in the next century. Our growth engine has been sputtering lately, and the tail-pipe has been belching black smoke. Some passengers in the back of the bus are finding it harder to breathe, and the gas gauge is running on empty.

Fortunately, our review of the past quarter century has shown that the poorest among us have made great progress in incomes, health, and education. The great divergence of the 19th century has begun to close. Now the IMF forecasts in Exhibit 16 for growth from 2015 to 2020 show that the poorest countries are expected to grow the fastest.

Many futurist websites provide timelines of projections that could come true (Fox [2016]). Among these are the possible breakup of the European Union and the possible union of North and South Korea. Meanwhile, climate change could cause abandonment of parts of Florida, Bangkok, and Dhaka. Self-driving cars and planes could make travel safer. Moving to the moon or Mars may be possible, and living in virtual reality could be commonplace.

We all make forecasts at our peril. The recent Brexit vote and the U.S. election results would have been hard to imagine a year ago. Nevertheless, it is worth considering where some of the current trends could lead by midcentury. Demographic trends, for example, suggest that the working-age populations (age 20–60) of Ghana, Kenya, Nigeria, and Tanzania

EXHIBIT 15

Low PE Markets

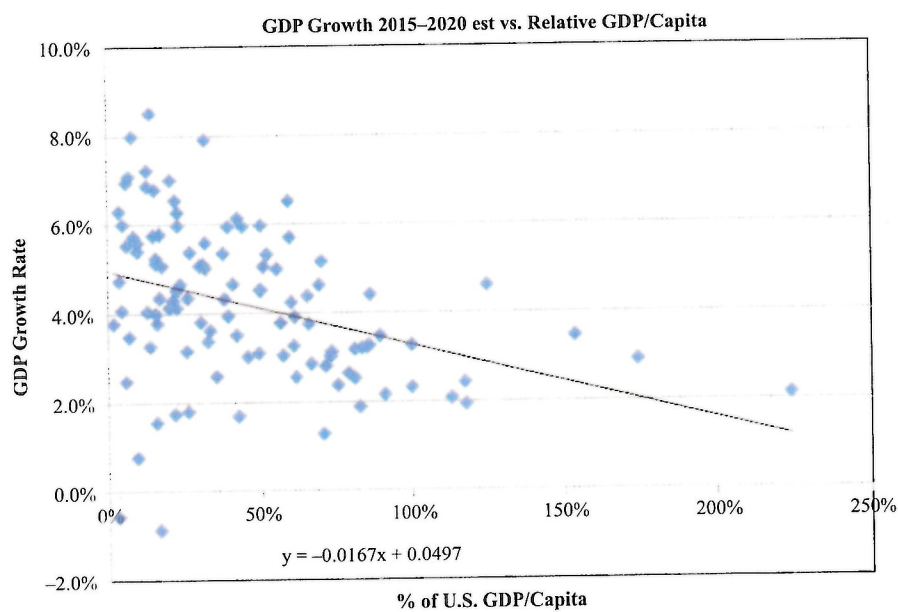
Low PE Markets		Mcap \$Bil	FY + 1 PE
Frontier	Cyprus	\$7.0	2.1x
Frontier	Ukraine	\$3.1	3.0x
Frontier	Kenya	\$18.7	5.7x
Frontier	Nigeria	\$28.3	6.2x
Frontier	Ghana	\$2.0	6.3x
Frontier	Uganda	\$0.6	6.8x
Frontier	Rwanda	\$0.2	7.1x
Frontier	Lebanon	\$8.5	7.2x
Frontier	Zimbabwe	\$1.8	7.2x
Emerging	Russia	\$516.4	7.2x
Emerging	Malaysia	\$360.3	7.6x
Frontier	Egypt	\$41.1	7.9x
Frontier	Lithuania	\$2.4	8.2x
Emerging	Greece	\$31.6	8.7x
Frontier	Sri Lanka	\$12.7	8.8x
Frontier	Papua New Guinea	\$0.5	8.9x
Frontier	Trinidad & Tobago	\$13.2	9.1x
Frontier	Georgia	\$2.7	9.2x
Frontier	Cambodia	\$1.6	9.2x
Emerging	Turkey	\$178.0	9.4x
Emerging	United Arab Emirates	\$206.1	9.5x
Emerging	Saudi Arabia	\$349.8	9.8x

will double by 2050. Meanwhile, the working age populations of Ukraine, Romania, Portugal, South Korea, Russia, and Japan will drop by 30%. If we use the IMF forecasts for GDP growth in 2021 as a starting point and apply some Kentucky windage to boost countries with stronger human capital, investment flows, and government, we can make some guesses at the levels of GDP per capita in 2050. Exhibit 17 boldly updates Exhibit 2 through 2050, and it includes a drag to growth as some developing countries converge with the developed world.

From 2015 to 2050, U.S. GDP per capita could grow at 2.2%, from \$56,000 to \$120,000, while South Korea could grow at 2.8% to \$97,000. This would make it 9% higher than France and the United Kingdom and 20% higher than Japan (all growing at roughly 2.2%). Meanwhile, Malaysia and Poland could grow to around \$78,000, which would be 7% richer than Italy and 10% richer than Greece. China, at \$71,000, roughly the same as Italy, would be 9% richer than Portugal. In the frontier, Sri Lanka and Vietnam would be richer than Mexico.

EXHIBIT 16

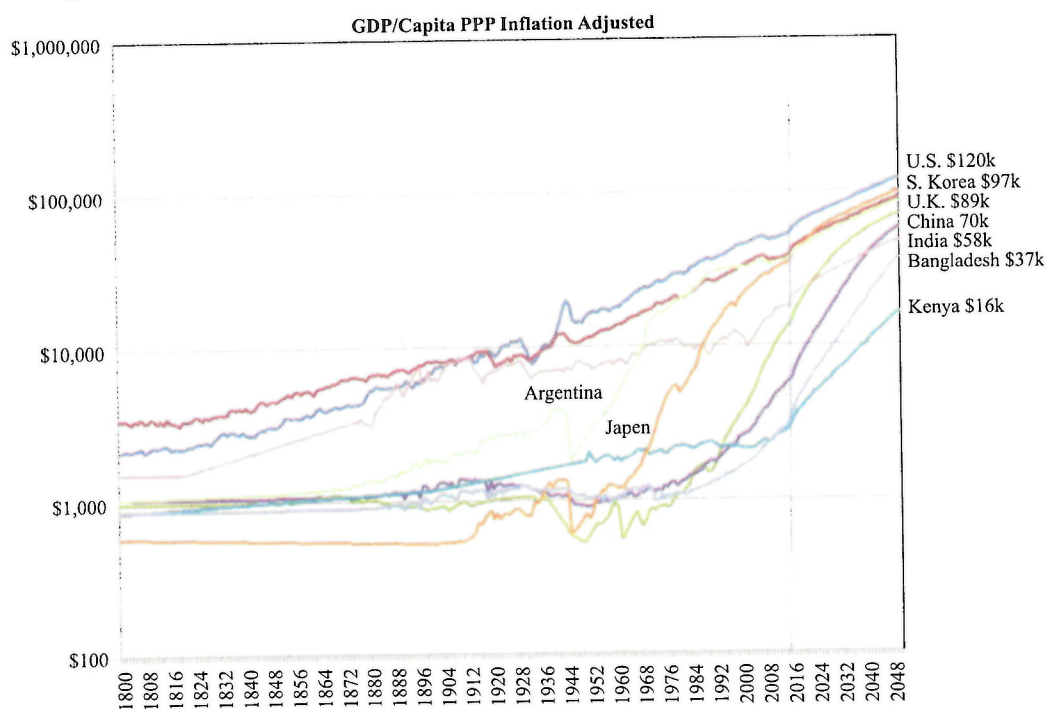
Projected GDP Growth versus GDP per Capita as Percent of U.S. GDP per Capita



Source: World Bank, IMF 2016.

EXHIBIT 17

The Great Convergence



Source: Gapminder, 2016, gapminder.org/data/, Outlook/gdp_per_capita.

If our guesstimates come to pass, the world will be better and fairer in 2050, and the old market labels of “developed,” “emerging,” and “frontier” may dissolve. Hopefully, our matatu planet will be filled with more consumers and fewer soldiers. Hopefully, it will have more clean energy power. And hopefully, it will be driven by a computer rather than having a madman behind the wheel.

*“If you give a number, don’t give a date
If you give a date, don’t give a number
If you’re going to forecast, forecast frequently
If you’re right, don’t look astonished”*

—Ray DeVoe, The DeVoe Report,
April 16, 1980

ENDNOTES

¹See <http://www.twainquotes.com/Majority.html>.

²See Quote Investigator [2016] for a discussion of the origins of this quote.

³See Quote Investigator [2015].

⁴Brainyquote [2016].

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