

The Long View

Investment insights

October 2013



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change can
power your
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A world in motion

“The market is a problem-solving machine, and ultimately the market rewards companies that solve problems.”

Carl Kawaja, Portfolio Manager

In an age when pessimism can sometimes seem overwhelming, portfolio manager Carl Kawaja has a refreshing theory about life and the world – things get better.

“I think that the world, broadly, gets better,” Carl says. “I think people become wealthier. I think health care becomes better. I think education improves. I think we know more about the world.”

Carl and many of the investment professionals at American Funds see a lot of the world in their search for companies that can potentially reward investors. They interview executives, tour facilities, talk with employees – essentially learn as much as they can about the organization.

They make investment decisions based on factors ranging from the quality of the company's leadership to its free cash flow. The decision is all about the company, not the country, sector or macroeconomic events. Bottom-up, not top-down.

But investment professionals also keep their eyes on the big picture, and many of them are reporting changes that have the potential to improve the standard of living across the globe, provide companies with new profit opportunities, and investors with potential reward.

Some of the changes are slow, global and have profound implications for the world's economy, such as the evolution of a middle class in developing countries. Some changes seem to burst on the scene and transform an industry. And still

other changes occur as improvements in products that have long been part of the economic landscape, including planes, trains, automobiles and ships.

Why is that important? Again, because innovation can enhance the value of a company for an investor. “When a company continues to innovate and develop new products and processes, it improves the prospects for future revenue, earnings and dividend growth,” says portfolio manager Alan Berro.

That may be the case for airplane makers. Innovation has led to lighter, more fuel-efficient planes and increased demand from airlines looking to cut fuel costs and upgrade their fleets. Indeed, plane makers now have orders that will keep plants humming for years, potentially lowering production costs and enhancing profitability.

Innovation is often associated with new “gee whiz” cutting-edge technology. But innovation is playing a key role in many industries that are more than a century old, including the automotive industry. For Carl and other investment professionals, the essential issue is whether innovation can drive value for investors.

“The market is a problem-solving machine, and ultimately the market rewards companies that solve problems,” Carl says. “Even if you take a relatively conservative approach to investing, that doesn't mean you shouldn't be investing in innovative companies – because innovation creates long-term value.”



Gregg Ireland

Portfolio Manager

41 years of investment experience

The emerging transition

I am a student of longer cycles. It wasn't that many years ago we were in a Cold War. When that ended, the world burst into capitalism. Places like – who would have guessed? – the Soviet Union and China, but also all throughout Latin America and Asia as well and around the world, adopted the capitalistic model. It was quite a ride in the '90s and really the last 20 years for what we call the emerging markets. (I guess pretty soon we're going to have to say they have already emerged.) And as we go around the world, it's continuing. The world economy is growing and the middle classes are expanding. In some ways it feels like we're at the ground level.

I think we are transitioning away from a period of heavy infrastructure spending in developing economies. I'm not saying there aren't going to still be railroads, highways and cities built, but I think that massive construction era is behind us, and what's in front of us is more or less an ongoing, steady increase in the wealth of the middle class around the world. This will also mean the relative decline of the need for U.S. and European consumers to carry the weight of the world economy. I think that's the shift that we're seeing now and will continue to see.

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Past results are not predictive of results in future periods.

Going places: People around the world are on the move

The rise of a new jet set means 35,000 planes may be built during the next 20 years

“The world’s going back to growth. It’s happening in a fitful way, but you see it in the U.S. economy and on a global basis too.”

Steve Watson, Portfolio Manager



Sources: Boeing and IHS Automotive. Airplanes represent passenger and freight planes. Number of airplanes for 2032 includes (35,280) new deliveries (of 41,240 in total). Autos represent light vehicles.

- Whether it’s on the road or up in the air, people around the world seem to be increasingly on the move.
- Boeing, the world’s largest airplane maker, predicts that so many more people will be flying over the next 20 years that 35,280 new airplanes, valued at \$4.8 trillion, will be in the air by 2032.
- On the ground, sales of light vehicles are expected to jump from about 80 million worldwide last year to more than 104 million by 2020.
- Many auto plants already have been working overtime. Nearly 40% of car factories in North America have been operating on schedules that push production well past 80 hours a week. Many component suppliers are stretching to build enough parts to keep up with orders, and supply chains around the world are running fast to keep up with the needs of the global auto industry.
- Much of the demand for cars and planes will come from emerging markets. China and India are leading the advance, but countries in Latin America and Africa also have a growing consumer class.
- How big is the new wave of global consumers? Researchers at the McKinsey Global Institute estimate that by 2025 there will be about 4.2 billion in what demographers call the consuming class, or those with disposable income. That’s nearly double the number in 2010.
- In 2010, the emerging markets accounted for \$12 trillion in spending. In 2025, they are expected to account for about \$30 trillion, or half of global spending.
- The new wave of consumers is helping to drive auto sales. Last year, there were nearly 82 million vehicle sales around the world, a 5.2% increase from 2011. China, the world’s largest auto market, saw sales rise 4.6% to a record 19.3 million vehicles in 2012.

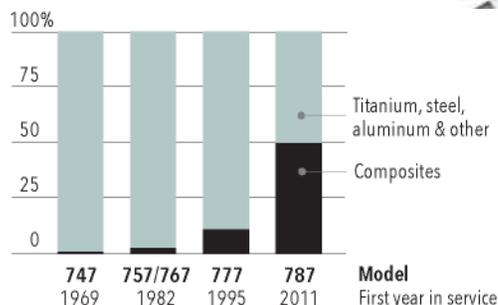
Jet planes have new skin in the game

The use of composites has made planes more fuel efficient and comfortable

“The body and wings of the 787 are made of carbon fiber composite instead of aluminum, so it is lighter and burns 20% less fuel than a typical craft its size.”

Justin Toner, Investment Analyst

Materials used in Boeing airplanes



Boeing 787 composite structure

- Carbon laminate
- Carbon sandwich
- Other composites
- Aluminum
- Titanium/steel/aluminum
- Titanium

Companies that build airplanes

Who are they?	What do they do?
Airbus SAS, The Boeing Company, Bombardier Inc., General Dynamics Corporation, Textron	Make airplanes; sell and assemble planes
B/E Aerospace, Inc.; CAE Inc.; GKN Aerospace; Hexcel; Honeywell International, Inc.; Meggitt PLC; Precision Castparts Corp.; Rockwell Collins; Safran S.A.; Spirit AeroSystems, Inc.; TransDigm Group Inc.; Triumph Group, Inc.; United Technologies Corporation; Zodiac Aerospace	Make systems; make completed parts and equipment systems (avionics, landing gear, wings and structures, interiors, etc.), which are sold to airplane makers
MTU Aero Engines GmbH, Rolls-Royce Group PLC, Safran S.A., United Technologies Corporation	Make engines

Source: Boeing

- Jet planes aren't what they used to be. Technological advances have transformed aircraft, making them lighter and more fuel efficient. What's more, the ride is quieter and smoother.
- That's partly because planes are now made of composites, a lightweight concoction of carbon fiber and epoxy that can be molded into different shapes and sizes. The composite is lighter than metal but just as strong. Composites were 1% of a plane in 1969, but now represent about half the material used in the Boeing 787. Thanks to composites and

more efficient engines, fuel consumption has been cut by 20%.

- The global airline industry fuel bill is expected to total \$214 billion in 2013, or 33% of operating expenses, the International Air Travel Transport Association reports. Airlines are looking at all opportunities to reduce costs, and many of the new aircraft will replace older, less efficient airplanes, potentially reducing the cost of air travel.
- Commercial aviation has proved relatively resilient, with passenger traffic

growing about an average 5% a year since 1971. In 2012, passenger traffic rose 5.3% from 2011. Boeing and Airbus expect that trend to continue over the next 20 years.

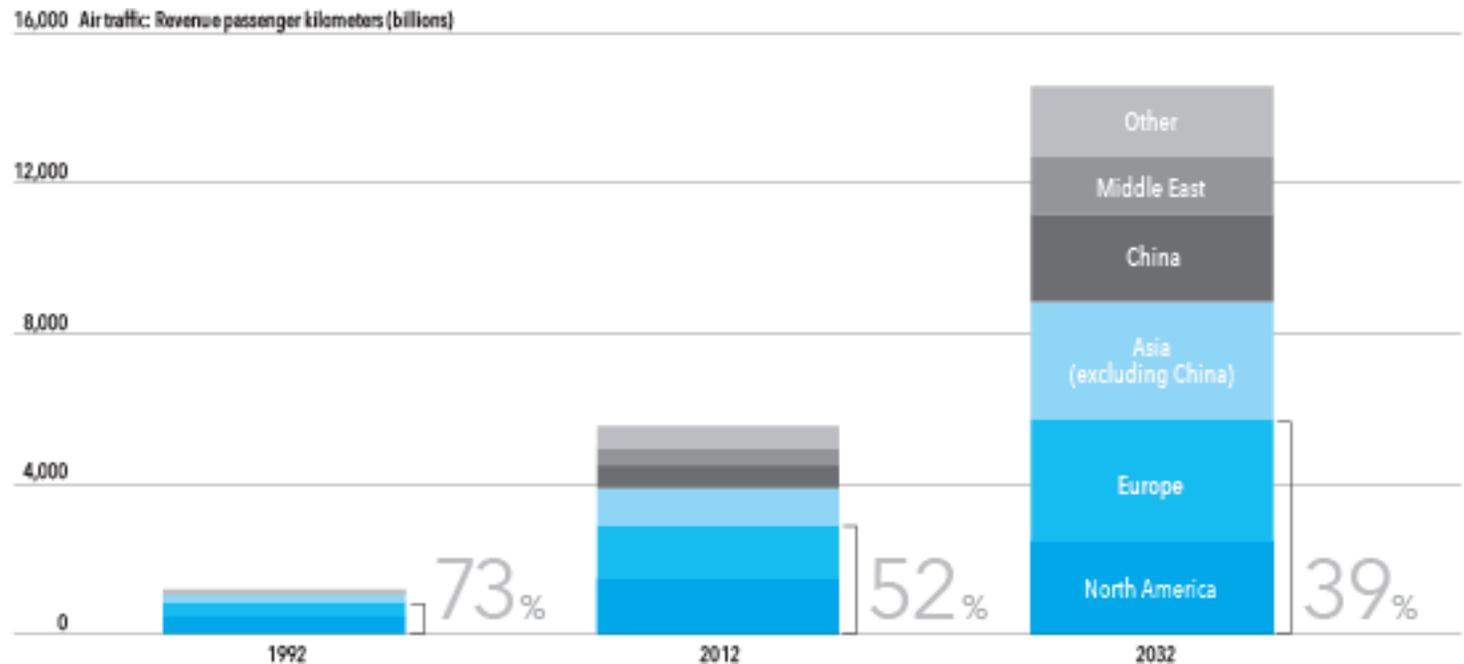
- Aircraft construction is a global industry. Plane makers include Boeing, Airbus, Textron and Bombardier. Engines are made by Rolls-Royce in the United Kingdom, Safran in France and MTU Aero Engines in Germany. The suppliers to plane makers include United Technologies and Precision Castparts in the U.S., Zodiac in France and Meggitt in the U.K.

Developing countries taking to the skies

Robust air traffic growth will depend partly on the economic strength of developing countries

“I expect air travel will be one of the biggest industry beneficiaries of continued global wealth creation. History shows that as economies develop and populations gain wealth, one of the first things they do is fly.”

Todd Saligman, Investment Analyst



Source: Boeing. Revenue passenger kilometers, or RPK, is the number of fare-paying passengers multiplied by the number of kilometers they fly (i.e., airline traffic).

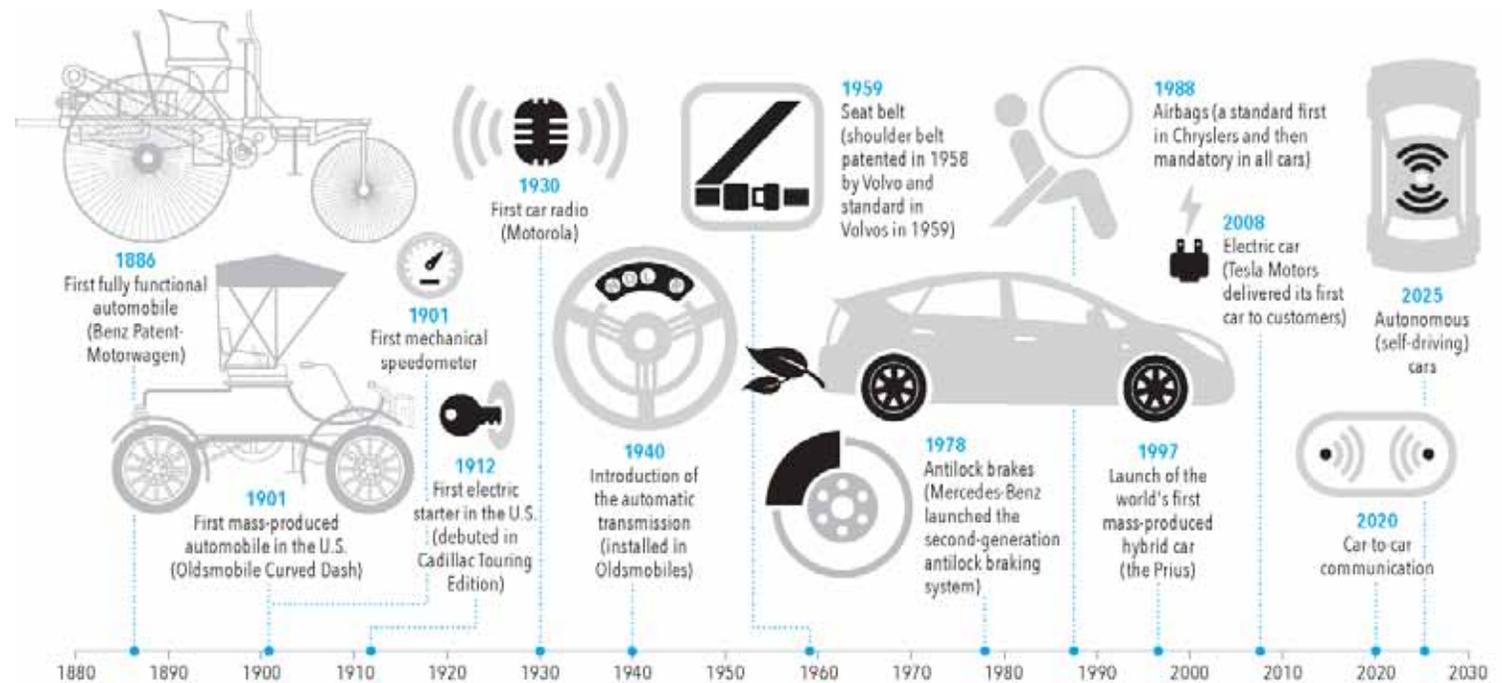
- Flying is such a global phenomenon that in many societies it's unusual to encounter someone who hasn't taken a trip on a plane. But worldwide, most people haven't been on a plane. The estimates vary, but by many accounts only about 15% of the world's population has ever flown. The figure may be as low as 5%.
- Over the next 20 years, that's likely to change. During that time, developing countries are expected to fuel the world's air traffic growth.
- The projections, of course, depend on continued robust economic growth of developing countries. The numbers now suggest that the Asia-Pacific region, including China and India, will drive half of the world's air traffic growth during the next 20 years. In China alone, the number of people flying could double to 100 million during that time. To accommodate the increased traffic, the Asia-Pacific region will require nearly 13,000 new airplanes, valued at nearly \$2 trillion.
- The Middle East, Latin America and Africa are also driving airline traffic growth. Many of those regions will require significant infrastructure investment. Airport authorities around the world are investing in large capital projects in anticipation of the growth, including new or improved runways, terminal expansions and entirely new airports.
- The sustained investment in aviation infrastructure will be crucial to the continuing growth of commercial aviation, and provide opportunities for investors as countries meet air travel demands.

Driving change: The automobile embodies innovation

A rolling example of evolution, the automobile continues to explore new territory

“The auto industry is a good example of an innovative, truly global industry, and also one of the most competitive industries in the world.”

Will Robbins, Portfolio Manager



Sources: Various publications and websites. Milestones for 2020 and 2025 are future possibilities.

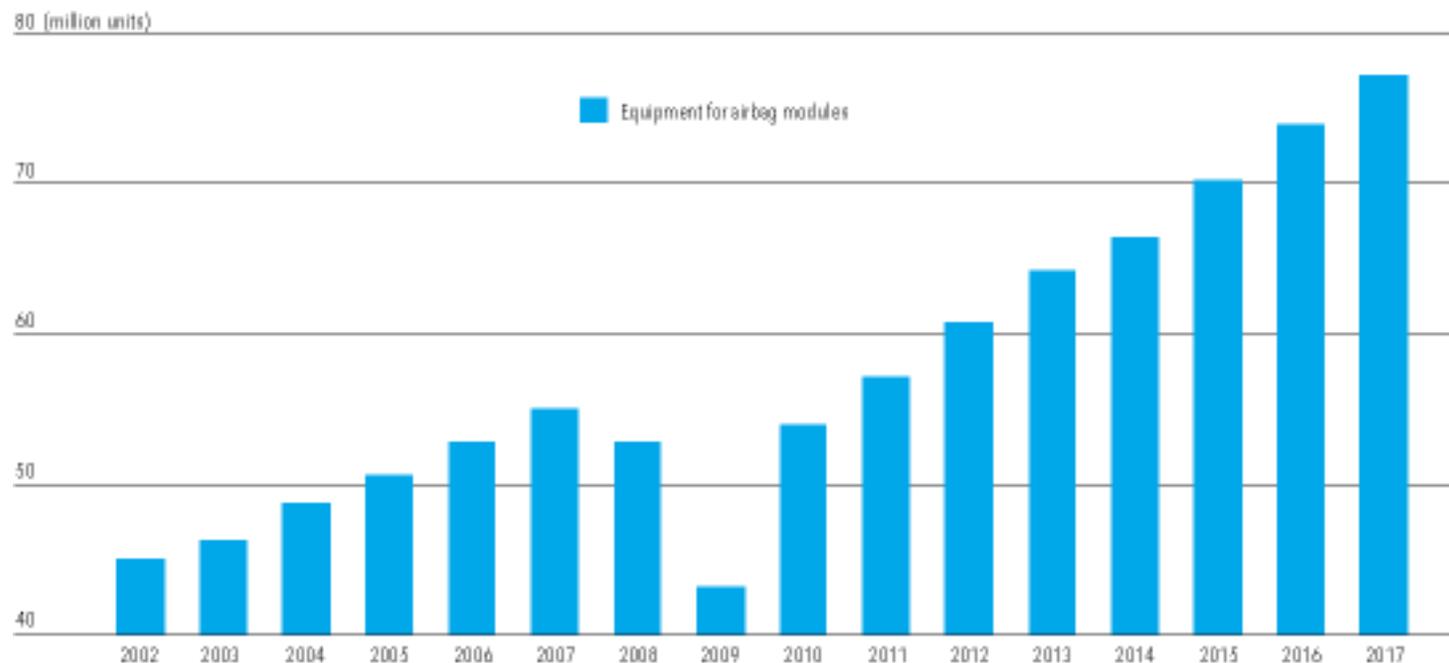
- Let us now praise the automobile. The automobile put the world on wheels. It created mobility on a scale never known before, effectively freeing millions from the limitations of their geography. Today, the automobile industry is a global juggernaut, and the automobile stands as an enduring symbol of mobility and opportunity.
- The automobile industry spawned an economic revolution and today remains an engine of innovation. Since the steering wheel replaced the tiller (yes, there was a time when cars were steered by tillers), the automobile has been a test tube of sorts that has boiled over with innovations almost continuously since the 1800s. Dozens of spin-off industries have emerged, and a variety of industries from rubber to steel have enjoyed quite a ride on the automobile.
- The chart shows a few notable automotive innovations. There are dozens more, including some that couldn't have been foreseen just a few years ago. Many, however, have been improvements to systems that already exist. Those advances have made equipment that was once exclusive to the most expensive vehicles widely used, such as antilock brakes.
- What's next? It could be autonomous cars. Google, the tech giant, has been testing and tweaking the self-driving cars to meet safety standards in preparation for its eventual debut. Ford may be one of the top contenders to deliver the car.

For many drivers today, safety is in the bag

The global airbag business shows how automobiles can spawn new industries

“As I applied the brakes, both my wife and I threw our hands up to keep our daughter from hitting the dashboard ... I asked myself: ‘Why couldn’t some object come out to stop you from striking the inside of the car?’”

John Hetrick, airbag patent holder



Source: Gartner, Inc. Data represent the total number of units produced. The decline from 2007 through 2009 is due to the decrease of auto sales during the Great Recession. The number for 2012 is an estimate, and figures for 2013 through 2017 are forecasted data.

- The idea for one of the more important advances in automobile safety came to John Hetrick on a drive through the Pennsylvania countryside with his wife and daughter in the early 1950s. Hetrick crested a hill to find that a large rock had rolled on to the road. He jammed on the brakes and swerved into a ditch to avoid crashing into the rock. Both he and his wife instinctively threw their arms across their daughter to keep her from hitting the dashboard. A retired industrial

engineering technician, Hetrick thought something could be done to prevent passengers from striking the dash. In 1953, Hetrick received a patent for what he called a “safety cushion assembly for automotive vehicles.” His was the first prototype for today’s modern airbags.

- Today, the gas-inflated cushions are built into the steering wheel, dashboard, door, roof, and the seats in cars and trucks to protect drivers from the impact of an accident.

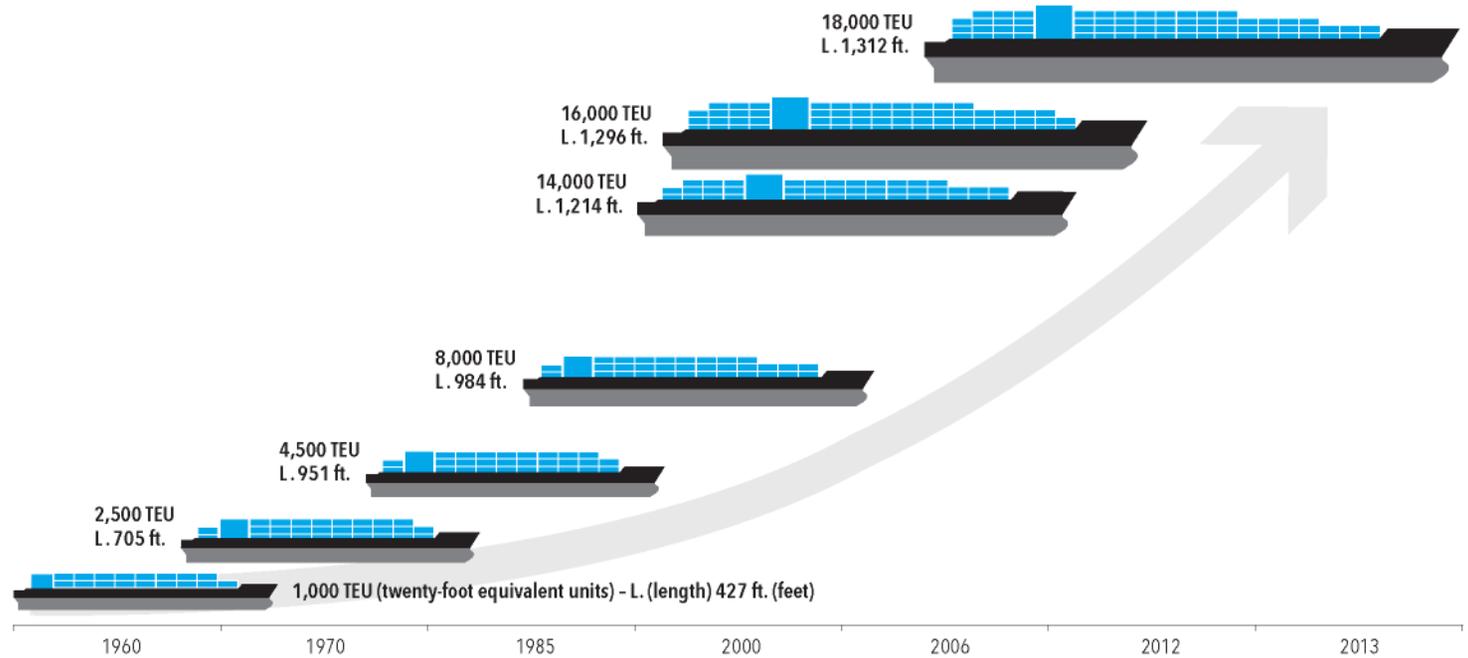
- Airbags have become a global industry. Among the dominant companies are Autoliv in Sweden, Takata in Japan and TRW Automotive in the U.S. Those companies and several others are expected to produce nearly 80 million airbags in 2017. Autoliv has more than 38,000 employees, is the largest supplier of airbags in Europe, and currently has about 25% of the U.S. market. TRW is a worldwide manufacturer and distributor of vehicle airbags. TRW is one of the top five airbag suppliers in the world.

A sea change in shipping

Giant container ships are making waves that could wash over the shipping industry

"I think that secular factors are at work that will lead to continued demand for goods around the world. Populations are rising, people are becoming more affluent, and they are demanding goods."

Joyce Gordon, Portfolio Manager



Source: Deutsche Bank. Twenty-foot equivalent unit, or TEU, is a measure used for capacity in container transportation.

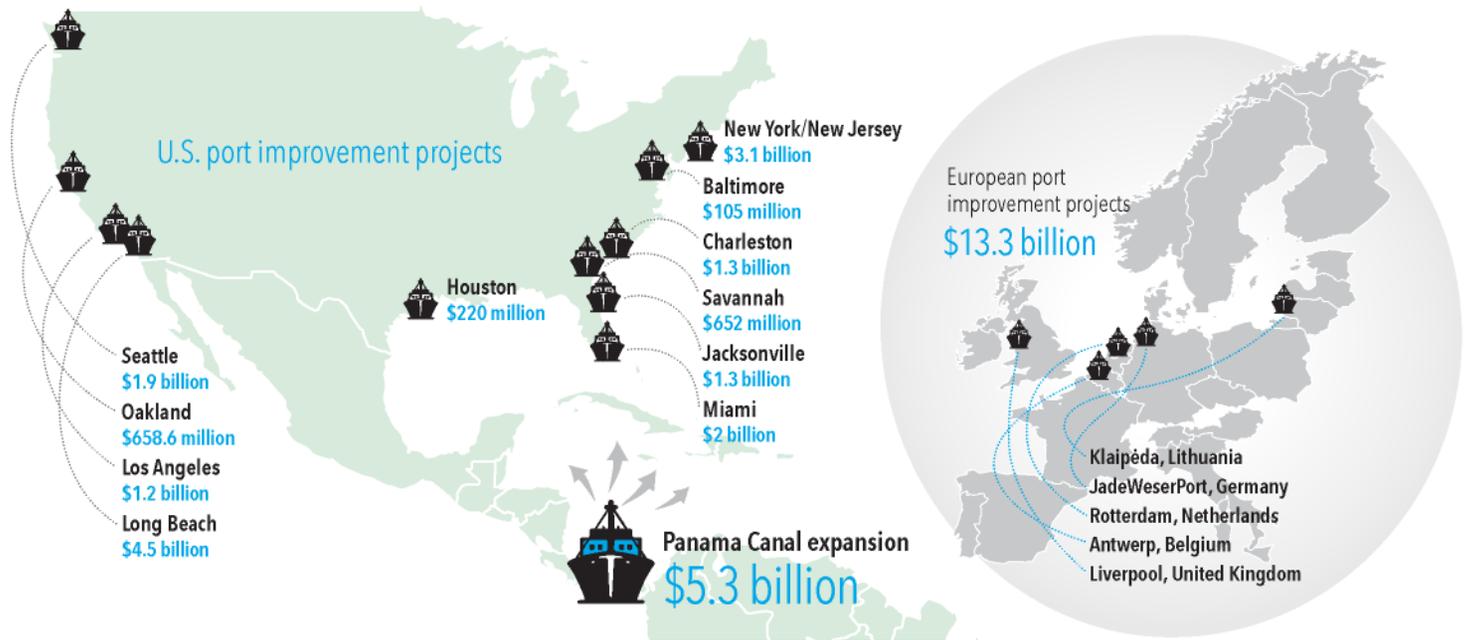
- The world's largest container ship set sail on its maiden voyage from the South Korean port of Busan on July 16, 2013. The Maersk Mc-Kinney Moller is 1,312 feet long, about 20 stories high and can carry 18,000 20-foot boxes. The ship, which has a crew of 22, arrived in Rotterdam on August 16.
- The Maersk Mc-Kinney's record cargo probably won't last long. Next year, the China Shipping Container Lines Co. will have ships that can carry 18,400 containers, and by the end of the decade there is likely to be a vessel with a capacity of 22,000 containers.
- These new ultra-large vessels are part of a technological revolution that has the potential to change the structure of the container shipping sector. The larger ships can take advantage of economies of scale, diluting the operating costs of the vessel among a larger number of containers. That could be a trigger for consolidation led by companies that have the financial power to buy and operate the ships, or at the very least a competitive advantage.
- The containers stacked on these massive ships are essentially giant cans, but since they were invented in the U.S. in the 1950s, they have revolutionized trade and are now widely credited with playing a key role in the globalization of the world economy. The idea of containerization was simple: to move trailer-size loads of goods seamlessly among trucks, trains and ships, without breaking bulk. In doing so, author Marc Levinson writes, containers made the world smaller and the world economy bigger.

Bigger ships will soon ply “the path between the seas”

Expansion of Panama Canal has ports scrambling to keep up with change

“By far the most important action I took in foreign affairs during the time I was president was related to the Panama Canal.”

Theodore Roosevelt
U.S. president, 1901-1909



Sources: Bloomberg; *U.S. Seaport Outlook 2013*, Jones Lang LaSalle; various publications and websites; and individual port authorities. Ports shown represent a sampling of port improvement projects that have been completed recently or are still in progress. Project costs listed are estimated expenditures.

- A century ago, the Panama Canal created “the path between the seas,” a shortcut between the Atlantic and Pacific oceans, and transformed global trade. Now the canal is undergoing a massive expansion that will vastly increase its capacity and provide passage for some of the world’s largest container ships.
- The canal can now handle a 964-foot ship carrying 5,000 containers. But when the \$5 billion expansion is complete, the canal will be able to accommodate a 1,200-foot-long ship carrying up to 13,000 shipping containers. The

Panama Canal Authority estimates a 35% increase in cargo volume through 2025, and additional revenue of \$10 billion.

- The expansion will make it possible to ship more goods directly from Atlantic ports to Asia, instead of putting them on a train or truck to a West Coast port that can already handle larger ships. But not all ports are ready to take advantage of the new traffic. They are scrambling to make improvements so they can accommodate the larger ships. Government and port officials along the Gulf and East coasts are seeking to spend billions

on bigger ports as quickly as possible. Some of the ports also will require dredging to handle the bigger vessels.

- The improvements could also provide the U.S. with a competitive advantage. If the ports expand, shipping processes could become more efficient, making exports less expensive. If they don’t, ships could head for ports in Canada, Mexico and the Caribbean, where goods could be put on trains or smaller ships bound for the U.S.

The statements in *The Long View* are the opinions and beliefs of the speaker expressed when the commentary was made and are not intended to represent that person's opinions and beliefs at any other time.



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