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CAN CHINA INNOVATE?

Thoughts from Roger Edgley on Changes Taking Place in China

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INNOVATION IS KEY TO CHINA'S PROGRESS

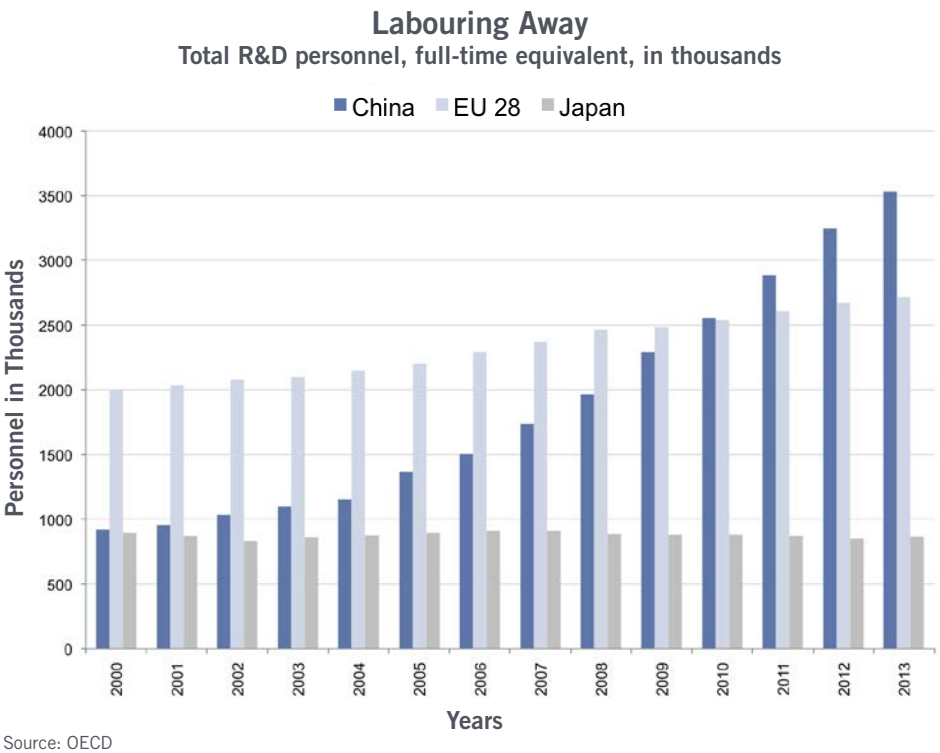
There's an ongoing debate about whether real innovation can occur in China. Some believe that historically China has been able to copy products designed by others, but that it will likely not be able to successfully innovate given its history and a political system dominated by one party. We believe this view is questionable. We think it would be a mistake by foreign countries and investors to underestimate China's capacity to innovate or its determination to do so. If we underestimate China, we'd be making the same mistake we did when Japanese companies brought their products to the shores of the United States in the 1970s. Back then, many people underestimated Japan's rate of improvement (innovation in manufacturing quality) and the place Japanese companies would take in markets. For China, we'd argue that the forces of innovation are already present and are starting to become more evident, in particular among the new generation of Chinese born after the Internet was implemented. Chinese policymakers know innovation is the key for China to really progress. On the ground in China, we've seen increasing emphasis on entrepreneurship, especially in technology, not unlike what we've seen in Silicon Valley.

Shaun Rein, in his book *The End of Copycat China* (Wiley, 2014), argues that we're seeing the beginnings of the move to a more innovative China. Rein also points out that as China's economy has opened up over the past 30 years, there was little justification for innovation in the earlier stages—demand wasn't there from buyers and competitive pressures weren't strong enough. Now, as labor costs increase, for example, the need for Chinese companies to try for manufacturing innovation and also business-model innovation are greater. China's domestic markets have scale and can reward companies that have more innovative services and products. E-commerce is a prime example. In China, the online retail industry is now larger than that of the United States. Rein also quotes a Booz & Company innovation survey done in 2013 in which two-thirds of multinational corporation (MNC) respondents said that some of their Chinese competitors "are already at least as innovative as their own companies."

If we look at innovation in the United States in the early 1900s, we see that the U.S. sought to bolster innovation by enticing the best metallurgists, physicists and chemists from Europe. China is following a similar path in seeking to draw Western and Chinese-born talent to the country's well-funded research institutes. Anecdotally, we've heard of Chinese-born scientists living in the West being lured back to China by better funding (while funding has been cut in the U.S.).

A recent research piece by Goldman Sachs is worth mentioning. Its focus is on innovation in China. The conclusion of the piece is that *"Chinese firms are becoming more innovative (from a low base) in many sectors as they leverage inherent advantages like scale and manufacturing clusters (key in internet, tech hardware) and strive to resolve constraints such as rising wages and a shrinking labour pool (evident in textiles and robotics). To conclude that China is broadly and categorically innovative would be mistaken. However, some companies in some sectors are making their way up the value curve."* ("How innovative is China?", *Fortnightly Thoughts*, April 6, 2015).

In the same piece, chief scientist Dr. Andrew Ng at Baidu, a company that provides Internet-search services in China, is quoted as saying, "The picture has changed today and a lot of things are being invented in China, many of which are yet to be made available in the US. Take Baidu for example. We were the first to build a GPU (Graphics Processing Unit) cluster using the new generation of High Performance Computing hardware and now other companies, many of which are in the US, are following." Companies like



Source: OECD

Baidu now have the scale, desire and resources to innovate. Other areas mentioned in the same report where we've been seeing new ideas are in industrial automation, semiconductors and the Internet.

RESEARCH & DEVELOPMENT

We think the chart above speaks for the growth of research and development (R&D) in China ("How innovative is China?", *Fortnightly Thoughts*, April 6, 2015, page 5). The chart shows that more people are employed in R&D in China now than in the European Union (EU), which China surpassed in 2010.

Another example of company R&D innovation is Huawei, a Chinese company that makes telecommunications equipment. In 2014, Huawei was one of the top patent applicants under the international Patent Cooperation Treaty, applying for more patents than Ericsson or Intel. Huawei provides equipment to European telecom companies and has a substantial R&D budget. In an article in the *Financial Times* (February 3, 2015, "Technology's next 25 years belong to the world, not the US"), Michael Moritz (considered one of the leading venture capitalists in the U.S.) writes, "These days many non-US tech groups, particularly those born and raised in China, are better positioned for the next 25 years than their American counterparts." Regarding China, he sees a hunger to compete and said in the article, "I certainly do not know of a place where the appetite for work is greater, the resilience and fortitude stronger, or the pace quicker, than China."

In the same article, Moritz said, "Today, the large Asian companies, particularly the Chinese varietal, are, for the most part, better equipped to go on the offensive than their US rivals. Some of this is due to the formidable language and culture barrier presented by China, but much is due to attitude. American technology companies have enjoyed almost half a century during which they have become accustomed to being dominant. That era is over."

In addition to R&D, we're also seeing innovation at the business-model level, particularly in the Internet, with its roots in software. Underlying Internet innovation is a vast physical infrastructure of cell-phone towers, data centers and base stations linked by fiber. China has made a massive investment in Internet infrastructure, both mobile and fixed line. If we look at the top 20 Internet firms in the world ranked by value (market capitalization), China has four of the top 20. Europe has none. China's e-commerce industry is already larger than that of the U.S. And mobile Internet is a large driver of this growth (elsewhere it's not driven as much by smartphones and apps). China Mobile is the world's largest mobile operator with nearly 270 million cellular subscribers.

On a more personal level, I asked a friend, a mathematics professor and former chairman of his department, whether he thought China would produce new developments in mathematics in the next 20 years. His answer was a clear "Yes." China has many talented mathematicians who taught and completed their doctorates in the U.S. and are now back in China. Additionally, China is drawing distinguished mathematicians from Europe who have reached the mandatory retirement age.

What are some of the key factors for innovation within countries? One of the first factors is necessity. The need to feed millions of people, for example, will force innovation in farming, new methods of irrigation, breeding animals, new seeds and so on. One of the most pressing problems for China at present is poor air quality stemming largely from coal-fired power stations. The Chinese government is making a huge policy push in renewable energy, for reasons of self-sufficiency as well as clean air. Competition is also a key factor driving innovation, whether it's between countries (which forces military and weapons innovation) or within industries. We think it's fair to say that when innovation and China are being discussed, the conversation in a narrow sense usually focuses on technological innovation in areas like health care, information technology and new energy. Visible innovation in an economy is hard to prove, although one can look at patents issued, for example). Quantifying innovation isn't like counting the number of high-rise buildings taller than 20 stories. Not all public- or private-sector R&D spending will result in useful or commercial products, but it's hard for technological or scientific innovation to occur without it. China possesses the scale and resources that make innovation possible.

DOES CHINA'S HISTORY TELL US ANYTHING?

There have been periods in the past when China essentially closed itself off from the rest of the world. One such period was during the Ming dynasty. During the time of Admiral Zheng He, China had built very capable maritime power and knowhow. In 1433, following the seventh voyage of Admiral Zheng, however, the Emperor decided he wanted no concourse with the rest of the world. Civil officials halted subsequent expeditions and the shipyards

were left to rot. What remained of them was finally destroyed in 1525.

The Cultural Revolution (1966–1976) was devastating to China's development. China went backward. Foreign books and ideas were banned and intellectuals were labeled "rightists." Deng Xiaoping, China's pre-eminent statesman from 1978 until 1992, was purged from leadership twice during the Cultural Revolution, but became instrumental in driving economic reforms and bringing stability to China following the death of Mao Zedong in 1976. Visits to the West painfully showed Deng how far China had fallen behind in every area.

One of the remarkable things about China at present is its duality of being open to ideas from the West, while at the same time furthering its own Chinese self-identity, layered over a long history. China has been quick to learn from other countries, whether in running mass-transit systems or in urban planning. Some 15 years ago, I was sitting in the airport in Oslo, Norway. Next to me was a group from China. In chatting to them, I discovered they were urban planners visiting the cities of Helsinki, Stockholm and Oslo. When you visit cities in China today, you can see the tangible results of urban planning. There are new roads and highways, of course, but also many trees and boulevards. In Chengdu recently, I was in a pedestrian area built in the style of a Chinese village, but with recycled wood and crafted stonework. There were coffee shops, restaurants and craft shops. I've traveled to many cities around the world and this was one of the most attractive and interesting areas I've seen in a bustling city, and it drew on China's aesthetic history.

If we go back further in Chinese history, we see much innovation in technology, government and the arts. The classic study on the history of science in China was written by Joseph Needham and was started in the 1940s. Until more recently, the West had been unaware of much of China's technological development (advances in metallurgy, for example). In addition, Westerners had little knowledge of the scope of development in science and technology that had taken place over long periods in China.

In judging innovation in a country, we may also think of the arts. Is China innovative today in this area? Does it have a long tradition from which to draw? In the last 10 years, cinema in China has seen some stylistically striking films. China's Ai Weiwei is a leading figure in the world of art. We're likely going to hear much more of Chinese cultural innovation built upon a foundation of China's long history and cultural traditions.

In conclusion, if we think of China's history, its resources, the demands placed on it by its large and increasingly urbanized population, its pragmatic openness, its need to find new solutions (in areas like renewable energy and low-cost health care, for example), then we believe that maybe in terms of economic development China can move closer to being a market-led economy like Taiwan or South Korea. These two countries are big emerging-market success stories. To move to a market-led economy, China will need ongoing reforms and cannot allow state-owned enterprises (SOEs) to get in the way too much or suck up too many capital resources.

If we accept the view that China will be a source of innovation, what does this mean for us as investors? It means we need to remain open-minded to new Chinese companies with new ideas and technology. The generational change going on in China, which is evident in the Internet area with companies like Alibaba, Tencent and Baidu, has sewn strong seeds of entrepreneurship, supported by the huge migration of talented Chinese throughout the world, but especially in the U.S., Taiwan, Hong Kong and other parts of Asia. As investors, we need to look beyond state-owned banks, steel and car companies. At the same time, we shouldn't underestimate how these companies might improve in the next 10 years. When visiting China, one can see that this is a large country on the move, and that it thrives on change and experimentation.

WASATCH'S CURRENT POSITIONING IN CHINA

While we acknowledge the exciting changes happening in China and in the country's equity markets, we've been cautious in making investments in Chinese companies. As a result, the Wasatch emerging-market portfolios have been dramatically underweight in China relative to their benchmarks for the past several years.

There are a number of factors underlying our cautious approach. On a broad, macro level, Chinese stocks have been very volatile, have often been subject to rampant speculation and many have had valuations we consider extreme. The business environment in certain sectors has been hyper-competitive, meaning that companies can quickly lose their competitive edge. In addition, Wasatch has historically had difficulty finding Chinese companies that meet our investment criteria. We want to invest in high-quality companies with good returns on capital, significant cash flows, sustainable competitive advantages, the potential for long-duration growth and reasonable valuations. Companies with these qualities have often been hard to find in China.

Having said that, we like the changes we're seeing and have stepped up our efforts. Over the past few months, our fundamental, bottom-up research has led us to add several Chinese companies to our emerging-market portfolios. In order to take weightings in China that are closer to the emerging-market benchmarks, we'd like to see substantial evidence of SOE reform, information transparency, and the availability of small- and mid-cap companies at reasonable valuations relative to their growth rates. We'll continue to be open-minded, as we analyze the risks as well as the potential rewards that investing in China presents.

ROGER EDGLEY BIOGRAPHY

Roger Edgley is Director of International Research and the Lead Portfolio Manager for the Wasatch International Growth Fund and the Wasatch Emerging Markets Small Cap Fund. He is also a Portfolio Manager for the Wasatch Emerging Markets Select Fund. In addition, he was the Lead Portfolio Manager for the Wasatch International Opportunities Fund from 2005 to 2015. He joined Wasatch Advisors in 2002 and is a member of the Board of Directors. A native of the United Kingdom, he also holds U.S. citizenship and has many years of international investing experience.

Prior to joining Wasatch Advisors, Mr. Edgley was a principal, director of international research and portfolio manager for Chicago-based Liberty Wanger Asset Management, which managed the Acorn Funds. He was also a co-manager for the Acorn Foreign Forty Fund. Earlier, he worked in Hong Kong as a financial-services analyst for Societe Generale Asia/Crosby Securities and as an analyst for Strategic Asset Management.

Mr. Edgley has a Master of Arts in Philosophy from the University of Sussex and a Master of Science in

Social Psychology with Statistics from the London School of Economics, where he was awarded a Social Science Research Scholarship. He earned a Bachelor of Science with honors in Psychology from the University of Hertfordshire. He is also a CFA charterholder.

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Mutual-fund investing involves risks, and the loss of principal is possible. Investing in small-cap funds will be more volatile, and the loss of principal could be greater, than investing in large-cap or more diversified funds. Investing in foreign securities, especially in emerging and frontier markets, entails special risks, such as unstable currencies, highly volatile securities markets, and political and social instability, which are described in more detail in the prospectus.

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As of March 31, 2015, the Wasatch-1st Source Income Fund held 1.2% of its net assets in Goldman Sachs Group, Inc.; the Wasatch International Opportunities Fund held 0.3% of its net assets in Ericsson Nikola Tesla, an affiliate of Ericsson; the Wasatch Large Cap Value Fund held 2.7% of its net assets in Goldman Sachs Group, Inc. and 1.7% of its net assets in Intel Corp.; and the Wasatch World Innovators Fund held 1.0% of its net assets in Alibaba Group Holdings Ltd. None of the Wasatch Funds held any of the other companies mentioned in this document. References to individual companies should not be construed as recommendations to buy or sell shares in those companies. Wasatch analysts closely monitor companies held in the Wasatch Funds. If a company's fundamentals or valuation measures change, Wasatch will reevaluate its position and may sell part or all of its holdings.

1st Source Corporation Investment Advisors, Inc. is the sub-advisor for the Wasatch-1st Source Income Fund.

DEFINITIONS

Return on capital *is a measure of how effectively a company uses the money, owned or borrowed, that has been invested in its operations.*

Valuation *is the process of determining the current worth of an asset or company.*

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