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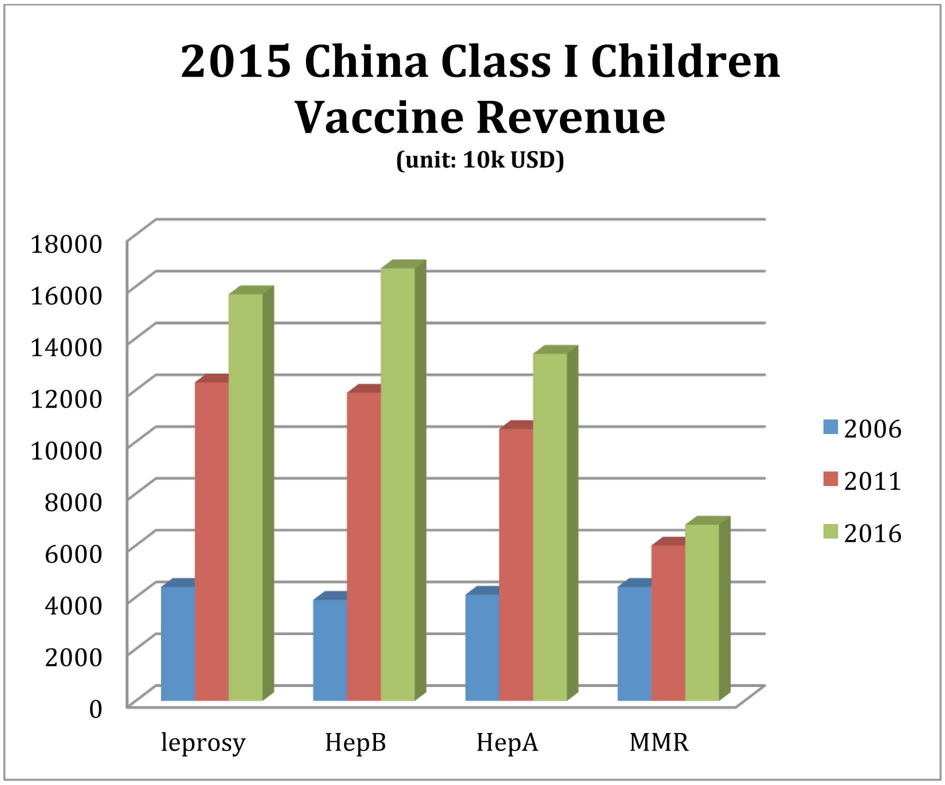
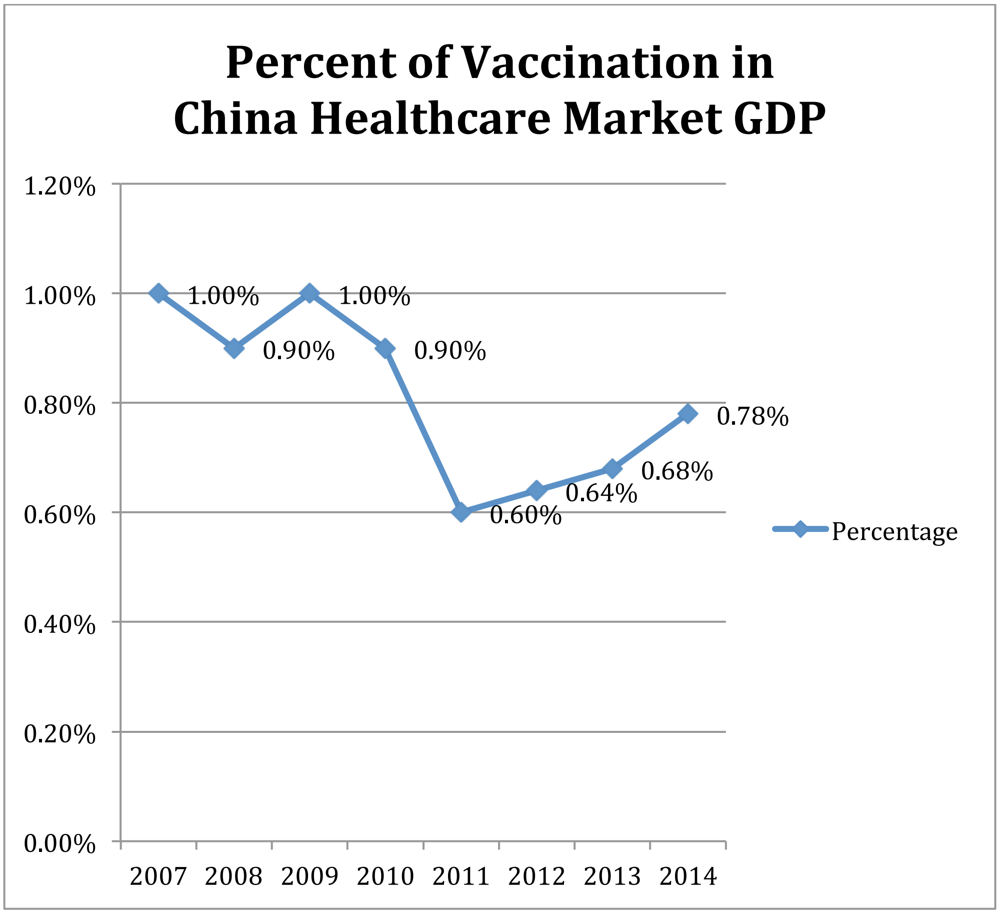
- **Vaccine scandal**. After the scandal in March, the Chinese Ministry of Health is expected to increase strict monitoring of the manufacturing and supply chain for vaccination products. In the long run, bigger-scale manufacturers may take market share away from smaller brands, and foreign companies will benefit.
- **Overseas acquisition of Foreign Hospitals.** As capital and funds are investing on domestic private sectors, Chinese investors also are looking at overseas assets to allow rapid catch-up with the best practices of international operations.
- **Class I vaccine would expand.** OCR's Monthly Interview: affordability and reimbursement is key for the market expansion of the Vaccine Industry.
- **Companies to watch.** GlaxosmithKline and Sanofi are likely to be major beneficiaries of the vaccine scandal.

China Vaccine scandal

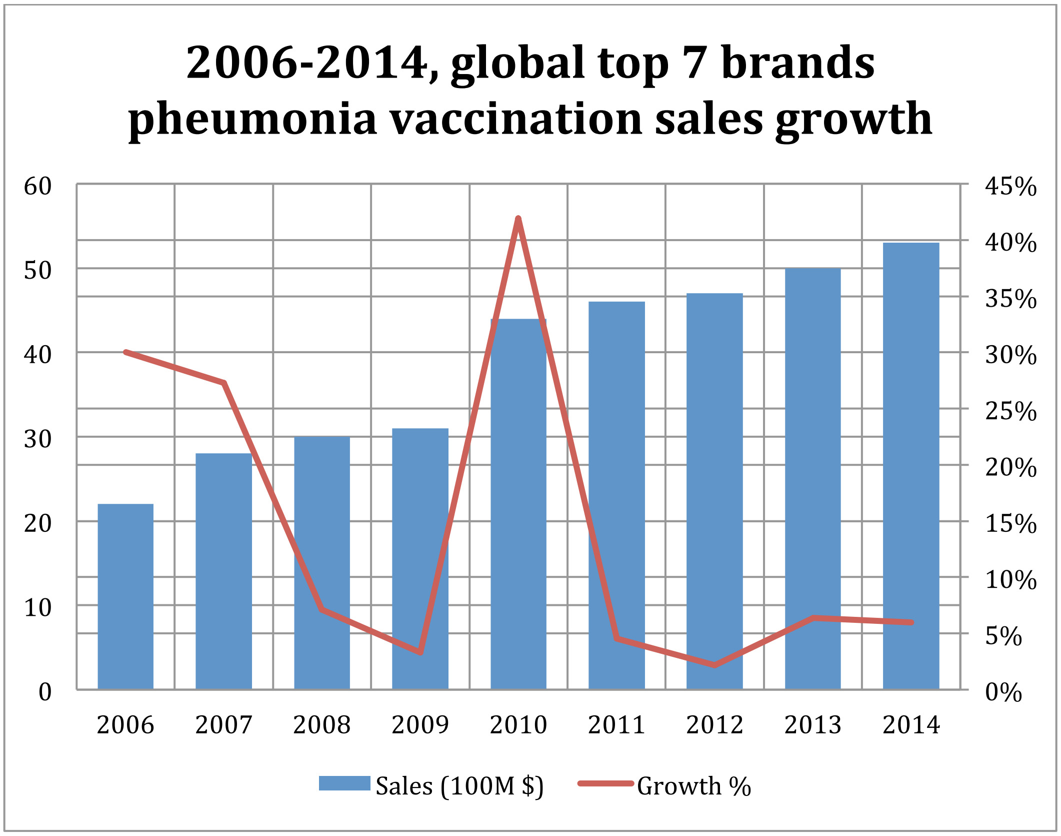
In March 2016, the most explosive healthcare news was a huge vaccine scandal in China. It was estimated that $88 million of vaccines were not properly refrigerated or transported. Hundreds of industry participants across 20 provinces were involved, including vaccine makers, wholesalers and buyers, some of them government procurement officers. So far, 202 suspects have been arrested and 357 officials were punished. This scandal has sparkled anger among Chinese citizens, especially young parents, and in the long run may impact their decisions for children's vaccinations.



The Chinese vaccine market could be arranged into two categories: class I - mainly children Immunization (central procurement and covered by government), and class II - self-funded vaccinations for children and adults. The compound growth from 2006 to 2011 was around 17%, a bit slower than pharmaceutical and device markets in China but much higher than the global vaccine average growth (1.45% in 2015).



Immunization has been an attractive area for investors due to its large size, high-entry barriers, high investment and significant returns. In China, multinational companies have a 24% share, Chinese domestic brands, 40% and state-owned China National Biotech Group takes the remaining 35%. There was a large jump in vaccine sales in 2010 due to a post-Olympic baby boom and new regulations published in 2007 that increased vaccine usage.



Leading multinational brands include Sanofi (SNY), GlaxoSmithKline plc (GSK), Novartis AG (NVS) and Pfizer Inc. (PFE). Among them Sanofi is the biggest vaccination provider with around 250M USD revenue in China in 2015.

The vaccine scandal may cause some parents to hesitate to take children for shots, but overall this negative event is likely to impact the industry in a more positive way for the following reasons:

1) Short-term: with the standardization of cold chain delivery and manufacturing practices, the overall cost of this industry would increase, posing even higher barriers of entry for new firms.

2) Mid-term: we expect to see more Class II type products categorized as Class I and closely monitored. More imported brands which were paid out of pocket are likely to be categorized as class I and would be reimbursed by the government.

3) Long-term: In this highly concentrated market, the market share would be further consolidated into big and full-scale manufacturers such as Sanofi. This is

because as more imported brands are included in the reimbursement list, imported brands would win over local brands due to brand trust. Chinese local brands would lose share to global brands, except state-owned China National Biotech Group, which already is focused on Class I. Since Biotech is a supplier of Class I vaccines, which won't be changed in the future payment schedules, government procurement is likely to lean to Biotech since it is state-owned enterprise.

Overseas Acquisition of Foreign Hospitals

As the Chinese government encourages private capital in healthcare service institutions, Chinese capital, funds and healthcare groups have been actively investing not just in domestic but overseas firms as well.

In December 2015, China's Luye Medical Group announced its intention to acquire Healthcare Australia, the third largest corporate private hospital operator in the country, for US$688 million. Healthcare currently operates 17 hospitals in Australia, with more than 1,800 beds, 50 operating theaters and 4,500 employees. Luye was listed in the Singapore Stock exchange (SGX) in 2004 and switched to the Hong Kong stock market in 2014.

- In November 2015, Huapont Life Sciences Co Ltd (SZSE; 002004), a Chongqing-based pharmaceutical maker, announced that it would buy a 70 % stake in the Swiss Biological Medicine Group Ltd for no more than $32.82 million.
- Earlier, in September 2015, Huapont acquired a 100% share of Rheintal-Klinik GmbH & Co. Porten KG for 5.37M Euro. This German hospital focuses on rehabilitation therapy, which is a rapidly growing segment in China.
- In September 2014, Chinese conglomerate Fosun bought Portuguese hospital operator Espírito Santo Saúde.

Overseas, global funds are looking at Chinese hospitals as well. In March 2016, Bain Capital LLC acquired a controlling stake in the China-focused hospital operator Asia Pacific Medical Group (APMG), in the first deal for the private-equity firm's new Asia fund. Since 1992, APMG has built a portfolio of five hospitals and clinics in China, Singapore and Malaysia, while also partnering with leading hospitals in China to provide medical, research and technology services.

Why do those overseas acquisitions happen? The biggest reason attracting Chinese investors is the foreign provider's expertise and know-how to build high-end private hospitals in China, especially in high potential areas such as orthopedics, plastic surgery and rehabilitation.

From a valuation perspective, the more mature the market, the lower P/E ratio the local hospital business is. For example, the American hospital P/E ratio is around 15, while in Southeast Asia hospital valuations may reach 35-45x. And Chinese private hospital may have even higher valuations.

Vaccination Station Interview

After the vaccine scandal took place, we interviewed three operation managers of community clinical centers in Shanghai in order to get their opinions on potential changes in the vaccination field resulting from the scandal.

Question 1: what vaccination service do you provide?

"In all of Shanghai, the same standard has been practiced – about 11 shots are mandatory for newborn to 16 years old, including HepB, TB-BCG, OPV, DPT, MCV-A, MV, JEV, MMR, HepA, MCV-AC and DT."

"This practice has been launched since 2008. Most shots fall into Class I. Most local brands are covered by the government, while imported brands would be paid out of pocket."

Question 2: What is the percentage of residents choosing self-funding or free shots?

"As we are located in the downtown center, our community station serves a resident group with above average income levels, therefore I observed more than half of the parents choose imported vaccination products for their children."

"The Shanghai suburban residents include many farmer workers and low-income young families. In our case, more than 90% would come here and order domestic brands for free."

Question 3: how do you see the Scandal changing future vaccinations?

" I believe that the country would manage the vaccination process in a more strict way. "

"The companies will pay more attention to cold chain capabilities."

"After news of the scandal came out, I witnessed more parents asking for imported brands. They are concerned about quality issue of local brands."

Implications for Stock Selection

1) **Sanofi (SNY):**

   The Greater China business is more than 12% of Sanofi's global revenue. We estimate Sanofi China's overall revenue 1.63Billion Euro, with vaccines at US$277 million. Since 2013 this French giant has established four manufacturing bases in China, one of which is a vaccination factory in Shenzhen. Emerging markets account for 31% of Sanofi's global revenue and China is the core of the emerging markets. Sanofi's star product IPV had been the only offering in preventing poliomyelitis in China. Recently, in Q1 2015, the China Medical Science Academy announced a similar product developed by within China and launched domestically. IPV is categorized by the Chinese government as Class II vaccine for years. In the future, it has a high possibility to be included to Class I and sponsored by central government.

2) **GlaxoSmithKline plc (GSK)**

   In 2015 a significant exchange occurred between GSK and Novartis – swap of GSK's oncology business and Novartis' Vaccine business. GSK's CEO said in a senior business conference that GSK would expand its manufacturing in China, especially vaccines. The former Novartis vaccine business totaled US$1.4 billion in 2014, with less than 10% net profit. Pfizer also suspended its vaccine business in China due to failure of license renewal of its key product Prevenar. Starting in 2016, GSK and Sanofi would be the only two global providers of vaccines in China. This would be positive for their market share and revenue in China.

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