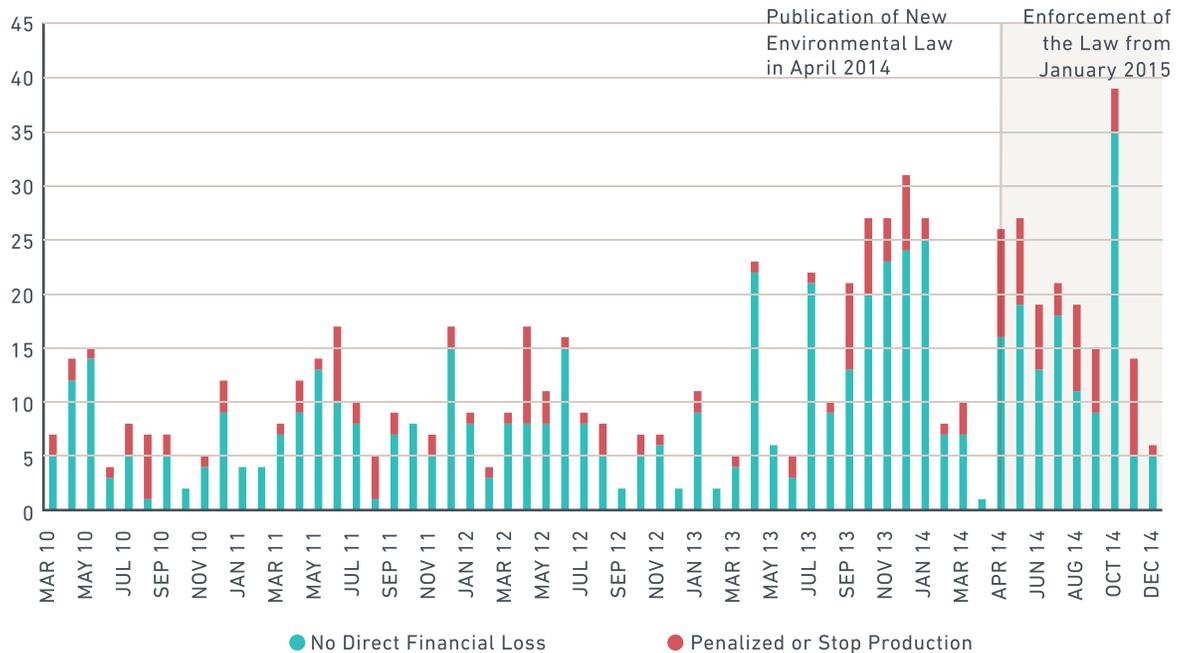


1

ENVIRONMENTAL LAW REFORMS: SETTING A PRICE ON POLLUTION

ENVIRONMENTAL REFORMS WILL INTRODUCE MORE COSTS FOR POLLUTERS, WHICH IS A PARTICULAR CONCERN FOR ENVIRONMENTALLY IMPACTFUL STATE OWNED ENTERPRISES (SOES) THAT HISTORICALLY SHOW 3X HIGHER AVERAGE VALUE OF PENALTIES, AND 4% LOWER AVERAGE NET MARGINS, THAN PRIVATE SECTOR PEERS.

FIGURE 1: ENVIRONMENTAL REGULATORY VIOLATIONS, 2010 – 2014



Scope: MSCI China Index constituents as of April 2015

Sources: MSCI ESG Research, Institute for Public and Environmental Affairs database

We analyzed over 700 records of pollution violations and controversial polluting behavior among MSCI China Index companies and their known subsidiaries, drawn from local government records collated by the Institute for Public and Environmental Affairs, and MSCI ESG Research’s controversy database (Figure 1). There has been clear upward momentum in the pollution incidents being recorded by local environmental protection offices (134% increase 2011-14), and the number of violations being penalized or resulting in stop production orders (doubling over 2011-14).

Our analysis also highlights a higher rate of penalties imposed on SOEs in environmentally intensive industries¹ – companies that tend to underperform other SOE peers and non-SOEs on key financial metrics. Taken together with the strengthening of regulatory oversight over pollution across China at this time, these indicators represent a red flag: Companies that can least afford extra costs, are likely to be the most impacted by the environmental reforms.

¹ Environmentally intensive¹ industries are defined based on MSCI’s risk exposure methodology, which uses a combination of our analysis of carbon intensity, toxic emissions intensity, and water intensity data to define the industries with most environmentally intensive impact.

2

CARBON TRADING SCHEMES: CREATING THE BIGGEST CARBON MARKET

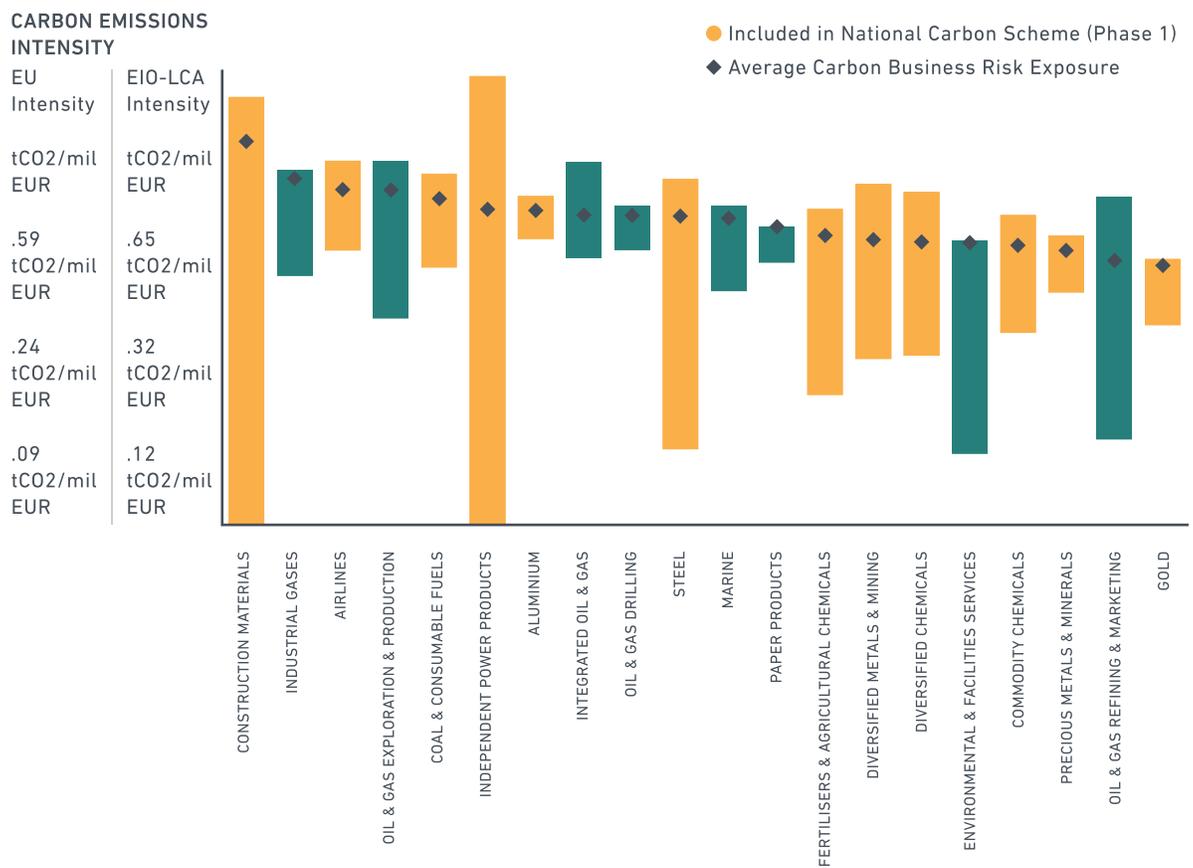
UTILITIES SUCH AS HUANENG AND DATANG WILL NEED TO MOST RADICALLY ADAPT THEIR OPERATIONS FOR CHINA'S NATIONAL CARBON MARKET.

China's imminent national emissions trading scheme (ETS) is set to be the world's largest carbon market by as soon as 2020. Seven pilot ETS have been in operation across cities and provinces in China, and collectively already represent the world's most valuable trading market outside Europe.

Industries targeted for the first implementation phase of the national ETS include electricity producers, construction materials, metals & mining, chemicals, and airlines.

The largest national utility companies – Datang, Huaneng, Huadian, and CGN Power – will be most sharply impacted by future carbon trading requirements, due to their high carbon intensity (based on MSCI's 3-year estimates). Coal and mining companies are also likely to struggle with ETS compliance given the weakness of current carbon mitigation efforts, based on MSCI's assessment of reduction targets and efficiency initiatives.

FIGURE 2: MINIMUM, MAXIMUM, AND AVERAGE CARBON INTENSITY OF COMPANIES BY GICS SUB-INDUSTRY, BASED ON BUSINESS ACTIVITIES: TOP 20 MOST CARBON INTENSIVE



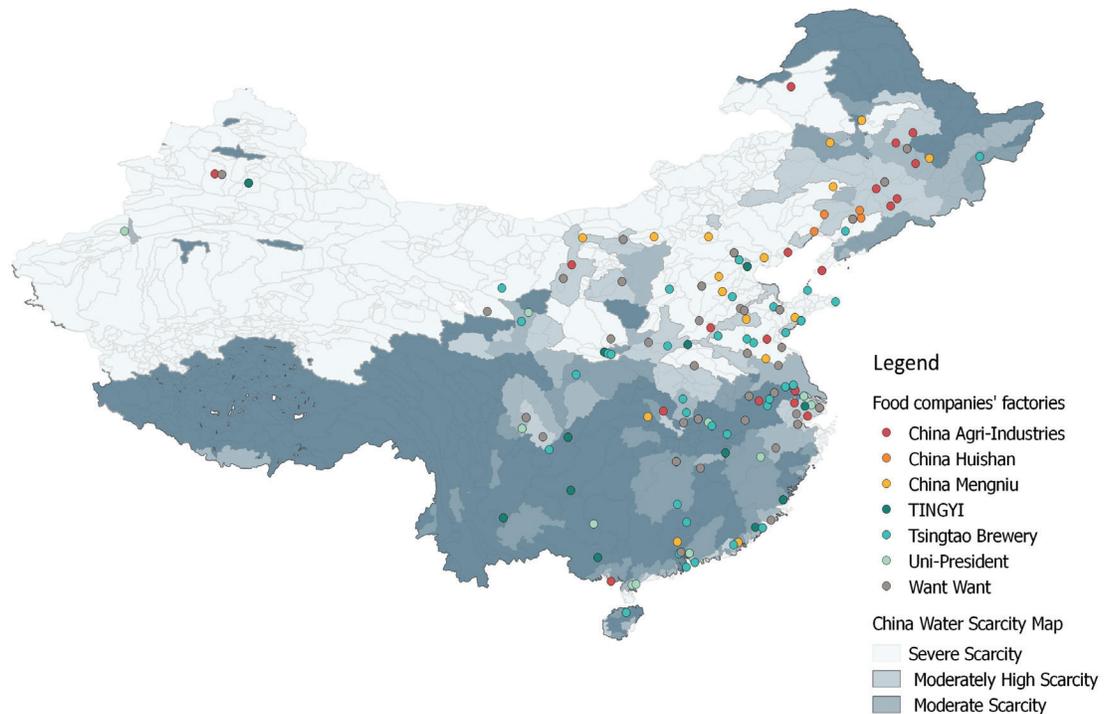
Scope: 2,412 constituents of MSCI ACWI as of 30 September 2014
Source: MSCI ESG Research

3

WATER SCARCITY & POLLUTION: RESTORING ECONOMIC VALUE OF WATER RESOURCES

PLANT-LEVEL DATA REVEALS 38% OF FOOD AND BEVERAGE PLANTS ARE LOCATED IN REGIONS FACING SEVERE WATER SCARCITY. CHINA HUIZHAN AND CHINA MENGNIU ARE MOST VULNERABLE TO WATER SHORTAGES AND PEAK DROUGHTS, YET HAVE THE WEAKEST RISK MANAGEMENT STRATEGIES IN PLACE.

FIGURE 3: CHINESE FOOD & BEVERAGE COMPANIES' OPERATIONS IN CHINA: WATER SCARCE REGIONS



Sources: MSCI ESG Research; company disclosure; Gassert, F., M. Luck, M. Landis, P. Reig, and T. Shiao. 2013. "Aqueduct Global Maps 2.0." Working Paper. Washington, DC: World Resources Institute

The Chinese government has indicated that agricultural water use will be first to be targeted by water market reforms, as it accounts for more than 55% of China's water consumption (as of year-end 2013).² Chinese companies in the Food Products & Beverages Industries are vulnerable to the potential impact of the reforms both on increasing direct industrial water costs, and to a greater extent increases in raw material prices linked to upstream water costs.

Assuming that production plants are usually located very close to the water-intensive primary producers from which raw materials are procured, we used geo-statistical analysis to map water risks facing 225 manufacturing plants of seven Chinese Food Products & Beverages companies (Figure 3). Our analysis reveals that 38% of the plants are located in regions facing severe water scarcity. Among this sub-set, dairy producers China Huishan and China Mengniu stand out for higher vulnerability to water shortages, peak droughts, and the need for higher water quality controls to alleviate pollution concerns, with 83% and 54% of plants respectively operating in regions facing Severe Scarcity of water.

² Ministry of Water Resources, <Implement the most stringent water resources management system assessment approach>, <实行最严格水资源管理制度考核方法>.

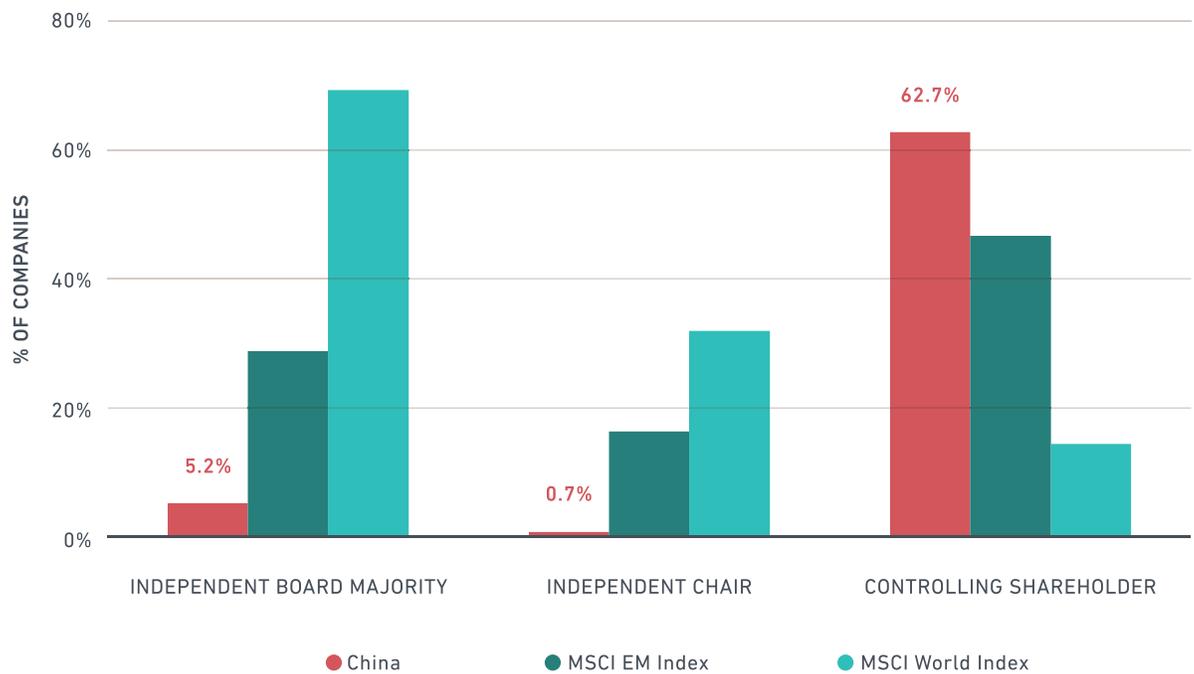
4

MIXED OWNERSHIP AND PRIVATIZATION REFORMS AMONG CHINESE SOES

AROUND 63% OF CHINESE COMPANIES HAVE A CONTROLLING SHAREHOLDER – MUCH HIGHER THAN THE EMERGING MARKETS AVERAGE OF 48%. THE NEW ROUND OF SOE REFORM IN CHINA AIMS TO ENHANCE CORPORATE STRUCTURES AND CORPORATE EFFICIENCY, IMPACTING AROUND 60% OF LARGE/MID-CAP CHINESE COMPANIES.

Our data indicates that around 63% of Chinese companies have a controlling shareholder, much higher than the developed and emerging markets averages (Figure 4). The Chinese government and its agencies serve as the controlling shareholder for a large number of SOEs, also reflected in the very low proportion of Chinese companies with an independent board majority.

FIGURE 4: OWNERSHIP & BOARD TRENDS: 2015



Scope: MSCI All Country World Index constituents as of April 2015; Source: MSCI ESG Research

In late 2014, the Chinese government launched a new round of mixed ownership reforms: partial privatization in some sectors, while maintaining government control of SOEs central to the economy and national security. Despite varying reform approaches for different types of SOEs, the purpose is the same: enhancing SOE operational efficiency via reducing political interference. SOEs represent 60% of the Chinese constituents of the MSCI Emerging Markets Index. The new round of SOE reform in 2015 will target the structural corporate governance weaknesses of Chinese SOEs, aiming to narrow the gap between Chinese and developed market corporate governance norms.

5

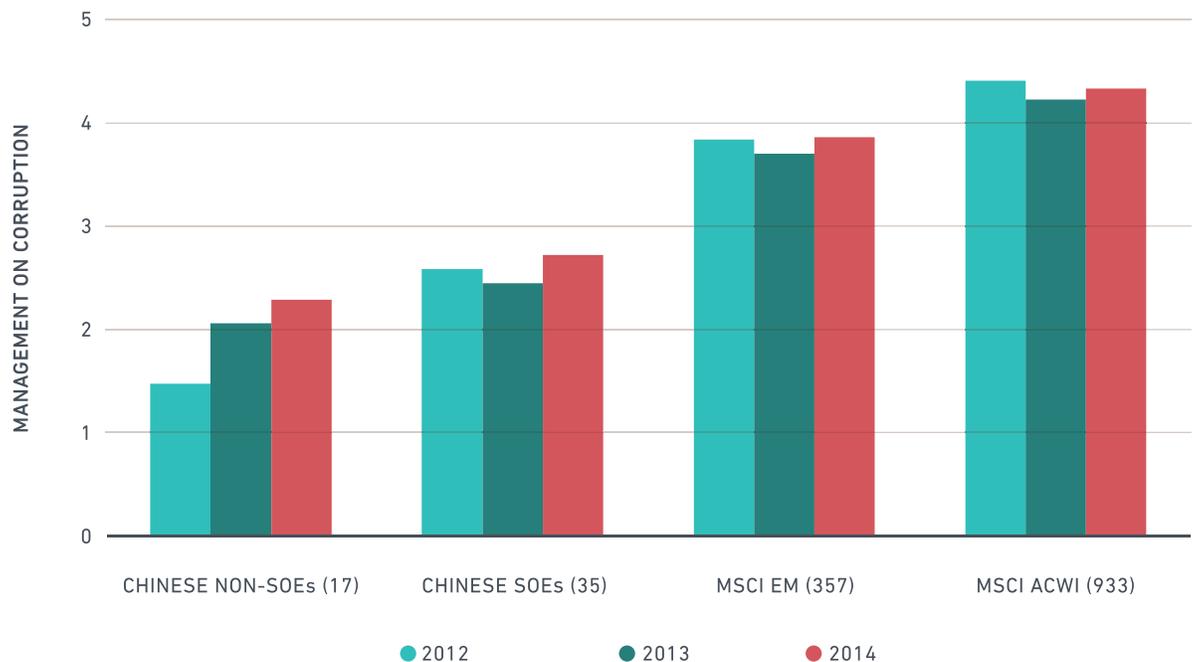
ANTI-CORRUPTION INVESTIGATIONS AND ANTI-COMPETITIVE PENALTIES

IN THE LAST THREE YEARS, THE STRENGTH OF PRIVATE SECTOR COMPANIES' ANTI-CORRUPTION STRATEGIES HAS IMPROVED, WHEREAS THAT OF SOES HAS REMAINED FLAT, SUGGESTING THAT THE 'CRACKDOWN' IS HAVING LIMITED IMPACT ON THE STRUCTURAL CAUSES OF SOE CORRUPTION, SUCH AS MONOPOLIES, LACK OF TRANSPARENCY, AND WEAK PREVENTION POLICIES AND MECHANISMS.

ANTI-COMPETITIVE ENFORCEMENT WILL CONTINUE TARGETING PRIVATE SECTOR-DOMINATED INDUSTRIES IN WHICH FOREIGN COMPANIES OPERATE, SUCH AS AUTOMOBILES, ELECTRONIC EQUIPMENT, MACHINERY AND PHARMACEUTICALS. LG ELECTRONICS AND AU OPTRONICS ARE VULNERABLE TO TARGETING, WITH HEAVY RELIANCE ON CHINA-BASED REVENUES.

Driven by President Xi's anti-corruption campaign, the number of corruption controversies among Chinese large- and mid-cap companies has more than doubled between 2012 and 2013, and will likely double again in 2015 with a new round of the campaign. Over the last three years, we have tracked the anti-corruption management policies and programs for companies in industries facing high risks of corruption, such as energy, real estate, and telecoms. The average corruption management score (where 0 represents weak management and 10 represents best-in-class management by global standards) highlights that non-SOEs have shown the greatest enhancements in their performance to address corruption issues in the past three years, whereas the SOEs trend has been virtually flat.

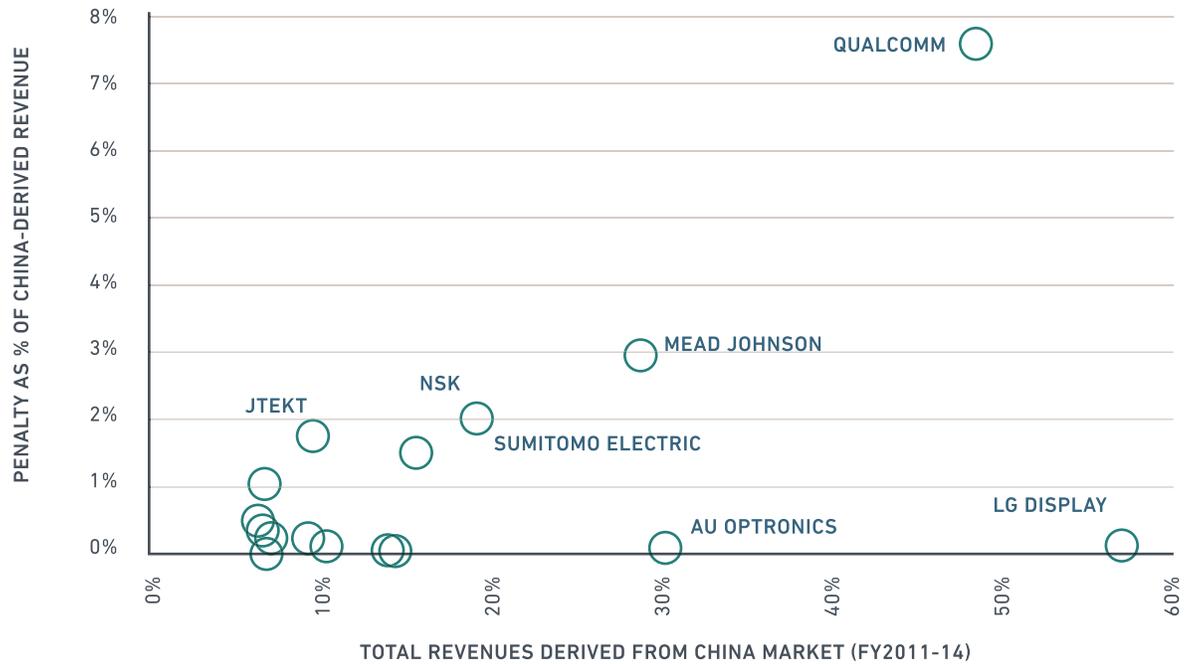
FIGURE 5: CORRUPTION MANAGEMENT SCORES FOR CHINESE COMPANIES, 2012-14



Scope: MSCI China Index constituents as of April 2015
 Source: MSCI ESG Research

In contrast, our data shows that the quantum of fines imposed on foreign companies has far outweighed domestic Chinese companies: 19 foreign companies have been fined compared to 1 Chinese company during the 2012-2015 period; and there have been 11X more anti-competitive investigations or controversies involving foreign companies compared to Chinese. In most cases, the level of anti-competitive penalties suggests that they are sufficiently low as to be regarded as a cost of doing business in China. However we found that Mead Johnson and Qualcomm have had penalties representing a material drag on profits. Foreign companies with very high revenue reliance on the China market such as AU Optronics and LG Display may need to be cautious.

FIGURE 6: FOREIGN COMPANIES' ANTI-COMPETITIVE PENALTIES IN CHINA: 2011-14



Scope: MSCI All Country World Index constituents as of April 2015 with anti-competitive fines issued in China (2011-2014)
 Source: MSCI ESG Research



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