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Zombie Economy in China

A research on Chinese firms'
financial statements

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前言 中国僵尸经济

中国 2015 年国内生产总值增长增速为 6.9%，是自 1990 年以来最低的增长速度。2016 年均中国国内生产总值增长增速为 6.7%，这个是最近 26 年最低的发展率，而 2017 年增速只比 2016 年增加 0.2 百分点。

中国政府无法不面对新的挑战：经济增长下降的同时，债务水平提高至国内生产总值的 280%，而且国有企业在中国债务中的比重不断地上升。事实上，IMF 发言人警告，中国巨额债务可能引发国际金融危机，而中国政府的政策目标应该针对减少国有企业的债务。中国经济不景气下，债务水平连续增长，国家增长增速下降。许多分析师们认为，中国的经济奇迹已经结束了。

亿万农民工自中国内地进城并创造了中国的经济奇迹。那些农民工在国有公司或者国外企业工作提供很便宜的劳动力为了建设很大的基础设施以提高生产能力、以让中国变成制造业的中心。

目前，因为生活水平的提高，工人的薪水随之上涨，许多国外企业决定将工厂迁移至东南亚国家以获得更便宜的人力资源与更低的税收。为了追求稳定而持续的经济成长，在依靠重工业的经济增长模式外，中国政府应该促进劳动密集型的服务行业。

除此之外，中国现在正经历一个从社会主义的中央计划经济转移到市场经济的重大转变。为了实现这个过程，中央企业应该提高自己的效率以获得更高的竞争力。而且中国政府应该减少对市场的干预让市场力量发挥作用。

中国共产党成立中华人民共和国后，毛主席建立了许多属于重要行业和关键领域的中央企业，比如原材料产业、电信产业、基础设施的建设与金融服务行业等等。为了配合共产党的雇佣目标，中国中央企业往往存在冗员问题，效率低、债务水平又高。实际上，每次当中央企业由于财务困难而无法支付利益时，中国政府则会为了避免企业破产而发放贷款。为了避免造成不和谐的社会动荡，中国政府发放贷款以防止企业倒闭。

这种情况导致了“僵尸经济”的现象。由经济学家 Edward. J. Kane 提出，僵尸企业是指资不抵债，主要靠政府补贴和银行贷款维持经营的企业。Nakamura 和 Fukuda 提出他们的定义：一个企业若资金杠杆超过 50%，连续三年出现亏损，债务比前一年高，利息成本又低于市场利率，在这种情况下而继续申请贷款的公司则被称为「僵尸企业」。按照国务院的标准，如果一个企业连续三年出现亏损、不符合环境和技术标准、不符合国家产业政策、严重依赖政府或银行的支持就算是“僵尸企业”。

因为中央企业能够更简单地获得政府的补贴、它们的生产率往往比私人公司低，而在中国的经济情况下，“僵尸企业”大部分为国有企业。

“僵尸企业”对经济有负面的影响：不但造成产能过剩的问题，也对健康的企业造成危害。实际上，如果一种行业存在过多的“僵尸企业”，其他健康的企业因无法获得

相等的政府补贴与银行贷款而无法与之过低的价格竞争。在中国煤炭、钢铁、水泥、玻璃、化学品、石油加工、造船等行业出现越来越严重的产能过剩的问题，而且由于产能过剩的问题与僵尸经济有密切的关系，“僵尸企业”密度最高的行业就是上述的行业。

研究发现中国的西部是“僵尸企业”最多的地区，尤其是宁夏、青海和新疆。实际上，中国经济开放后，东部地区是发展政策的收益区，反而西部地区没有取得同样的进步导致社会不平衡的问题而两个区域之间的日益失衡。除了西部地区之外，还有西北地区例如陕西省之所以“僵尸企业”很多是因为西北地区的经济主要集中在煤炭的开采和加工。

目前中国政府的政策开始针对“僵尸企业”的问题通过属于十三五规划的中国国有企业的改革。政府的第一优先便是改变经济结构以面对新的挑战，关键点是：创新、效率、科技、重心分配资金和私有化。虽然政府为了加快推进去杠杆化和落后企业清理工作而推出各种改则措施，目前取得的进展仍然有限。

我的论文是由两个部分组成的：第一个部分从中国经济史的概述分析中国的债务以及朝向私有化市场经济的变动。另外我要解释“僵尸企业”的现象、中国政府的国有企业改革、针对国际金融危机的中国政策以及最后习主席供应方面的改革和国有资产监督管理委员会的建立。第二个部分我将从八个中央企业财务报告的分析与评论来鉴定趋势、政府的干预与对公司的治理。我分析的公司皆为“国务院国有资产监督管理委员会”或“国有企业直接控制下的国有公司”，且会以“有限公司”或“以中国政府为最大股东的上市公司”进行企业结构的分析。

企业财务报告包含资产负债表、损溢表、留存盈利表和现金流量表。

资产负债表表示企业在一定的日期，通常为各会计期末，的财务情况。按照会计平衡原则，企业的资产应该等于负债及股东权益。通过这个报告的阅读，中国和外国的投资者可以了解企业经营的状况。

损溢表又称利润表反映在一定的期间，通常为各会计期末，企业的利润实现或者发生亏损的财务状况。

留存盈利表表示企业从历年实现的净利润中提取或形成的留存于企业内部积累包括盈余公积和未分配给股东的利润两类。

现金流量表是财务报表三个基本报告之一，它是指在一个固定的期间，通常为各会计期末，企业现金的增减变动的情况。这个报表最主要特征是要反映出资产负债表中各个项目对现金流量的影响。现金流量表可用于分析一家公司在短期内有否足够现金去应付开销。

为了让读者更了解每一家企业的财务和经营的情况，我使用三种不同的财务报告分析办法：垂直分析法，水平分析法和财务比率分析。

垂直分析法是一种财务资料的分析方法。利润表中的所有项目用销售收入的百分率表示，资产负债表中的项目则用资产总额的百分率表示。

水平分析法的基本要点是将报表资源中不同时期的同项数据进行对比。这种财务分析方法是为了研究企业各项经营业绩或财务状况的发展变动情况。

比率分析法是以同一期财务报表上若干重要项目的相关数据相互比较，求出比率，用以分析和评价公司的经营活动以及公司目前和历史状况的一种方法。财务比率是由四种类组成的：反映公司的获利能力比率、偿债能力比率、成长能力比率、周转能力比率这四大类财务比率。

为了确定一家公司是否"僵尸企业"，我来分析如果每一家公司的净利润是否负数的。第二个阶段是分析每一家公司的实际利息成本是否低于市场固定的利率。第三个阶段包括企业金融杠杆的分析：这个比率不能超过 50%。第四个阶段是判断如果短期债务多于息税前利润。最后为了考察每一家企业偿付*利息*能力的稳定性，我分析每一家公司的利息覆盖率，然后我发现所有的企业有很低或负数的利息覆盖率。通过这五个参数我来确定如果一家公司是否"僵尸企业"。

虽然这些企业收到了政府或信贷机构的补贴性贷款，但是它们无法通过更高的雇佣率、更大的盈利能力或固定资产的增多增加资本积累。因此中国政府应该想出来不同有效重组方案，包含解决企业冗员问题、减轻债务负担、削减国家补贴与弥补债务脆弱性。并且中国政策应该面对让价格降低的产能过剩的问题导致一些行业崩溃。因此政府政策为了削减过剩产能应该在不同行业之间的重新分配资源。实际上，"僵尸企业"的现象带来了资源错配的问题因为私有公司无法收到国有企业一样的银行信贷支持，让商业周期和经济中的不平等放大。

目前的研究发现隐性的政府支持是"僵尸企业"数量增加的关键因素。虽然它们面临持续亏损和高杠杆，但是隐性担保仍使这些"僵尸企业"继续存活。除此之外，"僵尸企业"往往会挤出私人投资，导致整体生产率增长率低下，企业竞争受阻，同时增加金融体系中的不良贷款，给金融稳定带来风险。

解决企业的债务脆弱性，提高企业效率是 2017 年《政府工作计划》和《五年计划》（2016 至 2020 年）的重点优先事项。因而中国政府进行了不同针对企业债务增加的问题的战略例如可同时采用合并、清算、债务股权置换和公调整司资产出售等措施。金融监管机构更新了监管政策，将重点放在了金融风险管控方面。

与此同时，政府采取了一系列措施提高国企效率。国企改革战略旨在将现代公司治理和党的领导权"自然融入"国有企业，以提高企业效率，同时实现国家发展目标。

政府还对不良贷款监管方式进行了修订，以便加快对"僵尸企业"的清算工作。其他支持性政策还应包括：强化会计和审计规则，以提供及时和准确的财务信息。

如果政府不集中力量减缓信贷规模的增长速度，那么金融重组方案只能停留在表层，不能触及潜藏的结构性问题就是怎么降低企业债务。因而，问题只可以不断地延后。

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1. Introduction

When in 2015 the Chinese economy grew at its slowest rate in 20 years, many analysts and newspapers' reporters argued that the "Middle Kingdom" ended its glorious economic miracle and was undergoing the descending phase of its life cycle.

China's final GDP figure for 2016 was 6.7 percent, which was the lowest in 26 years and even though the 2017 figure was slightly higher registering a 0.2% increase on the previous year number, ongoing issues such as the surge of debt are casting a shadow over the future of China. The International Monetary Fund warns Beijing over its spending as the Chinese debt continues to pile at a fast pace stressing the risk for a new China-triggered financial crisis.

This rapid economic development witnessed by China was possible thanks to the estimated 277 million of migrants who moved from the countryside to the cities providing constant and cheap labour for the government infrastructure projects, heavy industries' factories and foreign invested companies which offshored their production to China seeking low-cost work force and economies of scale. This flow of people within China is considered to be the biggest human migration of the world upon which Beijing based its growing plan for four decades. Recently, as the living standards and the salaries have started to increase, more and more factories are considering moving to other emerging countries where the cost of labour is cheaper, causing a shrinkage in the demand for workers in China and ending the low-cost work force based growing plan.

Therefore, the government has to think of a different economic growth model which does not entail anymore the exploitation of cheap labour in capital intensive industries but focus on a more efficient allocation of resources in labour-intensive industries.

Along with the increase in efficiency which has been a common phase for other countries while undergoing a process of development, China has to deal with another, more philosophical issue: the shifting from a socialist planned economy to a full market driven economy. As a matter of fact, China is the only communist country that is opening to a market system while preserving its core socialist values with the leaders of the People's Republic of China more and more converging to freer market policies.

Deng Xiaoping's motto "Socialism with Chinese Characteristics" has been preserved and developed throughout the latest legislatures which implemented foreign investments and private ownership giving further support to the view that socialism can exist not only in a planned economy, but also in a market economy.

The economic slowdown, the shifting to a more market-driven framework, the efforts to allocate more efficiently the state resources have led the Chinese government to focus on a crucial issue: the restructuring of inefficient and unprofitable state-owned enterprises (SOEs). Chinese SOEs first spread after the constitution of the People's Republic of China, in 1949, with the pressure of the Soviet Union in order to serve the most crucial sectors such as telecommunications, infrastructure construction, raw materials and financial service. Those enterprises are usually overstaffed and highly inefficient because they do not respond to the market forces, but to the government plans and objectives. More specifically, SOEs are in charge to fulfil the social goals of the Chinese Communist Party which translates into high employment rates to contribute to the formation of an “harmonious society”. Therefore, those enterprises are highly subsidized by the state and are entitled to almost never ending credit by financial institutions because whenever a state-owned company finds itself in financial distress, the state will act as a guarantor and will bail out the SOE.

This economic scenario has led to the creation of a zombie economy dominated by zombie enterprises. The term “zombie enterprise” was coined by Kane (1987), to refer to enterprises that would go bankrupt due to low or negative profits but survive with external support from government or the financial sector. Nakamura and Fukuda (2013) analysed the financial condition of several firms and noticed that zombie enterprises are those ones that have 50% or more of gearing ratio, negative actual profit and current annual liabilities which exceed those reported in previous years. If a company, although it is undergoing such difficult financial situation is still able to obtain new debt, then it is a zombie firm. According to the State Council of China, if a company has negative actual profit for three consecutive years it is considered a zombie firm. Because of their nature, in the Chinese economy, it is more common to find zombie firms in the state sector than in the private one as it is easier for the former to have access to lending compared to the latter.

In such an economy, zombie enterprises are closely connected with overcapacity and low productivity rates; as a matter of fact, according to the Development Research Center of the State Council, capacity utilization in China in 2012 was around 70% in industries dominated by SOEs such as steel, coal, cement, glass and aluminium, while in 2015 it fell to around 65% in the same industries. Not only zombie enterprises are detrimental to the economy because of their contribution to overcapacity and poor profitability, but also because they prevent healthy and efficient firms from entering or being in the market as they have to face unfair competition and credit limitations.

Therefore, it has become stringent for the Chinese government to intervene and curb this phenomenon, as it is shown in the SOEs reforms and the 13th five-year plan. The critical priorities for the years to come are the restructuring of the economy in order to face the new challenges laid by this decade. A transition period is awaiting the “Middle Kingdom” and the keywords are efficiency, technology, innovation, reallocation, and privatisation. Will the government live up to the new challenges ahead in the future?

My dissertation project is divided in two big section: the aim of the first one is to give an overview on the Chinese economy, analysing the China debt and the transition towards privatisation and a more market driven economy in addition to a focus on the “zombie enterprises” phenomenon and theories along with their distribution across regions, ownership and sectors. Moreover, government policies regarding state-owned firms are discussed in detail to investigate the political outline and the government resolutions on the SOEs’ management with a focus on the decisions taken during 2008 crisis, Xi Jinping’s “supply-side reform” and the institution of the SASAC (State-owned Assets Supervision and Administration Commission of the State Council) as the government arm over the financial administration of state-owned enterprises.

The second section focuses on the analysis and interpretation of Chinese zombie SOEs' financial statements in order to underline possible trends and government interventions in the enterprises' governance. These enterprises have been selected according to the level of state ownership, in other words either they are directly controlled by the People's Republic of China central or local government or by the SASAC, or they are direct subsidiaries of state-owned enterprises. Moreover, my research is centred on limited liability companies and public companies whose majority share is owned by the SASAC or by state-owned enterprises. For an easier consultation of the data, the companies have been grouped by sectors, namely metal, chemical, energy and shipping sector, to give the reader relevant considerations according to the different industries' peculiarities.

Financial Statements are key documents that allow the reader to know the financial condition of a given firm, they include Balance Sheet, Income Statement, Statement of Retained Earnings and Cash Flow Statement. The Balance Sheet provide a snapshot of the assets, liabilities, and shareholder's equity of an enterprise on a certain point in time, usually at the end of each fiscal year. The income statement provides an overview on a firm's revenue and expenses; the statement of retained earnings is a financial statement outlining the changes in retained earnings for a specified period. Lastly, the cash flow statement registers the inflow and outflow of money within a company whenever it occurs.

Three different methods for the financial statement analysis are highlighted in order to give the reader a clear picture of each enterprise's financial and operational framework: the vertical method, the horizonal method, and the financial ratio analysis. The first one consists in the proportional analysis of a financial statement, where each line item on a financial statement is listed as a percentage of another item, usually for income statements the various indices are expressed as a percentage of gross sales and for the balance sheet as a percentage of total assets; the second one consists in the analysis of the same firm's indices over two or more periods of time in order to investigate the strengths and weak points of a company; the last one consists in the analysis of the financial ratios in order to assess the profitability, liquidity, efficiency, solvency and the ability to repay long-term debt of a given company. After having analysed the company financial performance, I set five parameters to validate whether the selected company are "zombie enterprises": negative or very low net income, interest rates lower than the market one, gearing ratio higher than 50%, short-term liabilities exceeding EBIT (earnings before interest and tax) and negative or very low interest cover. The last step is to determine whether a proved facilitated credit leads to capital accumulation through an increase in fixed assets, higher rate of employment or growing profitability for the company.

In the conclusions section I try to answer critical questions which arose from the writing of the thesis: whether the identified parameters can be applied to every kind of firm or there might be some enterprises which unfairly fall into the "zombie company" category; whether those parameters are meaningful only for Chinese firms or they might be applied also to a European context. Moreover, I give my personal opinion on the future outcomes in view of the Chinese government economic policies and the trend outlined by the analysis of the data.

2. China's Economy

If someone had the opportunity to visit China 20 years ago and was about to make another trip right now, he or she would be struck by the profound changes that have been taking place in this country. First of all, one would ask himself or herself how China became an industrial power from being an agriculture-based one, how the government succeeded in lifting millions of people out of poverty and becoming the second biggest economy in the world.

It is obvious that the political system influenced the economy and, in many ways, allowed the rise of the country. When we think about the Chinese political system, the words "Communism" and "centralized" will easily come to our minds; however, understanding how the machinery of the Chinese state works is much more complicated.

Beginning with the word "Communism", it is true that after the fall of the Soviet Union and the shifting of the Soviet-affiliated countries in East Europe to more democratic forms of government, China has become the biggest and more influential representative of Communism in the world. However, it can be argued how truly Communist is China after the reforms of Deng Xiaoping in the late 1970s and the progressive convergence to freer market policies and privatization. Therefore, the Deng's slogan "Socialism with Chinese Characteristics" might seem more appropriate to describe a system where the economy is soundly based on Socialism but driven by the market forces, narrowing the difference between a planned economy and a capitalistic one and becoming a viable alternative to the primacy of the United States' concept of economy.

Contrary to what someone might think, the Chinese political system is everything but centralized, this comes from the Mao leadership period: as China was undergoing the civil war, it was necessary for each unit to be independent so that if the enemies destroyed and conquered one of them, all the others would be able to continue their operations, especially the factories of weapons[1]. The result is that nowadays the system is still highly decentralized with each local government being responsible for a great amount of issues. Not only is the Chinese political system highly decentralised, but it is also very hierarchical with four tiers of regional governments: provincial level, prefecture level, county level and township level. Every level has to report to the successive tier of government; therefore, there is a down from the top control, however local government are entitled to a certain degree of autonomy which consists in "conducting the administrative work concerning the economy, education, science, culture, public health, physical culture, urban and rural development, finance, civil affairs, public security, nationalities affairs, judicial administration, supervision and family planning in their respective administrative areas." (Kroeber, 2016) In spite of a great degree of autonomy, the constitution of the People's Republic of China does not allow for a separation of powers leading to Federalism; therefore, unlike the United States, China is not a federal republic. The central control over the local governments is exercised by the system of career upgrade within the Communist Party. As every region is decentralised, on an industrial point on view, the

[1] Arthur R. Kroeber, *"China's economy, what everyone needs to know"*, Oxford University Press, 2016

formation of competitor companies has been significantly stimulated leading to fierce competition in several key sectors such as agriculture and the production of chemical fertilizers, unlike other centralized economies where specialization and monopoly are frequent characteristics. The officials ruling the regional government with the best performance would be rewarded with career upgrade as a retention tool. It is clear that, as the local officials are appointed by the central government, promotions and the designation to a certain political role are powerful instrument of the Communist Party to induce state employee in inferior tier to follow and implement the central government policies and foster economic growth. By this patronage system, the central government controls that the regional officials follow the same direction of the Communist Party and block every independent movement, especially in critical regions such as Tibet and Xinjiang.

The high degree of decentralization together with the vastness of the territory and population, allowed the government to experiment economic and political reforms, first and foremost, the establishment of special economic zones. The central government can rely on a reduced portion of territory to test experimental law, investigate the outcomes, and then decide whether or not to implement the same resolution to the entire country. The balance between the vitality of the economy and the political control is very difficult to achieve, however, it seems that China has succeeded in avoiding economic stagnation like other centrally planned economy and maintaining the grip over the political power of the country. In other words, the Communist Party has used the Chinese economic miracle, the Chinese dream as a mean to legitimize the authoritarian regime and the socialist ideology in general.

It should be noted that China is an authoritarian regime; however, the leadership is not concentrated in the hands of a single person, as it was during the Mao era, but is performed by the Party which permeates every aspect of the Chinese political, economic, and social life. An example is the Party's control over the state-owned enterprises which are directly funded by the government. Another interesting aspect is that the Chinese Communist Party has succeeded in changing its leadership three times in a peaceful way even though the previous chief in power had not deceased yet.

In 1979, China emerged from the Maoist isolation and started looking at its neighbours, Japan, South Korea and Taiwan, for inspiration on how to achieve economic development. As a matter of fact, all these countries had been undergoing a fast process of development and became important economies worldwide from being agriculture-based states. Chinese analysts studied their growth and convened that their success was a combination of three fundamental elements: land reform, export manufacturing and fiscal repression. The "Middle Kingdom" followed the route its neighbours had taken and first broke up the big estates creating a class of rural smallholders, which led to bigger yields and in the final analysis, to more return to the state through taxes, allowing the central government to finance basic industries and infrastructure projects. In an emerging country with a low buying power currency and out-of-date technology, one major issue is how to get valuable foreign currency to buy advanced technology, which is the key for fast development, from fully industrialized nations. The answer is becoming an exporting country in order to acquire foreign currency by the selling of goods. The last element is financial repression, in other words, practices to control the financial markets such as low interest rates to fund state investments and infrastructure projects, undervalued exchange rate to make a country's exports cheaper, last the prohibition to outflow capital. China has followed all those steps; however, because of the different relationship with the United States compared to its neighbours and the divergent approach to privatization, the "Middle Kingdom" economic growth was also driven by China intrinsic characteristics: the reliance on state-owned enterprises and the extensive resort to foreign direct investments. While Japan, South Korea and Taiwan initiated a process of privatisation of banks and companies which boosted the economic output and swelled the state's coffers, China's model was based on the reliance on SOEs to directly manage the allocation of resources and exercise political control over the local governments. As long as foreign direct investments are concerned, as China could not count on the United States support such as programs of technical assistance, educational exchanges and most of all the access to the US market because it did not adhere to the US ideology influence, it had to rely on other external funding and by not allowing the outflow of capital, made sure that the earnings generated stayed in the country and created more wealth. It is easy to understand why the United States supported countries such as Japan, South Korea and Taiwan and not China. Looking at the political systems, it should be noted that those countries are all democracies; therefore, it can be assumed that they accepted the political influence of the US in exchange for all the benefits that the first economy in the world was able to provide to them. China, on the other hand, rejected the American liberal democratic framework and, as a consequence, was not entitled to US help for economic development.

In addition to the land reforms, export manufacturing, financial repression, reliance on SOEs and extensive use of FDI, China economic miracle has been made possible through the proximity to Hong Kong, whose port was already one of the busiest in the world, and to the East Asia existing production chains. Good timing was crucial as well: China development occurred after the internationalization of production chains and after the invention of shipping containers which reduced the cost of transportation by sea. Moreover, in the same years, the sophisticated electronics industry from Taiwan moved to the mainland looking for cheap labour and created a world electronics manufacturing base across the strait.

The reason why Asian and worldwide investors choose to outsource or offshore their production to China is to be found not only in the cheap and abundant labour, otherwise they could have chosen other underdeveloped countries, but also in the incredibly good infrastructure available. This bizarre combination of low labour cost typical of underdeveloped countries and astonishingly good infrastructure typical of developed countries had the effect of attracting foreign investments.

In this first phase of economic development, China succeeded in collecting the capital needed to fund infrastructure projects and acquire important knowledge from foreign investors and management in order to lay the foundations for the growth. Subsequently, to further boost the economic growth and not falling into the economic stagnation as it was the case of Russia, the central government started to reallocate resources from the state to the private sector while retaining stricter control on economic policies, initiating the transition from a communist command economy to a more market driven one.

The turning point in Chinese modern history is the rise to power of Deng Xiaoping, the leader that opened China to foreign investment and market economy. His famous economic reforms, in Chinese 改革开放 (gǎigékāifàng, reform and opening) allowed millions of people in urban areas and in the countryside to raise their living standards and made China one of the fastest growing economy in the world. When Deng inherited from Mao the leadership of the country in 1978, China was getting out a period of extremely bad conditions: the Great Leap Forward from 1958 to 1962, which is deemed to have caused The Great Chinese Famine, and then the Cultural Revolution from 1966 to 1976, which aimed at purging the remaining capitalist and traditional element in the Chinese society causing serious harm to the economy and people's wellness. Moreover Chinese industrial economy under Mao guidance was affected by two main problems: first it was relying too much on capital intensive heavy industry while production of consumer goods was very limited and therefore, the supply of basic items like clothing, electric appliances and bicycles was minimal also because of the rationing of the planned economy. This might look as a contradiction as at that time being China a poor country with little capital but cheap labour, it would have been more sensible, in a first stage, to base the economic model on labour intensive industries instead of on capital extensive ones. The second problem was that all the sectors were dominated by SOEs which did not have incentives to improve their economic output and productivity because all the fundings and objectives were set by the state. Therefore, Deng's attention had been drawn on to shifting from capital-intensive heavy industries to labour intensive light industries focusing on exports; the establishment of special economic zones (SEZs) to attract potential foreign investors; price reforms to increase the leverage of the market forces and tolerance towards private enterprises.

Deng's first intervention was the reform of the agriculture system, which was suffering from the mismanagement of the Communist Party. He succeeded in boosting the production by 25% by decollectivizing the sector and emphasizing the household-responsibility system which consisted in the privatization of the People's communes. This bottom-up approach is believed to be a crucial point in the successful development of China. In the industrial sector, reforms were introduced to increase productivity thanks to the dual-price system which enabled the state-owned enterprises to sell any product above the plan quota at market prices allowing the citizens to avoid the shortages of the Maoist period. State-owned firms were at the core of Deng's industrial reforms: the state-owned enterprise reforms of 1979 and then the adoption of the "Industrial Responsibility System" in 1980 further improved the economic performance of SOEs allowing individuals or groups to administer state-owned firms by contract assuming full responsibility for profit and losses and replacing profit delivery by taxes. Private businesses were tolerated for the first time since the Communists' takeover and rapidly grew as the first sector in China accounting for a greater percentage of industrial output. In other words, the "Middle Kingdom" embarked on a journey for the radical transformation of its economic model: from a management system which entails the excessive concentration of power to the transfer of authority to lower levels so that local industrial and agricultural enterprises could enjoy a great deal of decision making power in the operations management following the guidance of the State.

While in the first stages of Deng's state-owned enterprises reforms the framework of the communist planned economy was preserved and the revenue growth was achieved thanks to the decentralization of power and bonuses for increased production, in the second stage more emphasis was given to the opening to foreign investment with the creation of special economic zones (SEZs) which acted as engines for the economic growth and the lessening of the government intervention on private businesses which culminated with small-scale privatization of unviable SOEs.

After the Tiananmen protest of 1989, the Chinese government lost the international support while internally China was afflicted by corruption and increasing inflation; however, thanks to Deng's resolution to carrying on with the reforms, the central government succeeded in regaining the backing of the international community and in 1992 after Deng's southern tour during which he visited the previously established special economic zones, he strongly reaffirmed China commitment to economic liberalization and the implementation of free market policies. This phase led to the creation of a series of fundamental requirements for a new phase of reforms: forms of private ownership were established; an entrepreneurial class began to take shape and the awareness of property rights began to develop. Subsequently, the establishment of the Shanghai Stock Exchange in 1990 and the Shenzhen Stock Exchange in 1991, the strategic reorganization of the SOEs and the founding of the state-owned assets management system marked a breakthrough in the transition to a market economy.

In June 1989 Jiang Zemin became the leader of the Communist party even though Deng Xiaoping continue the exert his influence until 1992 just 5 years before his death. The Jiang and Zhu Rongji administration inherited a country with a consistent growth trajectory and at the same time profound social, economic, and political corruption problems. First of all, the fast speed growth brought to a more unequal society with the coastal regions enjoying the benefits of economic development and the western regions lagging behind. The Asian financial crisis of 1997 posed a great challenge to the economic stability of China; however, thanks to the guidance of Zhu Rongji, the country was growing at an average rate of 8% by dramatically reducing the size of the official bureaucracy and reforming state-owned enterprises which saw the layoff of 35% of workers over 5 years. Moreover, Zhu privatized the urban housing market allowing people to own their homes at subsidized rate and allowing local government to collect more money from the selling of real estate to fund infrastructure projects. Zhu's attention was drawn to the centralization of the fiscal system which, at that time, was highly decentralized, allowing Beijing to count on constant and growing funding to balance the central budget and to the control of bad loans granted to unprofitable state-owned enterprises. Zhu spun off these outstanding loans into especially created asset management companies (AMCs) and recapitalized the banks through government loans. During the Zhu Rongji leadership, foreign direct investments in China grew rapidly in spite of a negative worldwide trend and the trade exports soared by 18% generating an impressive inflow of capital into the "Middle Kingdom".

In 2001, the entrance of China into the World Trade Organization after 15 years of negotiations, represented a crucial event for the convergence of the "Middle Kingdom" to a market economy and the access to the world market. However, the Chinese government had to comply with essential conditions imposed upon the entry into the WTO: the lowering of tariffs for imports, the allowance for foreign enterprises to sell directly in the Chinese domestic markets and the opening of the telecommunication and finance sectors to more foreign competition. Nonetheless, after entering the WTO, China considerably boosted its exports thanks to the standard and reliable trade framework provided by the organisation, becoming the fourth exporting block after the United States, European Union and Japan. The relocation of plenty of

Taiwan-based electronic assembly factories to the mainland linked to the increased demand in computer and other electronic appliances which was booming in the same period, contributed to the rise and flourishing of the "Made in China" exports.

Jiang's successors Hu Jintao and Wen Jiabao followed the route to market economy and to the consolidation of the role of China in the international arena by the strengthening of the state sector and the making of state champion enterprises: under the slogan 抓大放小 (zhuā dà fang xiǎo, holding on to the big and letting go of the small), on the one hand big SOEs underwent major strategic reorganization to become more profitable and competitive worldwide, on the other hand small and unprofitable SOEs underwent bankruptcy and liquidation process.

Other campaigns of development, particularly focused on the revitalisation of economic depressed areas, were implemented throughout the Hu and Wen legislation. Examples are the "Develop the West" and the "Revitalize the Northeast" campaigns, which did not always bring the expected outcomes. During the Hu-Wen administration the size of China's economy grew fourfold: infrastructures and cities developed at an incredible rate, while the living standards and the salaries of Chinese citizens improved considerably; however, the expected political reforms did not occur leaving the youngest and the sympathizers with the Tiananmen riots hungry for more political participation and social reforms. Chinese leaders have been going on saying that China was not ready for political reforms and democracy, as more important objectives had to be achieved before: economic growth and the modernisation of the nation. The new administration focused more on regaining control over the state-owned enterprises and favouring key sectors such as steel, cement and glass which were essential for the rapid development of basic infrastructure and new cities.

In 2013 Xi Jinping assumed the office of the presidency of the People's Republic of China continuing Hu's political line of market economy reforms with a focus on free trade and globalization fostering the national aspiration under the slogan (中国梦, Zhōngguó mèng, Chinese Dream). The new challenge ahead for president Xi is to switch from a high speed to high quality growth concentrating on stimulating innovation, efficiency in the whole manufacturing process, and the growth of the internal demand. It can be argued that China is undergoing a new phase called by many analysts "the new normal" which is signalling its transition toward the "middle-income" status and the need to resort to supply-side reforms in order to escape the "middle-income trap" and stimulate growth for the years to come. The "middle-income trap" consists in the failure of emerging countries to shift from a low-end product manufacturer to a high-end technology-advanced product one. As the incomes continue to raise at high rate, foreign investors are increasingly moving their plant from China to other less advanced countries urging the Chinese government to fasten this process in order to prevent the economic stagnation and let China rise to high-income levels.

Moreover, the Chinese economy, in spite of having a large percentage of investments, is characterised by low household spending; therefore, emphasis has been placed on increasing the domestic spending to keep the economy flourishing in a period when foreign investments have started to decrease, and on the shifting of the government's attention from the heavy industries to the service one. While on the one hand Xi presidency -especially after the recent amendment of the Chinese constitution which entails the abrogation of the two-mandate limit for the office of presidency of the republic- has been tightening the control over the Communist Party, on the other hand he has enforced economic reforms involving the free allocation of resources according to the market forces as well as more foreign participation into the domestic market. The aims of this presidency, as stated during the 19th National Congress of the Communist Party of China, are “promoting the strengthening, improvement and expansion of state capital, and effectively prevent loss of state assets, deepen reform of state-owned enterprises, develop a mixed-ownership economy and cultivate globally competitive world-class firms” (Reuters, 2017) pledging further economic liberalization and opening even more China’s door to foreign investors. As opposed to his predecessors, Xi is thought to focus more on economic and social stability compared to market liberalization and price deregulation as one of primary goal of the party is the achievement of a harmonious society. Much needed fiscal reforms, in order to tackle local governments’ debt and housing bubbles, are not yet been introduced while growing debt burden and overcapacity are becoming stringent issues to be addressed. On the meanwhile, Chinese citizens are becoming more educated and aware of critical topics such as environmental protection, corruption in politics, and the increasing social inequalities demanding a more sustainable growth and equal society. Internationally, Xi has been extending China’s influence through the much controversial “One Belt One Road” project which on the one hand, is aimed at achieving more prominence in the international environment especially in Central Asia, Eastern African countries and Europe by bolstering infrastructure and enhancing trade agreements with partner countries, on the other hand is seen as a way to exert political control on emerging countries and exploiting poor countries’ resources. The “One Belt One Road” initiative is structured in two main routes: one overland through Central Asia to Europe, and a maritime one through South and Southeast Asia to the Middle East.

When looking at three decades of industrial policy, it is clear that Chinese government resolutions have succeeded in creating a set of prosperous industries with domestic companies gradually producing goods of more technological sophistication and higher value. China underwent a major transition from the production of cheap and invaluable textile to the establishment of globally competitive technological firms whose products are considered advanced and high-end. However, China failed in establishing a large group of national champions as most of the Chinese export is produced by foreign companies which own industrial plants in China.

2.1China's debt

As the Chinese economy slows its pace, the Chinese debt continues to pile at growing rate to the extent that the International Monetary Fund warned Beijing over its spending and stressed the risk of a new China-triggered financial crisis. As a matter of fact, the mid 2017 statistics of Chinese debt amounted to 256% of the national GDP[2] which is a very high rate if compared with other industrialized countries such as the United States which registered a debt-to-GDP ratio of 108% and Republic of Korea 38% with the exception of Japan which recorded a ratio of 240% in 2017.[3] According to the Bloomberg website, China debt to GDP ratio has almost doubled in 10 years, this outstanding increase, as the growth continues to stunt, might lead to detrimental consequences for the Chinese economy. The situation highlighted by the IMF for the year 2016 shows that China is undergoing a period of deep changes, trying to accomplish the transition from a fast-developing country to a more sustainable one, slowing its economic growth to 6.7% rate which slightly increased reaching 6.9% throughout 2017. It is obvious that China's slowdown, caused by the inflation pressure, the booming of the house prices, and the increase of local government debt represents a major risk for the global economy. After the United States subprime crisis and the European sovereign debt crisis, a great deal has already been said about the growing Chinese debt: on the one hand China filled the hole left by developed countries in the West in the global economy acting as a main engine of the world growth, on the other hand this expansion relied heavily on high public spending and easily granted credit. Clearly, over-indebtedness lies in the core of the problem; however, as the local government loans are mainly granted to finance big infrastructure investments, the local administrations debt risk is amplified by two mismatches: the first one is the income expenditure mismatch between the central and the local governments, the second lies in the maturity mismatch of short-term debt and long-term infrastructure investment return. Therefore, short-term repayment difficulties might arise from this scenario, highlighting a poor administration of local governments resources and risk management. Looking at the composition of China debt, the first observation is that corporate debt makes up the largest percentage, accounting for 163% of national GDP in mid 2017, while households' debt, even though still constitutes the smallest portion, has been rising during the last five years by 15 percentage points, because of asset-price speculations. In view of the Chinese debt composition, it is clear that China is far from experiencing a financial crisis similar to that happened in the United States in 2008 which led to the housing market collapse, as Chinese households are lightly leveraged. The fact that Chinese households are not so leveraged as the American ones might be explain by a sociological perspective: Chinese society is permeated with the idea of saving and working hard in order to raise their living standards, while on the other hand, state-owned enterprises have always been subsidized by the state because they responded to a planned economy where the objective was not to boost the profits but to meet the government's requirements.

[2] According to the Bloomberg website. For more info https://www.bloomberg.com/news/articles/2018-02-08/sizing-up-china-s-debt-bubble-bloomberg-economics

[3] All the data have been retrieved from the International Monetary Fund website. For more info https://www.imf.org/external/datamapper/GGXWDG_NGDP@WEO/OEMDC/ADVEC/WEOWORLD/JPN/USA/PRK/KOR

Similarly, China is far from undergoing the same difficulties encountered by Greece in the aftermath of the 2008 financial crisis, as the Chinese government debt is not as substantial as the Greek one. Another level of analysis consists in investigating how much of the Chinese corporate debt is owned by state-owned firms and private enterprises. The data show that the state sector accounts for the greatest amount of corporate debt while the private sector makes up the smallest portion; as a matter of fact, even though SOEs' economic output decreased by 15% during 2015 and in 2016 this trend continued, state-owned enterprises received 50% of the total amount of debt granted to companies while their production output accounted for less than 20% of the national economic output.[4] As a matter of fact, it has been highlighted that those firms which receive more subsidies and tend to have a lower cost of debt fail to have superior financial performance. Nonetheless, lenders easily grant long-term loans to such firms as they are owned by the state; in some cases the government itself intervenes and bails out struggling state companies whenever they experience a shortage of capital. Therefore, China's debt load has risen almost uninterruptedly since 2008 as the government resorted to successive rounds of stimulus to meet ambitious growth targets and keep social stability during the financial crisis; however, throughout 2017 tighter monetary policies and stricter regulations, especially regarding the shadow banking sector, contributed to the latest debt decline, at the same time, the raise in the inflation rate boosted nominal GDP, causing a corresponding decline in the debt-to-GDP ratio. Looking at the loans granted by the PBOC (People's Bank of China), it can be observed that Chinese short-term debt has been declining since 2015, while the medium, long-term ones have been increasing. As the PBOC has stopped to report the breakdown of the debt by sectors it is difficult to make further observations; however the fall of the short-term debt as a percentage of GDP is a positive trend and the growing medium and long-term loans might also symbolize an increase in investments for future projects. Supervision of banks became stricter and the indiscriminate profusion of credit has been tightening up; however, Chinese middle-class demand for high-yield investment products or risk-free savings options, which give superior returns when compared to the savings rates offered by banks and are preferable to investments in the stock market, led to attempts to escape financial laws and regulations through the resort to shadow banking services and increasingly complex investment vehicles. As the IMF has stated "Risky lending has thus moved away from banks toward the less well-supervised parts of the financial system". (IMF website, 2017)

Fig. 1 -China's Debt Load

[4] Data retrieve from the 2017 IMF Working Paper: "Resolving China Zombies: Tacklying Debt and Rising of Productivity." Prepared by W. Raphael Lam, Alfred Schipke, Yuyan Tan, and Zhibo Tan.

However, financial sector reforms in China are being implemented at an uneven pace compared to the constant rising level of debt and progress in removing implicit state guarantees has been slow, which means that if the implicit state guarantees are still in place, banks have little incentives not to grant loans to inefficient firms or seek better projects to correct the price risk. Moreover, the government's efforts to stabilise the more volatile financial market has led to bail out unprofitable SOEs' related financial vehicles, not to let investors suffer great losses.

Chinese debt problem might be connected to the fact that the financial sector is highly influenced by the decision of the Communist Party. In fact, the Chinese financial system is mostly dominated by banks, unlike the Anglo-Saxon culture which praises the market sector as the preferable way to finance companies' activities. Looking at the composition of the main banks in China, a high level of state ownership and control is noted with the central government owning majority stakes in the four biggest banks -Industrial and Commercial Bank of China (ICBC), Agricultural Bank of China (ABC), Bank of China (BOC), and China Construction Bank (CCB)- and a significant percentage in minor financial institutions; therefore, it is clear that the government exerts large influence in their decision making process and banking policy, as an example the central bank explicitly sets maximum interest rates for deposit and minimum interest rates for loans, and often sets target levels for loan volumes. Government and party leaders can exercise close control behind the scenes, often pushing loans to particular firms, sectors, or regions to further their political influence and agendas. For those reasons, Chinese state-owned banks are extremely involved in the granting of credit to unprofitable SOEs; therefore, in the event of bankruptcy of those firms, the government is very likely to intervene when Chinese state-owned banking institutions are undergoing financial distress as they are too big to fail and because the failure of a major bank would be an unbearable national humiliation and a hard blow for the Communist Party. Nonetheless, the main four state-owned banks enjoyed 22 billion of dollar of net profit in 2016 making them financially healthy. Unlike banking administration in the West, in China the government has an intimate link with the banking system to the extent that the Communist Party decides who is going to be the chief executive in the most important banks of the country.

Another critical issue in the Chinese financial system is the increase of what is becoming known as "shadow debt", which refers to a type of wealth management products that are sold off the books to China's swelling middle-class and private firms, which remains excluded from the formal financial sector too busy focusing on funding state-owned enterprises and politically favoured businesses. Being not regulated by the official banking system, those illegal institutions do not have to comply with the People's Bank of China's liquidity and reserve requirement; therefore, on the one hand they represent a source of funding for private companies, households and even local government, but, on the other hand, shadow banks do not provide their customers with the necessary rights and guarantees an official bank can offer. Lenders in this sector include loan sharks, pawn brokers, formal or informal cooperatives of local lending to each other, SOEs relending out excess cash, and other privately raised funds which secretly invest in start-ups. Due to the nature of shadow banking and to the fact that also licensed banks engage in illegal practises, it is extremely complicated to know the real amount of credit involved in this illegal system, making all the statistics regarding the national debt unfaithful.

As corporate debt threatens China financial stability and general economic growth, it is desirable that the government firmly adopts ad hoc measures in order to reverse the worsening situation. Debt to equity conversion, which consists in the selling of a company's debt in exchange for corporate bonds to be acquired by the bank, played a significant role in helping other harmed economies in the past; however, it should be conducted in a sounded way by asserting the creditors rights and by shutting down non-viable firms so that the newly formed equity will retain value. Banks must have the capability to sell equity to investors and need to lower the capital requirement in order to make new equity available for viable projects and reassure shareholders. In other cases, because of conflict of interest, political influence or cross ownership, banks are not able to protect creditors rights, rather they opt for debt restructuring renegotiating the terms of the lending agreement avoiding companies on the brink of insolvency to head for default. The process is carried out by lowering the interest rates on the outstanding loan or extending the date of the firm's liability payment in order to enhance the chances of collecting enough money to pay back the loan. Generally speaking, restructuring is a much preferred option as it avoids bankruptcy for the company and allow the creditors to have a return on the investment and get back more credit than in the event of a company's liquidation. Another approach adopted by the central government to achieve the contraction of the outstanding loans was the founding of four asset-management companies (AMCs): "China Great Wall Asset Management Co.", "China Orient Asset Management Co.", "China Cinda Asset Management Co.", and "China Huarong Asset Management Co.". As the main objective of AMCs was to clean the balance sheets of the financial institutions buying the non performing loans and selling bonds to the creditor banks, each one was associated with a state-owned bank, respectively with the ABC, BOC, CCB and ICBC. Most of the bonds had a maturity date of ten years and the annual yield was extremely low, 2.25%, therefore, even though the bad loans were bought at full price, it would anyway result in a discount purchase for the AMC. After the acquisition of non-performing loans, the four AMCs gradually sold them to make up for some of the losses.

2.2 Chinese SOEs

SOEs are for profit business entities which are wholly or partially owned by the State. In the case of China, since the economy was fully controlled by the state, SOEs were organized in work units directly controlled by the local governments. Nowadays it is argued if China is a more state oriented economy or a private oriented one: if on the one hand the state sector owns a larger share of the national assets and the biggest firms are all state owned, on the other hand the private sector accounts for the majority of economic activity. Chinese SOEs are found in almost every sector with an emphasis on the most crucial industries: for the chemical sector China National Petroleum Corporation (CNPC) represents together with its listed arm PetroChina the biggest enterprises, for the telecommunications sector China Mobile, China Telecommunications Corporation, China United Network Communications Group Co. Ltd account for the biggest share of the market. Moreover, Chinese SOEs can be found in the steel, mining, oil, construction and power generation sectors. Economist Yao Yang, professor and dean at the National School of Development and director of the Chinese Center for Economic Research, stated that Chinese SOEs, albeit being granted half of the available credit by the state-owned banks, they are accountable just for one third of the industrial production. Even more significant is the fact that SOEs have a lower cost of debt as the government support improves their credit ratings.

China SOEs have several characteristics which make them different from private companies: as a consequence of the policy 抓大放小 (zhuā dà fang xiǎo, holding on to the big and letting go of the small), the remained Chinese SOEs tend to be considerably big and overstaffed to fulfil the social goals of the Communist Party; tend to be influenced by managerial moral hazard and lower investment monitoring because the management is not directly affected by the poor performance of the company; tend to waste plenty of resources and therefore, SOEs are less productive and efficient compared to private ones. Furthermore, they have closer connection to the local administrations whose officials are sometimes offered important position within SOEs as an exchange for obedience to the Party. It has been highlighted that 2.45 people in the SOEs management have government background; therefore, it is implied that state-owned firms enjoy a system of intense lobbying in government organisations and especially in bureaucratic departments which have the authority to formulate regulations on the implementation of laws, issue instructions and departmental regulations. SOEs can afford to have such peculiarities thanks to the benevolence of the state which lavish generous subsidies provided in two forms: tax-based and non-taxed based subsidies. While the decision to lavish tax-based subsidies is in the hands of the central government, local administrations can grant non-tax-based ones which might comprise as well direct financial support to the firm. Tax-based subsidies are generally offered in response to China's industrial and regional development policies, therefore those subsidies are often given to firms located in special economic zones, or those that invest in project or operate in sectors favoured by the government. Thus, those kinds of endowments are given according to a more objective base, in line with the policies of the central government and cannot be granted at the discretion of local governors; thus SOEs in government supported industries enjoy faster growth in equity and debt financing, with lower cost of capital than private firms in non-government supported industries. On the other hand, non-tax-based subsidies are granted on a more subjective point of view than on a technical one. One criteria is the connection of the management of a state-owned enterprise with the local government official. This political practice is synthetized by the word “guanxi” which is a fundamental concept in the Chinese culture, consists in the dynamic of personalized social networks and imply that parties which are collaborating support each other when needed. For instance if the region controlled by a certain local government is doing good economically and is enforcing the social policies issued by the Communist Party, there will be more central government investment in the area, local administrators are very likely to be awarded with career upgrading and other benefits. Therefore, looking good at the eyes of the Communist Party is essentially important for local administrators who would do whatever it takes to please the central government even to the extent of falsifying companies’ financial data to make them appear very profitable to the detriment of the reliability of China local authorities’ statistical data. An example of non-tax-based subsidy can be the supply of cheap raw material to one firm, that was the case of auto-parts businesses which received 28 billion dollars subsidies in form of low-cost glass, steel, and technology, in this case it is very unlikely that this kind of subsidy will be registered in the firm’s financial statements, making the government’s endowment impossible to track and giving the firm competitive advantages. However, being China a member of the WTO, it must respect the rules and regulations of the organisation among which the one that affirms that member states cannot offer export subsidies to internal companies because this would lead to unfair competition. Therefore, China had to phase out plenty of its explicit subsidies as a condition of the membership in the WTO.

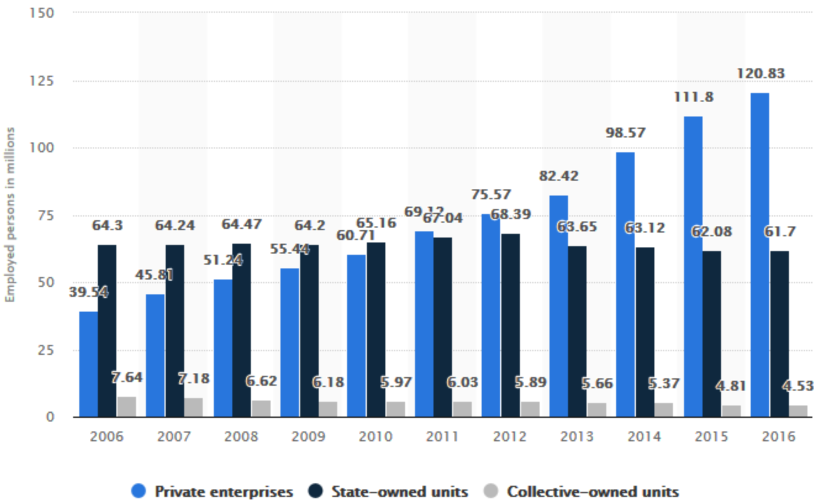


Fig. 2 – SOEs’ Employment Rate

Throughout the last 40 years, Chinese SOEs have undergone a series of structural reforms, shifting from the socialist model in which the firms were merely the executors of the decisions of the government to a more decentralized and market-oriented scheme[5]. In an initial phase which roughly started in 1977 under the guidance of Deng Xiaoping, SOEs were granted more

[5] HONG Sheng, NONG Zhao, “The nature, performance and reform of state-owned enterprises: a China’s case”, *World Scientific Publishing Co. Pte. Ltd.*, 2014

independence and decision-making power while adhering to the general unified plan issued by the government. For the first time since the constitution of the communist state, Chinese people exited the concept of "eating all in the same government iron bowl" and were incentivized to increase the production output.

Chinese SOEs underwent different stages of reforms passing through the 1978-1986 campaign of "decentralizing powers and giving up profits" which included a series of economic policies such as "expanding enterprises' decision-making powers", "replacing profits with taxes" and the "leasehold system". In an initial stage, because of unclear legal and fiscal rules, these policies failed to achieve the objectives fixed by the central government even though a certain increase in the SOEs' efficiency and profit was registered. Starting from 1981 with the issuance of more revolutionary measures such as "complete responsibility for profit and losses" and "replacing profit delivery by taxation and assuming sole responsibility for profit and losses" the economic output and revenue of state-owned companies surged and the local government were benefitting from a clearer fiscal system. Nonetheless, the expected outcomes did not occur as the government continued to foster a planned economy delineating the targets based on the previous years accomplishments which basically resulted in more production burden for best-performing firms.

In 1983 the State Council implemented a new policy called "replacing profit with taxes" which was aimed at introducing an income tax proportionated to the SOEs' profits and setting a profit limit over which the firm was obliged to relinquish the surplus amount to the government. Through the years the income tax became progressive and the profit limit was abolished.

The "leasehold system" which was implemented in 1984 consisted in the leasing of poor performing SOEs to individuals hoping for the improvement of the firms' financial conditions. Throughout the years this leasing took the form of a contract system in which the management responsibility was given to individuals or even groups of people and the rents featured floating ratios. Even though this set of reforms urged managers and employees to become more efficient, the original enterprise system remained pretty much unchanged causing inequalities due to the mismatch between efforts and rewards; however this first phase laid the foundation for the implementation of a second round of reforms which took place from 1987 to 1992 and was called "separating control from ownership". This new stage marked the shifting from a planned economy to a market driven one through the enforcement of contracts and other legal forms which gave the lessee economic incentives to increase output and income of SOEs, even though the state grasp over the company was widespread, especially when the targets were not met by the contracting party. This round of reforms was particularly significant because it inspired a management philosophy within a group of entrepreneurs who were necessary for the foundation of a new enterprise system.

The last and ongoing set of reforms called "establishing a modern enterprise system" which started in 1993 was centred on the reforms of property rights and was structured in three fundamental stages: "reform of the joint-stock system", "strategic reorganization of SOEs" and "establishing the state-owned assets management system". The first phase was characterised by the pilot of employees' shares issuance, culminated with the establishment of the Shanghai and Shenzhen Stock Exchange and found legal basis with the ratification of the "Company Law" in

1993. The Third Plenary Session of the 11th CPC Central Committee drew particular attention to the establishment of a clear ownership, transparent definition and division of power and responsibilities, the separation of SOEs from local administration and appraisal of scientific management as a tool for a better ruling of SOEs. As private enterprises became more tolerated and foreign investments flew into the Chinese economy, SOEs weak points became clear and the need for restructuring arose; therefore, the "strategic reorganization of state-owned enterprises" was implemented to address the economic losses of SOEs which were burdened with onerous social duties. With the policy "holding down to the big and letting go of the small" the government continued to nurture big SOEs and confined them to some key sectors: petroleum and petrochemical, power, national defence, telecommunications, transportation, mining, metallurgy and machinery. With the small SOEs privatized, the government diminished its leverage and financial pressure, while the big SOEs failed to get rid of the state influence.

After the institution of the SASAC in 2003 a new phase started aiming at a more efficient management of state-owned assets. These reforms called "establishing a state-owned assets management system" intended to separate the government powers as a regulator and investor, keeping the first one and transmitting the second power to specific institutions. The main objectives were to enhance the value of state-owned assets preventing its devaluation, separating the enterprise's ownership and control, raising new funds through the joint-stock system in order to develop the enterprises, promoting corporate governance structures and corporate property rights.

3. Zombie Economy

The term “zombie enterprise” refers to firms that would go bankrupt due to poor earnings but survive with external support from government or financial sector. The first economist who theorized the concept of “zombie firm” was Kane (1989) to describe an insolvent bank that was kept alive during the Savings & Loan Crisis in the United States in the 1980s, while in the 1990s this term was used to depict the economic situation of Japan where real estate and stock market price were highly inflated. Identifying “zombie firms” has become a major concerned for investors and economists who want to assess the harm that those enterprises inflict on healthy companies. The first criterion to identify zombie firms is detecting those firms that make extremely low interest payments even though they are already debt ridden. Therefore, it is necessary to compare the minimum required interest payment which is the rate that the very profitable and creditworthy firm pay to its lenders with the actual interest payment that the hypothetical zombie enterprise pays for its debt. Caballero *et al.* (2008) highlighted a formula to compute the minimum required interest payment ($R^*_{i,t}$):

$$R^*_{i,t} = rs_{t-1} \cdot BS_{i,t-1} + \left(\frac{1}{5}\sum_{j=1}^{5} rl_{t-j}\right) \cdot BL_{i,t-1} + \min(rcb_{t-5}, \dots, rcb_{t-1}) \cdot Bonds_{i,t-1}$$

Where rs is the average short-term prime rate, BS_i is the firm’s short-term bank borrowing, rl is the average long-term prime rate, BL_i is the firm’s long-term bank borrowing, rcb is the interest rate for corporate bonds and $Bonds_i$ are the firm’s corporate bonds. Caballero argues that zombie firms are strictly connected to the subsidized credit, which means that those firms are granted credit at low interest rates which is expected just for the better quality borrowers, debt-equity swaps, debt forgiveness, and moratoriums on loan principal or interest; thus if the actual payment is lower than the risk-free interest payment, then it is likely that the firm in question is a zombie enterprise. For what my analysis is concerned, as the Orbis database does not provide the relevant information on corporate bonds necessary to calculate the above formula, I decided to follow the OECD approach which simplifies Caballero’s formula by leaving out the corporate bonds section, also because most of the firms analysed are not listed in any stock exchange market.

$$R^*_{i,t} = rs_{t-1} \cdot BSi_{t-1} + \left(\frac{1}{5}\sum_{j=1}^{5} rl_{t-j}\right) \cdot BL_{i,t-1}$$

However, as it has been already discussed in the previous literature, this approach entails some errors risking defining as zombie firms some healthy companies which enjoy interest rates lower than risk-free lending rates due to their good financial performance, or there might be unhealthy firms willing to pay the minimum required interest payment as long as the lending institution continues to grant credit to keep them from going bankrupt. In order to exclude those hypothesis, Fukuda & Nakamura (2011) introduced two additional criterions for identifying zombie firms: the profitability criterion and the lending criterion; the former being the analysis of the actual profit of a company, in other words if a firm has positive actual profit is not categorized as zombie enterprise, the latter being an analysis of the firm’s liabilities, namely if an enterprise has been increasing external borrowings across consequent years, it has to be defined as zombie firm.

Another way to assess the profitability of a firm is to observe whether the EBIT is lower than the minimum required interest payment, in this case it is obvious that the enterprise is not able to repay its debt costs and is receiving support from the financial institutions in order to avoid liquidation. In fact, lenders sometimes would rather keep subsidizing a firm hoping for an improvement in the economic situation than make the enterprise go through liquidation as they are aware that they are not going to get back the credit.

Nakamura and Fukuda (2013) analysed the financial condition of several firms and they noticed that zombie enterprises are those ones that have 50% or more of gearing ratio, which highlights great bank protection, negative actual profit and current annual liabilities which exceed those reported in previous years, meaning that the company has been receiving new debt even though it was already highly leveraged. According to the State Council of China, if a company has negative actual profit for three consecutive years it is considered a zombie firm.

Tan *et al.* (2016) point out that in order to detect the government intervention in the lavishing of credit or granting business support during a firm's financial distress period, it is important to focus on some entries of the firm's financial statement: sales growth, debt ratio, long-term debt ratio and interest cost. Sales growth, especially in the years after the 2008 financial crisis, might imply that the government has helped the firm to win public procurement contracts which by nature should be won by the most competitive candidate. Fukuda highlighted that a debt ratio bigger than 3 is a sign that the firm has been receiving evergreen lending as it holds 3 dollars of debt for every dollar of asset. The long-term debt ratio calculates the amount of long-term debt as a percentage of the total debt, this ratio is interesting as in some cases, government supported firms succeed in getting more long-term debt in order to pay their short-term liabilities keeping the enterprise afloat. The interest cost computed as the interest payment to total debt highlights whether a company receives subsidized credit. Even though those government-supported firms have many advantages compared to the average enterprises in the market, it has been proved that they fail to have better financial and profitability performance as no significant growth in the employment rate, in the ROE index, ROA index, gross profit index can be noted, as well as no substantial capital accumulation through an increase in assets can be noticed.

However, zombie firms harm the economy not only because they are connected to overcapacity, but also because they prevent healthy firms from being in the market. In fact, zombie firms enjoy privileges that private firms are not likely to enjoy and lead to unfair competition by lowering dramatically the price of goods.

3.1 Overcapacity issue

Many researchers and policy makers have stressed that zombie firms are a primary source of overcapacity. Along with the economic slowdown, the problem of overcapacity in Chinese manufacturing industries has become more serious and has attracted the attention of policy makers. Overcapacity is better measured by using the Capacity Utilization Rate (CUR) which is the percentage of potential economic output achievable with one company's assets compared to the actual output of a certain period of time, in other words is the ratio of actual output to production capacity. Therefore the formula is calculated as follow:

$$Capacity\ Utilization\ Rate\colon \frac{Actual\ output}{Maximum\ potential\ output} \times 100$$

In general a high Capacity Utilization Rate in an economy or firm indicate that all the assets are being used in the more profitable way generating more economic output per unit of asset. On the other hand, when a low Capacity Utilization Rate is noted, it highlights the fact that less economic output is being generated per unit of asset; thus meaning that the economy is less growth-oriented.

In 2012 Chinese overcapacity was slightly over 70% in industry such as steel, coal, cement, glass, and aluminium, in 2015 it fell to around 65%. Guanjun Shen and Binkai Chen highlighted that the problem is much severe in China's northeaster and western regions and in some provinces of central China, the more affected industries are heavy chemicals (smelting/pressing of ferrous metals, petroleum processing), cooking products, textile industry, beverage manufacturing.

Steel is a very good example of credit-fuelled over-capacity. The National Development and Reform Commission (NDRC) which is the institution entitled to implement strategies of national economic and social development, established the objective to close 50 million tonnes of steel capacity in 2017, after having already shut down 65 million tonnes in 2016 while further cuts are expected for the years to come for the steel and coal sectors. Those resolutions have met with dissent by the local administrators of northern provinces which resisted the overcapacity cuts. In 2016 almost 2,000 party members were hold accountable for not implementing the central government resolutions, which resulted in inspection tours and the closure of coal mines and steel plants in the regions of Shaanxi and Inner Mongolia. Another attempt of the NDRC to cut overcapacity lies in the reduction of working days to 276 which brought to immediate impact on output and prices.

It is clear that China needs reforms especially in the heavy industries sectors which is undergoing overcapacity and market distortion issues due to decades of government preferential support. This situation has caused the plummet of global commodity prices and has been damaging international industrial activity. For instance, the Chinese glut of steel and finished aluminium which has been exported to the US, has been threatening the local industry resulting in the layoff of thousands of workers and in the weakening of the national defence industrial base. It has been argued that due to the contraction of the metal sector, the US might face difficulties in the event of a protracted conflict, moreover the purchase of low-quality metal components from China may result in a military threat for the American personnel and might prevent the US from having a reliable source to produce weapons and war equipment. In 2016, US steel industry groups urged to cut China net production capacity and advocated the enforcement of stricter antidumping and countervailing duty in order to protect the US domestic market against the low priced Chinese steel. While on the one hand, China renews its commitment in the cutting of excess production in the heavy industries sector, on the other hand Beijing is reluctant to keep its promises, on the contrary, between January and August 2016 China steel production registered an increase of 8.5%. As the internal demand started to decrease due to a slowdown in the infrastructure and cities construction, China has reversed the majority of its steel production into international markets becoming the largest steel exporter in the world with 110 million metric tons of steel sold. Therefore, the only weapon available to importing countries to protect those sectors against the government-subsidized Chinese companies is to levy higher antidumping duties; however, the IMF resolution of considering China as a market economy does not give ground for the further enforcement of trade barriers. Recently President Trump has been enforcing significant trade-barriers as a protectionist measure against the import of Chinese steel arguing that the massive inflow of cheap metal, in the long run, was going to harm the US military capabilities. The Chinese government, in response to the American trade resolutions, decided to enforce high tariffs on 128 US products for a total amount of 3 billion of dollars, the most affected products being wine, pork meat, fruit.

Overcapacity threatens also the construction and real estate sectors as Chinese government has kept on building new urban areas without the need to house such an amount of people. It has been estimated that all the completed and planned construction projects could accommodate up to 3.4 billion people. This real estate boom has led to other phenomenon called “ghost cities”, which consists in almost completed cities with modern infrastructures but without people living in there. Those cities are the reflection of a bigger plan to move up to 300 million of citizens from rural to urban areas which has not yet taken off.

3.2 Distribution of zombie firms across sectors, regions and ownership

When looking at the distribution of zombie firms across sectors, the first important observation is that zombie enterprises are not concentrated in one or few industry sectors, instead are characterized by significant industry heterogeneity: zombie firms can be noticed in highly capitalized raw material production such as chemicals, especially the smelting and pressing of ferrous metals, petroleum processing and coking products as well as labour intensive industries such as textile production and beverage manufacturing. In the first case the crucial importance of such sectors make the government unwilling to see those enterprises going bankrupt, while in the second case, the considerable number of employees working in those firms makes it undesirable for the state to lay off so many people. The second observation is that zombie firms are more widespread in those sectors where there is a high concentration of SOEs because they are required by the central government policies to meet minimum level of employment and are less entitled to end labour contracts during recession time. Furthermore, before the 1990s SOEs' reforms, they were obliged to provide their employees with housing, health care and retirement benefits raising the costs the enterprises had to bear, especially when considering labour-intensive companies. The third observation is that zombie firms are more concentrated in sectors affected by over-capacity issues because they hold huge capacity such as land, capital and labour however their productivity is low due to poor efficiency and marketing skills. Local government often fail to compress those firms' capacity as they hope the demand will rise again or that competitive companies in other regions or cities will have to face size cuts. In the picture, different sectors are listed with their respective Capacity Utilization Rate, it can be noted that the industries featuring low levels of CUR such as petroleum processing and smelting or pressing of non-ferrous materials are the sectors more affected by zombie firms.

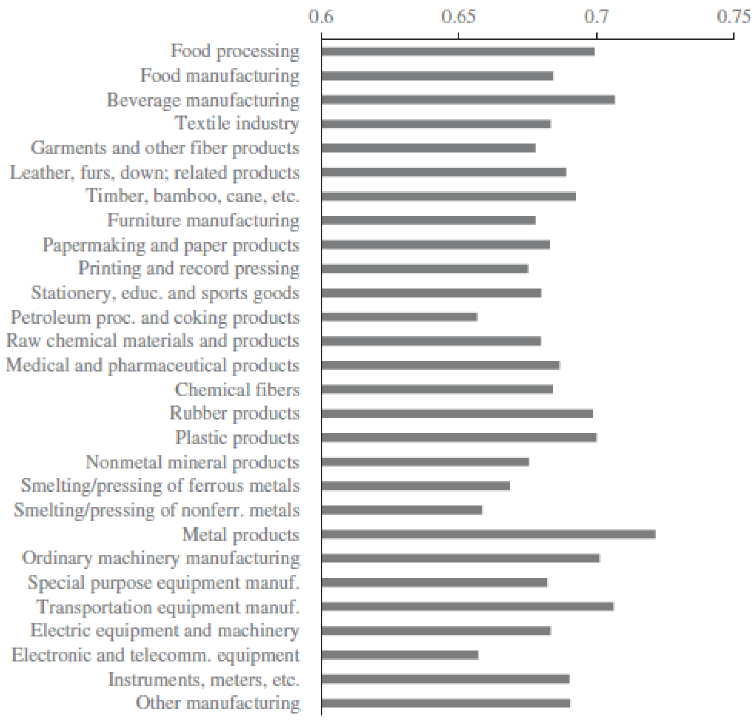


Fig. 3 - CUR by Industry

As long as the geographical distribution of zombie enterprises is concerned, it can be noted that western regions have the highest proportion of zombie firms in China, in particular Ningxia, Qinghai and Xinjiang are the most affected. After the opening of the Chinese economy, Eastern regions were the ones which benefitted the most from the development policies, while Western regions did not enjoy the same progress which throughout the years resulted in social inequalities and a growing imbalance between the two macroregions. Central governments put their efforts in projects and policies aimed at revitalizing the West and tried to speed up the modernisation process, but most of the times Beijing did not achieve the desirable outcomes, on the contrary fostered the proliferation of unprofitable firms by lavishing huge fundings for the development, did not stimulate to participating in the globalization and world trade. Therefore, those regions are less reliant on free markets compared to coastal ones which makes them more vulnerable to the zombie firms phenomenon. Shanxi and Beijing are the only non-western provinces high in the rankings as Shanxi economy is centred on the extraction and processing of coal which is one of the most declining sector also due to environment-friendly policies, while Beijing houses plenty of big SOEs which are afflicted by poor competitiveness and overcapacity; in fact, it has been noted that larger and older firms are more likely to be "zombie firms". However, coastal areas such as Shandong, Zhejiang and Guangdong have more zombie firms in number but an overall lower proportion. Moreover, East and South China features high level of economic development and a larger economic foundation, therefore even though the number of zombie firms is significant, however the phenomenon is not as harmful as in more underdeveloped regions where the GDP growth is slower, and the industrial structure is based on a single or few sectors. Below I report a graph which shows the CUR index by province, the horizontal line represents Beijing CUR index which has been taken as a benchmark for the other provinces. It can be noted that the areas affected by overcapacity issues are mainly the coastal regions namely Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Tianjin and Guangdong, while the Western provinces (Ningxia and Xinjiang) shows low Capacity Utilization index. The data highlights the situation above-mentioned: inland regions relay on weak single-industry economic foundation, industrial development and GDP growth are slow.

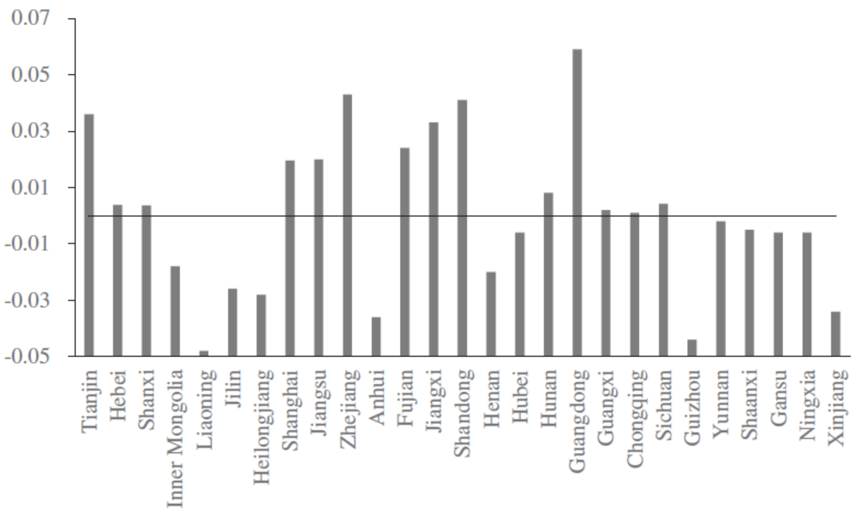


Fig. 4 - CUR by Province

Looking at the ownership of "zombie companies" we can see that the rate of state-owned zombie companies is far higher than private and even the foreign invested ones, about 11% of SOEs are zombie firms, compared with 2,8% private enterprise and 5,4% of foreign invested enterprise. Government subsidies remain the first reason why SOEs are the most affected enterprises by ownership structure, besides having lower profitability compared to private firms as figure 5 shows. On the one hand, SOEs are contributing to a large share of the country's revenue and employment, on the other they are afflicted by mounting debt and therefore need restructuring. While the implementation of market driven policies might alleviate the problem of zombie SOEs, the Communist Party is not willing to lose hold on key sectors such as steel, energy and shipping. Restructuring those companies would mean to relinquish the state control over economic policies and the government influence over the extensive network of enterprises; therefore, the government is willing to give subsidies to state-owned firms which are undergoing financial constraints even though they are not very profitable. In the graph below are represented the ROA (Return on Assets) indices for private and state-owned companies. It can be noted that in the latest years reported, SOEs register worse performance compared to the privately-owned enterprises (POEs). Nonetheless, the Chinese government is still lavishing subsidized credit to the SOEs, while the POEs have to face hard budget constraints.

Fig. 5 - Profitability Gap

3.3 Government policies

Since the 1990s the Chinese government started issuing large-scale reforms after bad loans to state-owned companies pushed China's banking system to the brink of collapse. An aggressive round of reform saw employment in state-owned companies almost halved from 70 million in 1997 to 37million in 2005.

With the worst-performing SOEs shut or privatised, profitability improved. The return on assets at SOEs has always lagged that of private firms but the gap narrowed markedly in the early 2000s due to the reforms. However, the downsizing of the state sector came to a halt in 2008 when the financial crisis spread also to China. The huge stimulus that China rolled out to offset the slowdown relied on state-owned companies acting in the national interest. Banks were ordered to increase lending to SOEs, which dutifully splurged on new factories and equipment regardless of commercial need which fuelled a construction boom for factories, housing and infrastructure. Demand for output from state factories soared temporarily and SOEs' profits grew until banks and regulators tightened lending amid worries about the rise in company borrowing and increasing local government debt. The housing market cooled, and infrastructure spending slowed, companies stopped investing because of rising debt burdens and slack demand for output from newly built factories.

Fig. 6 - SOEs' Number and Employment Rate

Policymakers have made "supply-side reform[6]" the major theme of economic policy for 2016 entailing the reduction of taxes and red tape for businesses which according to the

[6] The supply-side theory is an economic theory holding that bolstering an economy's ability to supply more goods is the most effective way to stimulate economic growth. Supply-side theorists advocate income tax reduction because it increases private investment in corporations, facilities, and equipment. Economist Robert Mundell during the Ronald Reagan administration started it.

economists should lead to an increase in the number of companies and consequently in the amount of tax money into the State coffers. These measures are also aimed at softening the impact of the decline of heavy industries while boosting the service sector and the consumers' spending as many analysts believe that the Chinese economic system is failing to meet the new demands of the growing middle class, moreover the piling debt makes it difficult for the government to further implement demand-side stimulus[7]. Another resolution adopted to address overcapacity, weak profitability and internal competition is the merging of big state-owned companies into even larger ones in order; for example, in 2014 the two biggest Chinese firms manufacturing railways equipment agreed to merge to win bid abroad especially those connected to Mr. Xi silk-road project[8] and the number of SOEs is deemed to plunge thanks to further merger plans. However, international analysts doubt that China can solve zombie firms issue by merging companies, they rather advocate the privatization of state-own firms to raise efficiency or the liquidation of very unprofitable ones. Wendy Leutert, a visiting researcher at the Brookings Institution's China Centre, states that "creating even larger SOEs is likely to exacerbate their already daunting financial and organisational ills. Merging centrally owned firms will increase their market share at the risk of long-term competitiveness and efficiency gains", which is the situation experienced by Japan during the "Lost 20 Years" following the collapse of asset prices in 1991 when the Japanese government opted for debt relief measures instead of bankruptcy and liquidation of zombie firms. As long as the issue of redundancy is concerned, it can be overcome by retraining and re-employing laid-off workers, for this reason liquidation should be preferred over restructuring zombie enterprises. According to Tan Yuyan, Huang Yiping and Woo Wing Thye (2016) "the exit of zombie firms could increase annual output growth of non-zombie firms by as much as 2.12%".

Another approach to achieve the lowering of the SOEs debt and stimulate economic growth is the privatization of state-own enterprises following the Singaporean model; however, China's top leaders have rejected this option as the Communist Party does not want to lose control over SOEs but, on the contrary, wants to booster their profitability and making them more competitive; therefore, the most viable solution seemed to experiment "mixed ownership" formulas. For this purpose the SASAC (State-owned Assets Supervision and Administration Commission of the State Council) was established to perform investor's responsibilities, supervise and manage the state-owned assets of the enterprises under the supervision of the Central Government and enhance the management of the state-owned assets. Its major objective was to encourage SOEs to improve their capital structure through initial public offering (IPO) and the selling of companies' minority stakes to help the recapitalization of the state and the banks and reduce the firms' reliance on external debt. Other suggested resolutions included the implementation of asset securitisation operations which consist in the selling of a company's receivables as securities to raise development capital and reducing the reliance on debt, and the signing of debt-equity swap agreements with the five major Chinese banks.[9] However, recent

[7] Tom Mitchell, "China's Xi turns to Reagan and Thatcher for economic inspiration", *Financial Times*, 2016.
[8]The Silk Road is a large programme of economic diplomacy covering dozens of countries with a total population of over 3bn people, aiming at establishing the Chinese diplomatic influence across neighbouring countries.
[9] "SASAC wants state-owned enterprises to use asset securitization, debt swaps, IPO's to deleverage", *China Banking News*, 2017.

restructurings in the shipping and rail sector were limited to the redistribution of state assets among state-owned companies, while the privatisation option is reluctantly taken into consideration. On the other hand, the Chinese government is partially opening to foreign investors some areas of the economy through deregulation and reducing bureaucracy. Weak attempts have been made to de-politicise the management of state-owned companies, reduce political pressure on SOEs and cut top-board salaries, however many state-owned firms' chief executives are also members of the Communist Party.

Chairman of SASAC, Xiao Yaqing, in an interview with Reuters, stressed that the Chinese government recent policies succeeded in recovering SOEs profit which, thanks to the economic growth registered in 2017, the rising in commodity prices and state-owned reforms, totalled an increase of 15.2%, the more significant in the last five years. Moreover, on January 2018, the Communist Party stated that 1200 zombie firms have been shut down in line with the target set by the government and coal capacity has been reduced by 12.65 million tonnes. On the other hand, bankruptcy and liquidation have been faced only by smaller SOEs.[10]

[10] Soyoung Kim, Paritosh Bansal, *"China's state-owned firms to face more mergers"*, Reuters, 2018.

4. Financial Statements Analysis

4.1 Introduction

Financial Statements are key documents that allow the reader to know the financial condition of a given firm, they include Balance Sheet, Income Statement, Statement of Retained Earnings and Cash Flow Statement. The Balance Sheet provide a snapshot of the assets, liabilities, and shareholder's equity of an enterprise on a certain point in time, usually at the end of each fiscal year.[11] This document enshrines the fundamental accounting equation which is represented by the following formula:

ASSETS = LIABILITIES + SHAREHOLDERS' EQUITY

On the other hand, the Income Statement provides an overview of revenues, expenses, net income and revenues per share. It summarizes the firm's financial transactions over a period of time.

The Cash Flows Statement registers the inflow and outflow of money within a company; it is a cash basis report on three types of financial activities: operating activities, investing activities, and financing activities. This document is very handful as it underlines the liquidity of a given firms, in fact when looking at balance sheet it is difficult to assess when a purchase is paid for or when a client pays for a company's service or good as the transaction is recorded when it occurs in time and not when the cash is paid or collected.

The Balance Sheet and the Income Statement reflect the accrual basis accounting which consist in matching revenues with the expenses associated to generate those revenues; conversely, the cash flow statement excludes transactions that do not directly affect cash receipts and payments.

A statement of retained earnings is a financial statement which shows the changes in retained earnings for a specified period.

This statement of retained earnings can appear as a separate statement or as an inclusion on either a balance sheet or an income statement.

The statement is a financial document that includes information regarding a firm's retained earnings, along with the net income that was directed to stockholders in the form of dividends.

Those documents might be useful to different groups of users for several purposes. The analysis of those statements might be conducted by external users (e.g. banks, governments, investors, or suppliers) and internal users (e.g. management of the firm). It is obvious that the purpose of the analysis is different and therefore the focus of the reader is shifted to specific indices and ratios. As an example, if the user of a financial statement is a bank that has been asked for a loan by a given firm, the bank's employee is going to be more concerned about the ability of the above-mentioned firm to repay its long-term liabilities then the earnings per share which has more to do with the profitability of the company. On the other hand, an investor is going to focus on the Return on Equity of a company in order to assess which firm is the best investment for himself or herself. As long as the way in which to conduct a financial statement analysis is

[11] D. Alexander, C.Nobes, *"Financial Accounting an international introduction"*, Pearson Education, 2007.

concerned, three techniques are highlighted: the Horizonal method, the Vertical method and the financial ratio analysis.

The first one consists in the analysis of the same firm's indices over two or more period of time in order to investigate the strengths and weak points of a company, as well as identifying possible trends. The earliest period is usually used as the base period and the items on the statements for all later periods are compared with items on the statements of the base period. The changes are generally shown both in dollars or other currencies and percentage.

$$Change = \frac{Current\ period - Base\ period}{Base\ period} \times 100$$

The second technique is the Vertical analysis which consists in the proportional analysis of a financial statement, where each line item on a financial statement is listed as a percentage of another item. Typically, this means that every line item on an income statement is stated as a percentage of gross sales, while every line item on a balance sheet is stated as a percentage of total assets.

Usually this type of technique is used to compare the different account balances within a single financial period of time; however, it is very interesting to compare those percentages across time to investigate the changes over different periods. For example, it might be interesting to see how much the cost of goods sold as a percentage of gross sales has increased or decreased across different financial years.

The last method to analyse financial statements is the ratio analysis which is more useful when compared to past performance or to industry standards. Using this kind of technique, the user is able to assess the company's profitability, liquidity, efficiency, solvency and the ability to repay a long-term debt, as well as the market prospects.

Profitability Ratios are the ratios that show how well a company can generate profits from its operations. The ratios that are going to be analysed are: Profit margin, Return on Assets (ROA), Return on Equity (ROE), Return on Capital Employed (ROCE), Gross Margin ratio, EBITDA margin, EBIT margin, Cash Flow to Operating Revenue, Enterprise Value to EBITDA and Market Capitalization to Cash Flow from Operations.

The profit margin is calculated as the proportion between net income and sales. It is expressed as a percentage and represent how much of every $1 makes it down to the net profit before tax.

$$Profit\ Margin = \frac{Net\ Profit\ before\ Tax}{Sales}$$

The Return on Assets (ROA) is an indicator that analyse the ability of a firm to gain profit from its own assets. It is calculated as the relation between the net income and the average total assets.

$$Return\ on\ Assets = \frac{Net\ Income}{Avg\ Total\ Assets}$$

The Return on Equity (ROE) is an indicator that shows how well the company is able to manage its shareholders' equity to generate net income. It is calculated as the relation between net income and average total equity.

$$Return\ on\ Equity = \frac{Net\ Income}{Avg\ Total\ Equity}$$

The Return on Capital Employed (ROCE) is a ratio that measures the company's profitability and the efficiency with which the capital is employed. The Return on Capital Employed is calculated as the relation between net income and capital employed.

$$Return\ on\ Capital\ Employed = \frac{Net\ Income}{Capital\ Employed}$$

Return on Asset, Return on Equity and Return on Capital Employed can be calculated also by using as numerator the earnings before tax.

The Gross Margin ratio is an indication of the inflow of gross profit from a unit of sales. The gross margin is the difference between the sales price and the cost of the goods sold (COGS). The index is calculated as follows:

$$\text{Gross Margin Ratio} = \frac{Sales\ Price - Cost\ of\ Goods\ Sold}{Sales}$$

EBITDA margin is a profitability ratio that measures how much earnings the company is generating before taxes, interests, depreciation, and amortization, as a percentage of revenue. Therefore, the cost of goods sold (COGS), selling general & administrative (SG&A), are deducted from the gross operating profit, excluding depreciation and amortization. it does not include in the calculation the company's capital, non-cash expenses, and tax incomes. This ratio may be used in conjunction with other leverage and efficiency ratios. To calculate this ratio the following formula is applied.

$$EBITDA\ Margin = \frac{EBITDA}{Net\ Sales}$$

EBITDA margin is considered to be the cash operating profit margin of a business. It eliminates the effects of non-cash income and non-cash expenses as well as taxes. Investors and owners can readily understand how much cash is generated for every dollar of revenue earned and use the margin as a benchmark in comparing various companies.

Since EBITDA excludes debts, non-cash expenses, interest and taxes, some companies misuse this as a way to increase the image of their financial performance.

For companies with high debt capitalization, EBITDA margin should not be applied, because the larger mix of debt over equity increases interest payments, and this should be included in the ratio analysis for this kind of business.

The EBIT (earnings before interest and taxes) Margin is another indicator that gives information on a company's earnings ability and is useful to compare companies with different capital structure as firms with high debt capitalization have higher interests and lower taxes as the ones financed by shareholders' capital. EBIT Margin is calculated as follows.

$$EBIT\ Margin = \frac{EBIT}{Net\ Sales}$$

Cash flow to revenue ratio indicates management's ability to turn revenue into profits and net cash flow. It is computed as the relation between cash flow and revenue.

$$Cash\ Flow\ to\ Revenue\ Ratio = \frac{Cash\ Flow}{Revenue}$$

Cash flow is the net amount of cash that an entity receives and disburses during a period of time. It is important that a company maintains a positive level of cash flow must in order to remain in business. Cash inflows come from three different sources: op*erations, for example* cash paid by customers for services or goods provided by the entity; f*inancing activities*, for instance the debt incurred by the entity and i*nvestment activities*, as the gain on invested funds.

Similarly, cash outflows originate from the same three sources: *operations*, such as expenditures made as part of the ordinary course of operations, e.g. payroll, the cost of goods sold, rent, and utilities; f*inancing activities*, as interest and principal payments made by the entity, the repurchase of company stock, or the issuance of dividends; i*nvestment activities*, such as payments made into investment vehicles, loans made to other entities, or the purchase of fixed assets.

Enterprise Value to EBITDA ratio is a relation that compares a company's Enterprise Value (EV), which consists in the company's equity value plus its debt or financial commitments less any cash, to its Earnings Before Interest, Taxes, Depreciation & Amortization.

$$EV\ to\ EBITDA\ ratio = \frac{Enterprise\ Value}{EBITDA}$$

The EV/EBITDA ratio is commonly used as a valuation metric to compare the relative value of different businesses. This ratio tells investors how many times EBITDA they have to pay, were they to acquire the entire business.

Market Capitalization to Operating Cash Flow ratio is an alternative way to calculate price-to-cash flow as it is the relation between the total market capitalization of a company and the cash flow for a period of time. It is calculated as follows.

$$Market\ Cap\ to\ Operating\ Cash\ Flow = \frac{share\ price \times number\ of\ shares}{Operating\ Cash\ Flow}$$

The optimal level of this ratio depends on the sector in which a company operates, and its stage of maturity. A new and rapidly growing technology company, for instance, may trade at a much higher ratio than a utility that has been in business for decades.

Liquidity ratios measure a company's ability to pay off its short-term debts as they come due using the company's liquid assets which are assumed to turn into cash at their balance sheet value. Liquidity ratios include current ratio, quick ratio (or acid test ratio or liquidity ratio).

The Current Ratio is defined as the relationship between current assets, which can be realised within a short period of time, and current liabilities, which similarly are to be paid within a period of one year.

$$\text{Current Ratio} = \frac{Current\ Assets}{Current\ Liabilities}$$

The current ratio is mainly used to give an idea of a company's ability to pay back its liabilities (debt and accounts payable) with its assets (cash, marketable_securities, inventory, accounts receivable); it can give a sense of the efficiency of a company's operating cycle or its ability to turn its product into cash.

The Quick Ratio is an indicator that analyse the relationship between the current asset of the firm less the inventory with the current liabilities.

$$Quick\ Ratio = \frac{Current\ Asset - Inventory}{Current\ Liabilities}$$

The quick ratio highlights the how relevant is the inventory level as a percentage of the total assets of a firm, especially when compared with the current ratio.

Efficiency Ratios, also called activity ratios, evaluate how well a company uses its assets and liabilities to generate sales and maximize profits. Key efficiency ratios are the asset turnover ratio, inventory turnover, and days' sales in inventory, Receivables Collection Period and Payables Payment Period (or Credit Period).

The Asset Turnover Ratio shows the ability of a firm to generate sales using its total assets. This ratio is calculated by dividing sales by total assets.

$$Asset\ Turnover\ Ratio = \frac{Sales}{Total\ Assets}$$

Therefore, the more the management of a company is able to use efficiently its assets, the more profits are generated. This ratio should be interpreted, carefully. Between two firms, a firm having old assets, with lower depreciated book value of fixed assets, may generate more sales compared with a firm, with new fixed assets purchased, recently. The firm, with old assets, may generate a misleading impression of higher turnover, without any actual improvement in sales.

The Inventory Turnover Ratio (or Stock Turnover) is a tool to evaluate the liquidity of company's inventory. It measures how many times a company has sold and replaced its inventory during a certain period of time, it is computed by dividing the cost of goods sold by average inventory at cost.

$$Inventory\ Turnover\ Ratio = \frac{Cost\ of\ good\ sold}{Average\ inventory\ at\ cost}$$

Inventory turnover ratio shows the velocity of stocks. A higher ratio is an indication that the firm is moving the stocks better so profitability, in such a situation, would be more. However, a very high ratio may show that the firm has been maintaining only fast-moving stocks. The firm may not be maintaining the total range of inventory and so may be missing business opportunities, which may otherwise be available.

The days' sales in inventory results from dividing 365 by the Inventory Turnover Ratio, the outcome emphasises how long it took to sell the inventory.

$$Days'Sales\ in\ Inventory = \frac{365}{Inventory\ Turnover\ Ratio}$$

The Receivables Collection Period (or Collection Period) compares trade receivables with sales; to calculate the average debtor collection period in days the formula is as follows.

$$Collection\ Period = \frac{trade\ receivables}{Sales} \times 365$$

This ratio indicates how long a company gives its customers to pay, therefore in order to assure that the firm does not incur into liquidity problems, it is preferable that the payables payment period occurs after the credits have been collected.

The Payables Payment Period (or Credit Period) calculate the average credit payment period, in other words, how long a given company takes to pay its suppliers or more in general its creditors. Theoretically, it would be preferable to relate the trade credits with the annual cost of purchase; however, since this figure is not easily available the cost of sales might be used as a substitute.

$$Credit\ Period = \frac{Trade\ creditors}{cost\ of\ sales} \times 365$$

Solvency Ratios, also called financial leverage ratios, compare a company's debt levels with its assets, equity, and earnings to evaluate whether a company can repay its long-term debt and interest on the debt. Examples of solvency ratios include debt-equity ratio, liability base solvency ratio, shareholders' liquidity ratio, debt-assets ratio, asset-based solvency ratio and interest coverage ratio.

Debt-Equity Ratio, or Gearing, measures the relative claims of outsiders and owners against the firm's assets. The ratio shows the relationship between the external equities (outsiders' funds) and internal equities (shareholders' funds). More expressly external equities being long-term debt such as debentures, mortgages or long-term loans.

$$Debt\ Equity\ Ratio = \frac{Long\ term\ Debt}{Share\ Capital + Reserves}$$

It measures the relationship between debt financing and equity financing. It the result is more than 1 it means that the company is financed more through debt than through shareholders' equity. For example, if a company has a debt to equity ratio equal to 540% it means that for each dollar invested by shareholders creditors contribute $5,40.

Conversely, in order to gauge the relationship between internal equities and external equities, the Liability based Solvency ratio can be utilized, it is calculated as follows.

$$Liability\ based\ Solvency\ Ratio = \frac{Shareholders'Equity}{Total\ Liabilities}$$

In this case, the same company has a Liability based Solvency Ratio equal to 19,43% which means that for each dollar contributed by creditors the shareholders invested $0,19. The two indices are complementary and highlight the same aspect: the relationship between a company's liabilities and equity. A high debt/equity ratio generally means that a company has been aggressive in financing its growth with debt. Aggressive leveraging practices are often associated with high levels of risk; therefore, this may result in volatile earnings as a result of the additional interest expense. On a creditor point of view, high debt to equity ratio is considered as detrimental to its own interests, while shareholders might prefer that the company where they have invested has quite a low ratio in order to benefit from the funds provided by creditors.

Another ratio used to investigate the proportion of shareholders' equity with outstanding debt is the Shareholders' Liquidity Ratio which is calculated by dividing the shareholders' capital by the non-current liabilities.

$$Shareholders'Liquidity\ Ratio = \frac{Shareholders'Equity}{Non\ Current\ Liabilities}$$

The Debt-Assets Ratio is a financial relation between the debt and the assets of a company; it indicated how much of a company's assets are provided via debt.

$$Debt\ Assets\ Ratio = \frac{Total\ Liabilities}{Total\ Assets}$$

This ratio is particularly significant for banks' employee who are asked by a company to grant a loan. Usually, if a company has a high debt assets ratio it is unlikely that the bank will grant it a new loan because it would be a high-risk investment for the bank; conversely, if a given company has a low debt assets ratio it is more likely that the bank won't reject its loan application.

Similarly, the Asset based Solvency Ratio gauge the extent to which the company's asset are financed by the shareholders' equity, in other words it highlights how much of a company's assets are owned outright by investors. The formula is computed as follows.

$$Asset\ based\ Solvency\ Ratio = \frac{Shareholders'Equity}{Total\ Assets}$$

This ratio is more significant to investors who are considering investing in a given company, because the higher this number, the more consistent is the shareholders' financing of the company which means that the entity must be very profitable.

The interest coverage ratio is a measure of a company's ability to meet its interest payments. Interest coverage ratio is equal to earnings before interest and taxes (EBIT) for a time period, often one year, divided by interest expenses for the same time period.

$$Interest\ Cover = \frac{EBIT}{Interest\ Expenses}$$

The interest coverage ratio is a measure of the number of times a company could make the interest payments on its debt with its EBIT. The higher the Interest Cover ratio, better it is both for the firm and lenders; for the former, the probability of default in payment of interest is reduced and for the latter, the firm is considered to be less risky and therefore is more willing to grant a new loan. However, too high a ratio indicates the firm is very conservative in not using the debt to its best advantage of the shareholders. On the other hand, a lower coverage ratio indicates the excessive use of debt.

Market Prospect Ratios are those ratios used by investors to determine how much they would receive in earnings from their investments and to predict what the trend of a stock will be in the future. Examples of Market Prospect Ratio are: dividend yield, P/E ratio, earnings per share, and dividend pay-out ratio.

4.2 Chinese Accounting System

As China becomes a more international player in the world economy, its system of accounting is changing as well according to the new government policies and reforms. The opening to foreign investments made it necessary for the Chinese government to implement a series of reforms in the accounting system in order to give investors reliable financial documents to assess the soundness of a given company. Moreover, the Chinese companies' listing in international stock exchanges forced the firm's management to comply with international standards and increase their level of accuracy. As China entered the World Trade Organisation in 2001 and started to be part of the globalization phenomenon, the harmonisation of accounting standards with the international rules has become a priority for the development of the country's reforms and economic growth.

Before the rise to power of Deng Xiaoping and the relative economic openness, the Chinese accounting system, also known as the Uniform Accounting Standards, was based on the soviet model where the concept of "profit" did not exist as all the funds were given by the government. This system was based on charts of account and balance sheets which merely listed the sources and application of government's funding, all the information provided were significant for the government for planning and the decision-making process. It entailed several accounting practices according to the different industries and was deemed to be too complicated and divergent from the international standards which are fostered and encourage by the International Accounting Standards Board (IASB). This body was founded in 2001 and is the primary source of the International Financial Reporting Standards (IFRS) and aims at the promotion of these standards worldwide.

In the 1990s the opening of the Shanghai and Shenzhen Stock Exchanges marked a turn point in the history of Chinese accounting: in fact, the companies listed in those stock exchanges could decide whether to issue A or B shares. A-shares were issued in Chinese Yuan and were directed to domestic investors, on the other hand, B-share were issued in US dollars in the Shanghai Stock Exchange and in Hong Kong dollars in the Shenzhen Stock Exchange and therefore, were oriented to foreign investors. Along with the difference in currency, those shares differed also in their compliance to financial regulations: the first one followed the local regulations, called Chinese Generally Accepted Accounting Principles (GAAP), the second one followed the international regulations, which are the IFRS. This double approach allowed the Chinese stock exchanges to attract potential domestic investors without excluding international ones.

Another important milestone is the enforcement in 1993 by the Ministry of Finance (MOF) of the "Accounting Regulations for Share Enterprises" which affirmed the compulsory use of the double-entry bookkeeping technique, the introduction of cash or funds statements, as well as the use of consolidated accounting when the company was listed on a stock exchange. This achievement occurs after the issuance by the MOF of other accounting regulations such as the "Accounting Regulations of the People's Republic of China for Enterprises with Foreign Investment" and the "Accounting Regulations for Share Enterprises". The conceptual framework and the financial regulations highlighted in this new document were influenced by the American accounting tradition and the work of the IASC (International Accounting

Standards Committee) the predecessor of the IASB. However, the Chinese approach toward accounting was affected by the command economy system and therefore, the main users of financial statements were thought to be the government, banks, and the internal company's management, unlike the US where great emphasis is given to external investors. This is consistent with the fact that China is a country were the biggest amount of corporate equity is provided either by the government or by the bank loans, thus these entities must be taken into consideration when preparing a firm's financial report. Another major difference between the Chinese system and the Anglo-Saxon one is that the former's accounting framework is strictly linked to taxation, therefore one of the main objectives of accounting in China is determining the amount of taxes a given company is going to pay to the government according to the taxable income. The emanation of those accounting reforms won the appraisal of the World Bank which decided to grant a significant loan ($2.6 million) to sustain the Chinese ministry of finance in the restructuring of the Chinese accounting system and the training of local accountants. In the following years relevant events such as the entrance of China in the IASC as an official observer and the return of Hong Kong, which has been using local regulations close to the international since 1993, to the central government, fuelled the convergence of China toward international standards. In 1998 an Accounting Standard commission has been established and by 2005, 16 new standards were released and in the same year, a new regulation was issued: the "Accounting System for Joint Stock Limited Enterprises" which describes all the required financial statements for listed companies. The new Accounting Law in 1999 and the subsequent "Enterprise Accounting System" of 2000 signed the transition from an internal control accounting to a more investor-friendly and international-oriented one. In the same year a framework for the regulation of unlisted small enterprises was released and entailed less and easier requirements. In the following year the Ministry of Finance issued a new set of rules called "Accounting Standards for Business Enterprises" (ASBEs) which were in line with the IFRS and compulsory for listed companies and for unlisted ones in case they wanted to comply with them. This set of rules was composed by 38 basic standards which range from the inventories accounting management, to the long-term equity investments, fixed assets, intangible assets, debt restructuring, revenue, income taxes and so on. The ASBEs were an important achievement for China harmonisation to international standards, however, the conceptual framework of Chinese accounting remains significantly different to the Anglo-Saxon one.

Apart for the convergence with international standards, which have been a crucial issue during the reforms of the Chinese accounting system, improving the quality and the reliability of the Chinese financial statements has been an equally critical problem.

Moreover, it is argued that the accounting profession in China is not as developed as in other advanced nations in the world, therefore emphasis should be given to the formation of a competent class of accounting professionals and auditors, in order to fostering a sound financial reporting system and international investors' confidence in the transparency and reliability of Chinese financial documents.

5. Analysis and Interpretation of Chinese Zombie firms' Financial Statements

Here starts the second section of my dissertation which consists in the analysis of a sample of twelve companies which I consider state-owned zombie enterprises because of a series of features that I am going to explain in detail in the following section.

For all the companies selected, I analysed the balance sheets, income statements and financial ratios in order to make my own considerations on the companies' financial soundness and level of debt. Every company is divided according to the sector it belongs. I decided to concentrate on the metal, chemical, energy and shipping sectors as those are the industries that are more affected by overcapacity and therefore by the "zombie economy" phenomenon, and also because those are the sectors with high state investment.

As long as the companies' legal structure is concerned, I decided to take into account not only state-owned enterprises, as many enterprises with clear government support have become limited liabilities companies or quoted companies due to the rounds of reforms, therefore I selected also listed company whose majority share is owned by the SASAC or by state-owned enterprises and direct subsidiaries of big state corporations.

For every company I specify the enterprise's business, place and date of incorporation, number of employees and ownership. Most of the companies selected are either directly controlled by the state government of the People's Republic of China or by the SASAC. The decision to take into consideration only those firms with state ownership arose from the necessity to keep a limited sample in order to analyse more consistently the peculiarities of state-owned zombie enterprises, understand the government intervention in the managing of the enterprises' processes, investment and credit. Then I report the balance sheets, income statements and financial ratios of the selected companies in order to carry out horizontal and vertical analysis of all the documents' entries. Moreover, the financial ratios are used to establish parameters for the determination of zombie firms and whether the lavishing of low cost credit is consistent with the increase in the capital accumulation of the firm. Consequently, every company's performance is compared to the industry standards so that to give a more consistent and clear picture of the financial condition of every firm with an insight on the relevant business sector. When possible, socio-political factors indirectly affecting a company's business and financial soundness will be underlined and explained.

Lastly the central and local government interventions on those business entities will be investigated especially with reference to the resolutions adopted to adjust the worsening financial situation of the selected firms, for example mergers, restructuring, acquisition of foreign or domestic firms, debt equity swaps, liquidation, spin off of the debt into subsidiaries or asset-management companies.

5.1Metal Sector

The metal sector has been changing considerably throughout the latest 35 years in terms of places and amount of production and consumption. As a matter of fact, in 1980, 776 million tonnes of steel were produced mainly by the URSS (21% of the global output), Japan, Germany, China, Italy, France and Poland, Canada and Brazil. In 2016, world crude steel production reached 1,626.6 million tonnes according to the World Steel Association. The composition of the top steel producers has changed dramatically over the years and China attests itself as the first steel producer in the world with an output of 60% of the total world production far ahead of its competitors: Japan, the US, India, South Korea and Russia, Germany, Turkey, Brazil and Taiwan. As long as consumption of metals is concerned, it can be noted that the sector in which those materials are used, in particular steel, is modern construction, as a matter of fact, emerging countries with a growing real estate and infrastructure sector have seen their metal consumption rapidly increasing, for instance China is the second world consumer.

The metal sector plays a major role in the economy of China which is the number one producer and number two consumer in this industry. The sector's value has been estimated at 2,700 billion of US dollars and due to the fall in the growth of demand in China and the enforcement of environment protection measures the sector's annual growth is deemed to decrease reaching the 1.6% from the 2.8% in 2018. The metal industry is affected by overcapacity issues and therefore eliminating overcapacity is the top one priority to contrast the decline of prices.

Steel and aluminium have been experiencing growing capacity and decrease in prices, with an increase in global steel production of 5.3% in 2017 mainly led by Chinese firms which is matched with a level of overcapacity at 70%. This phenomenon can be explained looking at the health of correlated sectors such as the construction of infrastructure: as the rate of completion of big projects slows, the demand of steel and aluminium declines as well. China's aluminium production has been increasing at a rate of 1.6% year-over-year in 2017, this growth is explained by the constant demand for Chinese aluminium exports which rose to 4.6% in the same year despite the world economic slowdown. In fact, Chinese aluminium exports are cheaper compared to European ones, therefore foreign competitors have been arguing that China was "dumping" aluminium products into the market. It can be assumed that the expected cuts in aluminium capacity have not occurred yet although the government is implementing environmental measures to reduce pollution and meet new requirements.

As long as steel is concerned, the government plan for 2025 is to consolidate the fragmented sector by bringing to 10 the number of companies responsible for the 60/70% of the total production, in an attempt to increase profitability, lowering overcapacity and diminish competition in the industry.

Other metals have seen prices increase on the back of strong demand, notably copper, nickel, lithium and cobalt, the latter ones particularly prospects for batteries and electronics.
My research in the Chinese metal sector focused on the steel and iron ore sector while the analysed companies are: "China First Heavy Industries" and "Wuhan Iron and Steel Group".

5.1.1 China First Heavy Industries Company

"China First Heavy Industries Company Limited" was established on December 25, 2008 and the company's shares were listed in the Shanghai Stock Exchange on February 9, 2010. It is a direct subsidiary of "China First Heavy Industries", one of the major state-owned firms in the metallurgical field founded in 1954, which is 100% controlled by the State-owned Asset Supervision and Administration Commission of the State Council (SASAC) and it holds 63.88% direct ownership on its listed subsidiary. The state-owned company's activities are the development, manufacturing, and selling of heavy industry equipment, while its listed subsidiary engages in the design, manufacture, installation, repair of heavy machinery, equipment, and metal products, the smelting and processing of metal, sales of metal materials and mineral sales, manufacture and sale of industrial gases, metallurgical engineering design, technical advisory services, the completion of contracted overseas projects and domestic international bidding projects; and lastly the import and export business. Even though "China First Heavy Industries Company limited" is not directly owned by the central government, I decided to include it in my research as, being listed in the Shanghai Stock Exchange, it presents consolidated financial statement unlike its parent company which, being a state-owned firm, does not have this requirement. Moreover, when looking at the income statement of the parent company, most of the indices for year 2015 and 2014 are not available and the net income, though extremely low compared to the industry standards, is positive which is impressive as its subsidiary is undergoing losses of 825 million of US dollars.

The company's location is in the city of Qiqihar in Heilongjiang province in Northeast China, a region characterized by the production of metals and coal. The total number of people employed in the company is 11,033 (2016 data).

Therefore, after conducting the vertical and horizontal analysis of the firm's financial statements to investigate the company's financial condition, I am going to focus on lending and profitability criterions to determine to what extent "China First Heavy Industry Company limited" can be considered a "zombie enterprise". After having concluded that the firm has been receiving subsidized credit by financial institutions, as it has negative actual profit for two consequent financial years, through the analysis of the debt ratio, the long-term debt ratio and the interest cost, I want to determine whether those subsidies brought to an increase in the capital accumulation of the company through a growth in the firm's assets, turnover and employment rate to assess if the capital input is favourable to economic growth.

Tab. 1 - Balance Sheet Vertical Analysis (th USD)

	2016		2015		2014		2013		2012	
TOTAL ASSETS	4,376,666		5,864,249		6,534,669		5,849,836		5,753,359	
Fixed assets	1,484,180	33.91%	1,645,172	28.05%	1,762,199	26.97%	1,716,368	29.34%	1,585,214	27.55%
Stock	494,998	11.31%	1,003,290	17.11%	1,110,533	16.99%	1,274,532	21.79%	1,234,636	21.46%
Debtors	1,447,842	33.08%	2,005,610	34.20%	1,887,936	28.89%	1,563,360	26.72%	1,801,299	31.31%
Cash & cash equiv.	418,731	9.57%	474,739	8.10%	548,832	8.40%	777,605	13.29%	615,501	10.70%
Shareholders funds	1,336,662	30.54%	2,323,787	39.63%	2,772,615	42.43%	2,773,401	47.41%	2,656,424	46.17%
Long term debt	209,336	4.78%	804,256	13.71%	1,309,556	20.04%	983,721	16.82%	858,274	14.92%
Loans	1,756,139	40.13%	1,497,499	25.54%	1,154,024	17.66%	557,838	9.54%	747,814	13.00%
Creditors	484,421	11.07%	560,059	9.55%	604,598	9.25%	652,913	11.16%	612,744	10.65%

	2011		2010		2009		2008	
TOTAL ASSETS	5,423,095		4,247,208		3,351,789		2,900,816	
Fixed assets	1,561,839	28.80%	1,358,975	32.00%	1,126,874	33.62%	672,833	23.19%
Stock	1,159,719	21.38%	820,891	19.33%	750,409	22.39%	852,120	29.38%
Debtors	1,504,278	27.74%	1,149,757	27.07%	836,184	24.95%	687,022	23.68%
Cash & cash equiv.	449,099	8.28%	540,194	12.72%	333,971	9.96%	336,517	11.60%
Shareholders funds	2,652,805	48.92%	2,480,477	58.40%	649,211	19.37%	361,870	12.47%
Long term debt	397,971	7.34%	11,324	0.27%	313,236	9.35%	365,726	12.61%
Loans	791,041	14.59%	584,999	13.77%	1,264,353	37.72%	886,458	30.56%
Creditors	609,419	11.24%	485,431	11.43%	377,899	11.27%	360,273	12.42%

When vertically analysing the balance sheet of the company, the total assets account has been kept as a reference to determine all the other indices as a percentage of total assets. It can be noted that in the last year the loans entry has been considerably increasing reaching 40% of total assets. In 2009 this entry increased by 7% in comparison with the 2008 ratio in response to the government resolution to grant generous loans to state-owned enterprises after the 2008 financial crisis in order to provide financial stimulus to the economy. Shareholders' funds were significantly increased from 2008 to 2010, and then dramatically decreased throughout the years reaching 31% of total assets in 2016. The increase in the shareholders' funds is linked with the decrease in the long-term debt, therefore it can be noted that the company during the 2008- 2010 period has diminished its reliability on external financing. In the last year available it can be noticed that fixed assets are expressed as the 34% of total assets which is the highest value recorded in these 9 years and it is reasonable if considering the sector, the company is involved in. On the other hand, in 2016 the percentage of stock has been considerably reduced: in 2008 the company was holding 29% of total assets in stock while in 2016 only 11%, this is a positive sign for the firm because goods in the warehouse might become obsolete if not sold within a certain limit of time. This trend might be connected with the implementation of the "One Belt, One Road" program which entails the construction of infrastructures across Asia and the Middle East which imply the utilization of surplus raw material such as metal. Even though the inventory entry records a low value, the cash and cash equivalent line accounts only for 10% of total assets registering an increase of 2% from 2015, meaning that the company holds more fixed assets and account receivables as a percentage of total assets as compared to cash and stock. Thus, the company might experience liquidity problems as the cash and cash equivalent line represents a small percentage of total assets. Long-term debt covers a small percentage of the total assets making the firm less leveraged; however, the loan figure highlights a high level of indebtedness in the short term which might suggest that the company is acquiring new debt in order to pay for its long-term liabilities. The creditors entry did not vary much during the years registering 11% of total asset in 2016 and 12% in 2009. On the other hand, the debtors line registers 33% in 2016 meaning that the company may have problems in the management of credit collection.

Tab. 2 - P/L Account Vertical Analysis (th USD)

	2016		2015		2014		2013		2012	
Sales	440,025		750,829		1,156,022		1,361,602		1,317,579	
COGS	493,411	112.13%	665,924	88.69%	976,749	84.49%	1,080,460	79.35%	958,552	72.75%
Gross profit	-44,084	-10.02%	99,921	13.31%	210,763	18.23%	281,142	20.65%	359,027	27.25%
EBIT	-287,353	-65.30%	-139,247	-18.55%	-34,630	-3.00%	31,054	2.28%	60,817	4.62%
Taxation	34,952	7.94%	360	0.05%	10,068	0.87%	23,219	1.71%	8,784	0.67%
Net Income	-825,062	-187.50%	-276,524	-36.83%	4,197	0.36%	2,818	0.21%	4,665	0.35%

	2011		2010		2009		2008	
Sales	1,381,895		1,287,340		1,329,479		1,473,782	
COGS	977,421	70.73%	881,283	68.46%	866,705	65.19%	1,035,374	70.25%
Gross profit	404,474	29.27%	406,057	31.54%	462,774	34.81%	450,713	30.58%
EBIT	129,455	9.37%	151,163	11.74%	243,165	18.29%	269,111	18.26%
Taxation	15,221	1.10%	52,345	4.07%	21,211	1.60%	54,992	3.73%
Net Income	67,131	4.86%	119,252	9.26%	174,163	13.10%	147,245	9.99%

As long as the profit and loss account is concerned, it can be noticed that the overall performance of the "China First Heavy Industries Company" has been declining during the years. The sales account has been kept as a reference to determine all the other indices as a percentage of sales. Cost of goods sold (COGS) as a percentage of sales has been increasing from 2009 rate (65%) to 2016 (112%) even though the nominal figure has been decreasing since 2013 because of the plunge in the sales figure. It is plausible as well that the government, in line with the recent policies aimed at decreasing overcapacity levels in critical sector, has succeeded in rising the prices of raw material by closing down or merging "zombie firms" and therefore eliminating unfair competition and augment the capacity utilization rate of the firms in metal sector. All the profitability entries (Gross profit, EBIT and Net Income) have been decreasing considerably from 2009 highlighting a very negative performance for the last three consequent years, for instance net income registers -187.5% of sales for 2016 financial year. The EBIT line which is significantly low as compared to the gross profit account highlights that the company is dealing with growing administrative and operating expenses. The gross profit line reveals a negative trend, as a matter of fact, in 2009 it was equal to 34.81% of sales, while in 2016 represented -10.02% of sales. It is interesting to notice that the tax entry is a small percentage of sales ranging from 0% to 8% in 2016, which even if it registered a considerable increase in the last available year, however, it is much lower than the 25% income tax rate established for the resident enterprise in China. The low tax rate validates the fact that the central government gives special treatment to state-owned enterprises which are in financial distress.

Tab. 3 - Balance Sheet Horizontal Analysis

	2016/2015	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010	2010/2009	2009/2008
Fixed assets	-9.79%	-6.64%	2.67%	8.27%	1.50%	14.93%	20.60%	67.48%
Intan. fixed assets	1.19%	-8.62%	-0.73%	0.88%	9.48%	19.40%	4.08%	89.82%
Tan. fixed assets	-7.99%	-6.65%	3.04%	3.78%	6.54%	21.33%	33.33%	41.24%
Other fixed assets	-40.21%	-3.65%	4.55%	115.40%	-51.97%	-23.04%	-11.21%	281.72%
Current assets	-31.44%	-11.60%	15.46%	-0.83%	7.95%	33.69%	29.81%	-0.14%
Stock	-50.66%	-9.66%	-12.87%	3.23%	6.46%	41.28%	9.39%	-11.94%
Debtors	-27.81%	6.23%	20.76%	-13.21%	19.75%	30.83%	37.50%	21.71%
Other curr. assets	-21.53%	-31.78%	36.93%	14.43%	-5.43%	30.48%	43.75%	-7.33%
Cash & cash equiv.	-11.80%	-13.50%	-29.42%	26.34%	37.05%	-16.86%	61.75%	-0.76%
TOTAL ASSETS	-25.37%	-10.26%	11.71%	1.68%	6.09%	27.69%	26.71%	15.55%
Shareholders funds	-42.48%	-16.19%	-0.03%	4.40%	0.14%	6.95%	282.08%	79.40%
Capital	-6.59%	-5.74%	-0.27%	3.07%	0.18%	5.11%	48.54%	n.c.v.
Other shareh. funds	-69.93%	-22.74%	0.12%	5.26%	0.11%	8.16%	9805.99%	-104.25%
Non-current liab.	-66.77%	-36.04%	26.60%	7.70%	75.44%	196.62%	-64.16%	-1.68%
Long term debt	-73.97%	-38.59%	33.12%	14.62%	115.66%	3414.35%	-96.38%	-14.35%
Other non-curr liab.	-20.31%	-12.66%	-12.68%	-21.00%	-1.12%	8.16%	-25.00%	19.88%
Provisions	-47.42%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Current liabilities	4.59%	13.06%	19.72%	-5.05%	-6.07%	38.48%	-26.72%	8.85%
Loans	17.27%	29.76%	106.87%	-25.40%	-5.46%	35.22%	-53.73%	42.63%
Creditors	-13.51%	-7.37%	-7.40%	6.56%	0.55%	25.54%	28.45%	4.89%
Other curr. liabilities	-11.41%	0.51%	-23.29%	7.04%	-11.99%	55.15%	0.47%	-31.22%
TOT. S. FUNDS & LIAB.	-25.37%	-10.26%	11.71%	1.68%	6.09%	27.69%	26.71%	15.55%

The horizontal analysis is a useful tool to detect change in percentage of the balance sheet and income statement entries across different financial years. The balance sheet highlights that the company doubled its own fixed assets in 2009 meaning that it has invested on its operations thanks to an increase on its shareholders' capital in 2010 when the company was listed for the first time in the Shanghai Stock Exchange; however, a decrease of every kind of assets since 2014 can be noticed which is in line with the government policies on shrinking the credit granted to SOEs.

As long as liabilities are concerned, non-current liabilities have plunged during the last two years, while the current ones have been slowly increasing (including the loans line), conversely the creditors account registered a decrease in the last three years. Shareholders' equity, on the other hand, have almost halved during the last year which explains the very high gearing ratio of the company which, due to a shortage on shareholders' funds, has to rely on external financing. The peak in 2010 is connected with the firm's quotation in the Shanghai Stock Exchange. In 2011, the company registered an increase of 3414.35% of its long-term debt entry maybe due to a rise in the cost of goods sold and the decrease of net income which might validate the option of evergreening, which is the phenomenon whereby the company is capable of obtaining new debt to repay the interest payments of previous borrowings. Between 2013-2014 the company experienced another period of financial distress witnessing growing current liabilities and long-term debt entries. In 2016, the company is undergoing a contraction of its assets and liabilities meaning that it might be using its assets to decrease its leverage in line with the government policies on the restructuring of the debt of SOEs.

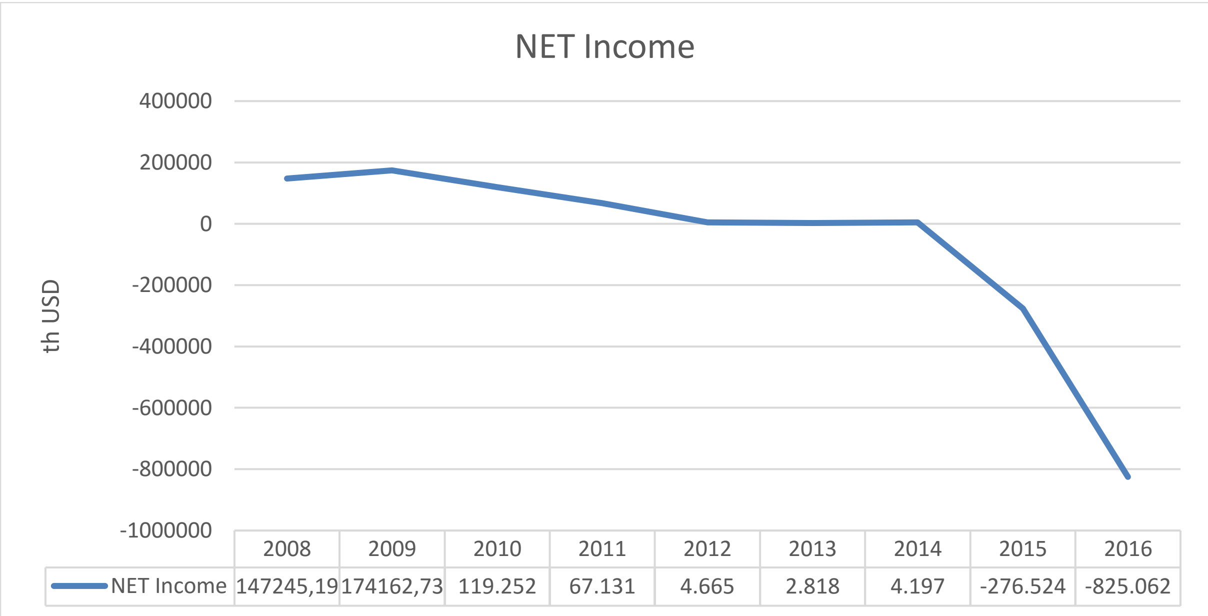
Tab. 3 - P/L Account Horizontal Analysis

	2016/2015	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010	2010/2009	2009/2008
Operating revenue	-41.33%	-35.51%	-12.79%	3.34%	-4.65%	7.35%	-3.17%	-10.54%
Sales	-41.39%	-35.05%	-15.10%	3.34%	-4.65%	7.35%	-3.17%	-9.79%
COGS	-25.91%	-31.82%	-9.60%	12.72%	-1.93%	10.91%	1.68%	-16.29%
Gross profit	-144.12%	-52.59%	-25.03%	-21.69%	-11.24%	-0.39%	-12.26%	2.68%
Other op. expenses	1.71%	-2.54%	-1.88%	-16.14%	8.43%	7.90%	16.07%	20.93%
EBIT	-106.36%	-302.11%	-211.51%	-48.94%	-53.02%	-14.36%	-37.84%	-9.64%
Financial revenue	-37.13%	-12.83%	173.96%	-49.98%	37.06%	-28.33%	n.c.v.	-100.00%
Financial expenses	243.46%	525.28%	-450.76%	-82.24%	8.92%	507.37%	-126.43%	-30.39%
Financial P/L	-265.17%	-392.34%	958.82%	88.35%	-4.84%	-306.92%	145.45%	28.59%
P/L before tax	-185.95%	-2211.36%	-48.12%	95.96%	-84.49%	-51.59%	-11.03%	-3.25%
Taxation	9600.40%	-96.42%	-56.64%	164.33%	-42.29%	-70.92%	146.78%	-61.43%
P/L after tax	-198.08%	-8965.33%	39.32%	-46.37%	-93.85%	-43.21%	-30.33%	18.63%
Extr. and other P/L	171.52%	184.26%	87.93%	24.70%	129.72%	6.61%	-330.31%	-31.89%
Net income	-198.37%	-6689.25%	48.90%	-39.58%	-93.05%	-43.71%	-31.53%	18.28%

From the horizontal analysis of the firm's income statement it can be noted that the company has been declining dramatically during the years. When looking at the earnings before interest and taxes, we have negative change percentages for all the available years meaning that the company has never improved its earnings throughout the years. Gross profit registers poor performance as well. Looking at the net income we can observe a tragic fall in 2015 when the firm registered a figure equal to -6689% of the previous year. The COGS has been diminishing during the last three years, however it relates to the decrease in the amount of sales which plunged dramatically during the years registering a -70% fall compared to the 2008 figure. The financial expenses and the taxation entries have been fluctuating during across time which makes it difficult to make assumptions about the causes for those unusual trends.

In my analysis, I selected state-owned enterprises with negative or very low actual profit for at least two consequent years and through the analysis of those firms' debt and profitability ratios I assessed to what extent those "zombie firms" are receiving government support through lower interest rates, easy access to credit despite a small EBIT. Therefore, for each company I am going to report a graph showing the firm's net income (1), a table comparing the company's actual interest rate with the minimum required rate (2), a graph showing the company's gearing ratio (3), a chart showing the relationship between the firm's EBIT and short-term payment (4) and lastly a graph showing the company's interest cover rate (5). In a second phase I want to demonstrate that even though those companies are granted financial help, they fail to have better overall performance through the analysis of a table in which employment rate, fixed asset line, profit margin, ROE and ROA are compared across different financial years.

"China First Heavy Industries Company" registered very negative actual profit for the 2016 and 2015 financial year (1) and negative EBIT for the last three reported years.



The second step is to assess whether the actual interest payment of this company is lower than the minimum required rate (2). In order to compute the risk-free interest rate, I use the OECD simplified formula as the financial statements do not provide any information about the corporate bonds and most of the companies analysed are not listed in the stock market. I used the annual interest rates retrieved from the World Bank data website. Therefore, the minimum required interest payment is computed using the following formula:

$$R^*_{i,t} = rs_{t-1} \cdot BSi_{t-1} + \left(\frac{1}{5}\sum_{j=1}^{5} rl_{t-j}\right) \cdot BL_{i,t-1}$$

According to the formula, in 2016 "China First Heavy Industry Company" should have paid an interest payment equal to 135,048.51 thousand of USD while in its financial statement it registered an interest payment equal to 106.851 thousand of USD, thus enjoying a lower interest rate compared to the market.

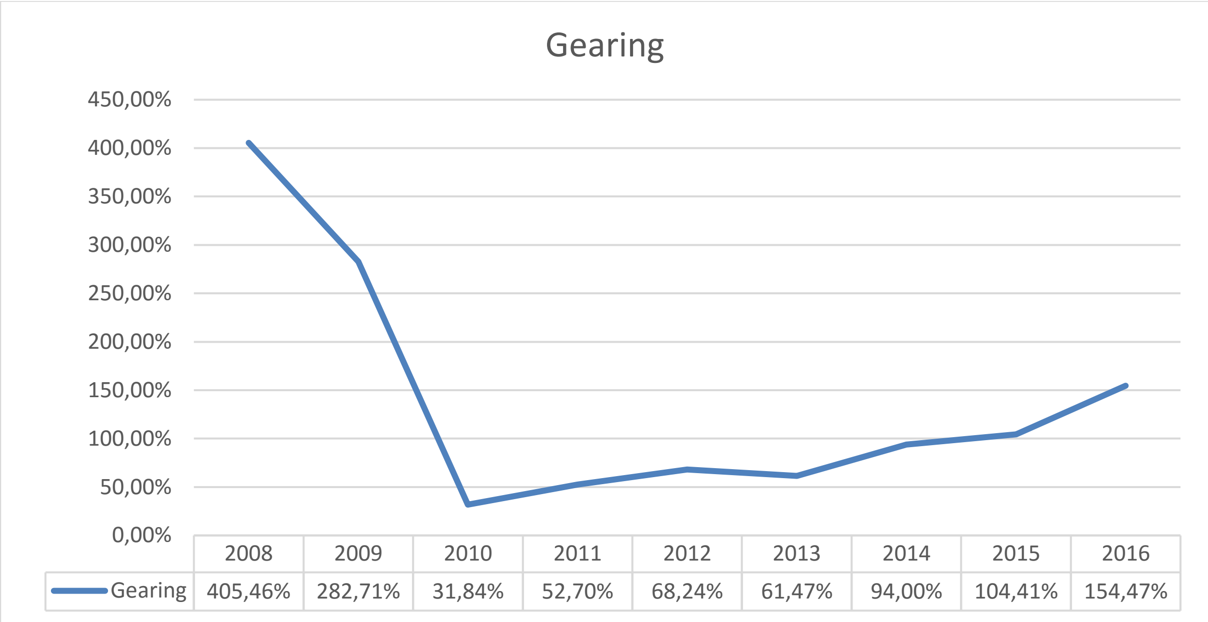
	2016	2015	2014	2013	2012
Current liabilities	2,731,393	2,611,623	2,309,855	1,929,360	2,031,886
Non-current liab.	308,610	928,838	1,452,198	1,147,075	1,065,050
Interest rates	4.35%	4.35%	5.60%	6.00%	6.00%
R*	135,049	166,568	216,397	183,852	183,665
Interest paid	106,851	119,987	111,894	97,431	80,290
R*- Ri	28,198	46,581	104,503	86,421	103,375
Actual interest cost	3.51%	3.39%	2.97%	3.17%	2.59%

	2011	2010	2009	2008
Current liabilities	2,163,204	1,562,060	2,131,561	1,958,183
Non-current liab.	607,087	204,671	571,017	580,763
Interest rates	6.56%	5.81%	5.31%	5.31%
R*	178,890	103,044	147,207	138,895
Interest paid	44,645	43,392	66,813	59,939
R*- Ri	134,245	59,652	80,394	78,956
Actual interest cost	1.61%	2.46%	2.47%	2.36%

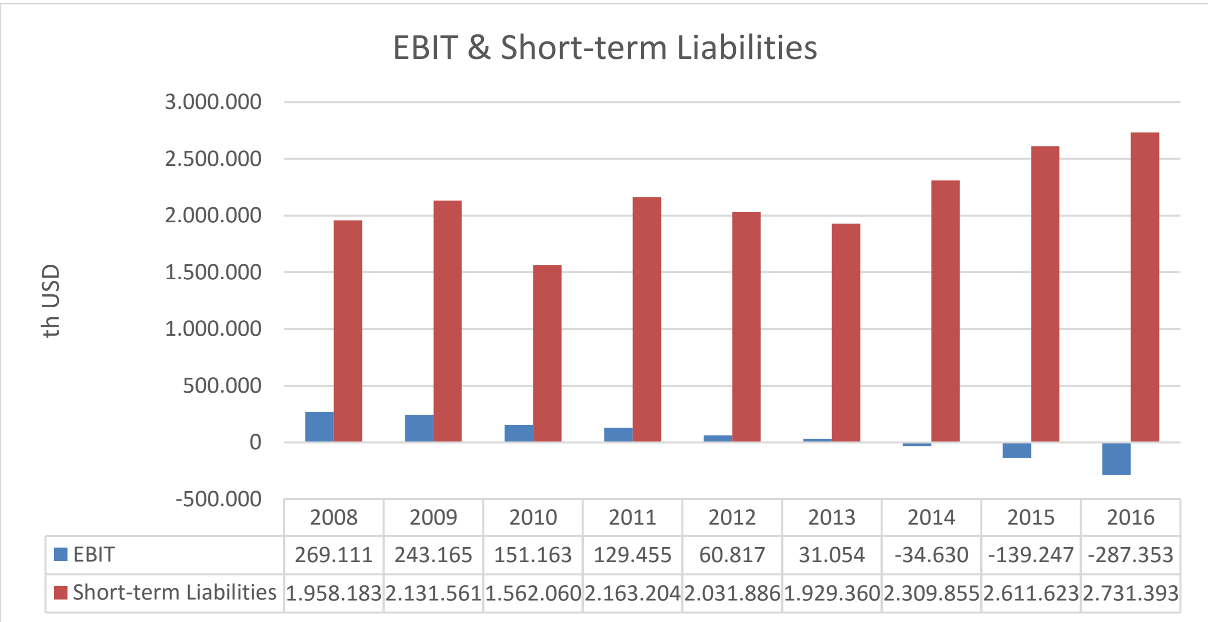
From the table above, it is clear that the company has been receiving subsidized credit, paying interests rates far lower than the market price, especially in 2011 when the company got 1,61% interest rate saving 134.245.000 USD. However, during the last three years the actual interest rate increased considerably thanks to the latest policies implemented by president Xi for the contraction of the "zombie firms" in the Chinese economy.

The third step consists in the analysis of the firms current and non-current liabilities to determine if the company has been increasing its debt across the years and the analysis of the firm's gearing ratio to investigate the proportion of debt to the company's equity (3). Tan *et al.* (2016) argue that a gearing ratio bigger than 50% represents an indication of the government support to "zombie firms".

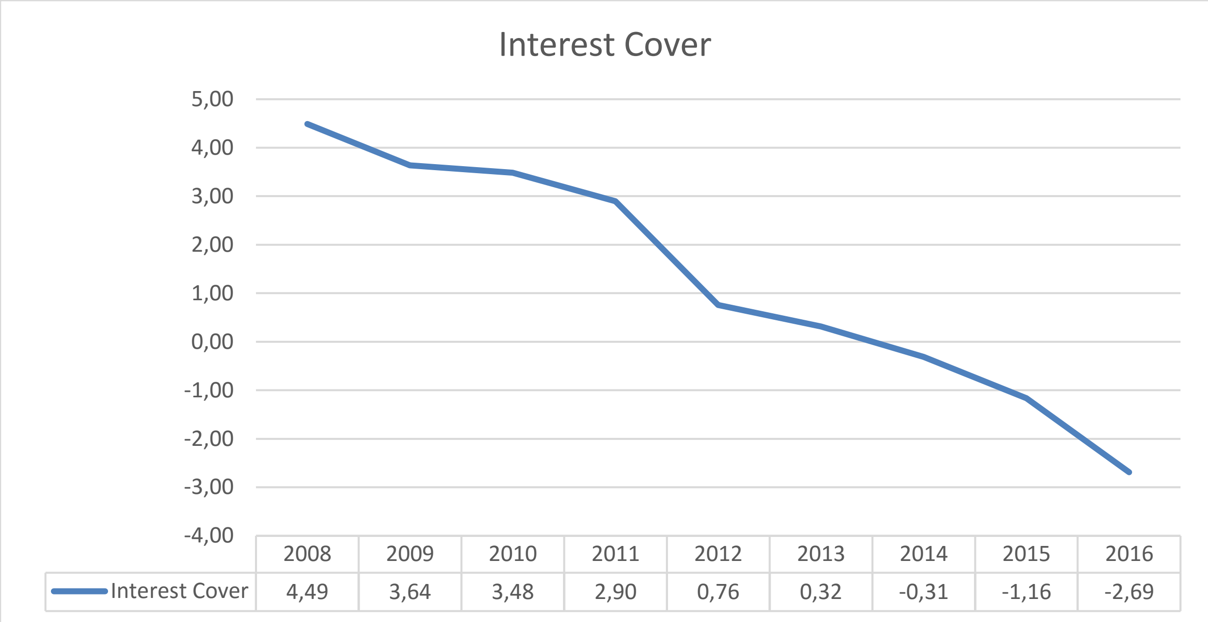
As long as “China First Heavy Industries Company” is concerned, it can be notice that the firm has growing current liabilities in the last four years and decreasing non-current liabilities in the last three years.



In the graph above it can be noticed that the gearing ratio has been increasing in the last three years and, except for 2010, has always been greater than 50%.



From the graph above, it can be concluded that the firm has very high levels of leverage and that it might incur in liquidity problems as the EBIT is far lower than its short-term obligations (4).



From the graph above, it can be notice that the company is not able to meet its short-term debt payment as its earnings before interest and tax are very low, even negative in the last three financial years. Moreover, the firm is not able to pay its interest payment as the interest cover ratio is very low and even lower than 0 in the last three financial years (5).

Thus, a conclusion can be drawn that the "China First Heavy Industries Company" is a zombie firm as it has negative actual profit (1); interest rates lower than the minimum required payment (2); gearing ratio greater than 50% (3); and EBIT smaller than both short-term liabilities and interest payment (4, 5).

In this section, I am going to demonstrate that, even though the company has government support, it fails to improve its financial and profitability performance.

	2008	2009	2010	2011	2012
Number of employees	11,118	11,362	11,531	11,952	11,884
Fixed assets (th USD)	672,833	1,126,874	1,358,975	1,561,839	1,585,214
Profit Margin (%)	13.54	14.64	13.45	6.07	0.99
ROE using P/L b.tax (%)	55.60	29.99	6.98	3.16	0.49
ROA using P/L b.tax (%)	6.94	5.81	4.08	1.55	0.23

	2013	2014	2015	2016
Number of employees	11,708	11,486	11,195	11,033
Fixed assets (th USD)	1,716,368	1,762,199	1,645,172	1,484,180
Profit Margin (%)	1.87	1.11	-36.45	-177.64
ROE using P/L b.tax (%)	0.92	0.48	-12.01	-59.71
ROA using P/L b.tax (%)	0.44	0.20	-4.76	-18.24

As it can be noticed from the chart above the company has not been increasing its employment rate, on the contrary, since 2011 the company has been laying off 919 people. On the other hand, the company has been rising its fixed assets which increased by 162% from 2008 to 2014 and then decreased by 16% from 2014 to 2016. The profit margin has been going down throughout the years from 13,54% in 2008 to -177,64% in 2016 due to a plunge in the sales account and a sharp rise in the expenses. ROE and ROA indices highlight the firm's critical condition: since 2012 the company has been lowering its profitability performance while the shareholders' fund has been dramatically cut in the last financial year and the operating turnover has decreased due to a fall in the sales.

Below I report the financial statements of the "China First Heavy Industries Company" from year 2008 to 2016.

Tab. 1 - China First Heavy Industries Company Balance Sheet

Annual report/Consolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD	31/12/2008 th USD
	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR
Exchange rate: CNY/USD	0.14389	0.15405	0.16343	0.16387	0.15899	0.15871	0.15099	0.14645	0.14631
Balance sheet									
Assets									
Fixed assets	1.484.180	1.645.172	1.762.199	1.716.368	1.585.214	1.561.839	1.358.975	1.126.874	672.833
Intangible fixed assets	210.673	208.199	227.844	229.512	227.508	207.805	174.040	167.210	88.087
Tangible fixed assets	1.183.107	1.285.787	1.377.438	1.336.770	1.288.028	1.208.948	996.405	747.334	529.121
Other fixed assets	90.400	151.186	156.918	150.086	69.678	145.086	188.530	212.330	55.625
Current assets	2.892.486	4.219.076	4.772.469	4.133.467	4.168.145	3.861.257	2.888.232	2.224.916	2.227.983
Stock	494.998	1.003.290	1.110.533	1.274.532	1.234.636	1.159.719	820.891	750.409	852.120
Debtors	1.447.842	2.005.610	1.887.936	1.563.360	1.801.299	1.504.278	1.149.757	836.184	687.022
Other current assets	949.646	1.210.176	1.774.000	1.295.575	1.132.210	1.197.260	917.584	638.322	688.840
Cash & cash equivalent	418.731	474.739	548.832	777.605	615.501	449.099	540.194	333.971	336.517
TOTAL ASSETS	4.376.666	5.864.249	6.534.669	5.849.836	5.753.359	5.423.095	4.247.208	3.351.789	2.900.816
Liabilities & Equity									

Shareholders funds	1.336.662	2.323.787	2.772.615	2.773.401	2.656.424	2.652.805	2.480.477	649.211	361.870
Capital	940.747	1.007.163	1.068.475	1.071.382	1.039.494	1.037.630	987.166	664.597	0
Other shareholders funds	395.916	1.316.624	1.704.140	1.702.019	1.616.930	1.615.175	1.493.311	-15.385	361.870
Non-current liabilities	308.610	928.838	1.452.198	1.147.075	1.065.050	607.087	204.671	571.017	580.763
Long term debt	209.336	804.256	1.309.556	983.721	858.274	397.971	11.324	313.236	365.726
Other non-current liabilities	99.274	124.582	142.643	163.354	206.776	209.116	193.347	257.781	215.037
Provisions	50.155	95.395	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Current liabilities	2.731.393	2.611.623	2.309.855	1.929.360	2.031.886	2.163.204	1.562.060	2.131.561	1.958.183
Loans	1.756.139	1.497.499	1.154.024	557.838	747.814	791.041	584.999	1.264.353	886.458
Creditors	484.421	560.059	604.598	652.913	612.744	609.419	485.431	377.899	360.273
Other current liabilities	490.834	554.065	551.233	718.609	671.328	762.744	491.630	489.309	711.452
TOTAL SHAREH. FUNDS & LIAB.	4.376.666	5.864.249	6.534.669	5.849.836	5.753.359	5.423.095	4.247.208	3.351.789	2.900.816
Memo lines									
Working capital	1.458.419	2.448.841	2.393.871	2.184.979	2.423.192	2.054.578	1.485.217	1.208.694	1.178.870
Net current assets	161.092	1.607.453	2.462.614	2.204.107	2.136.259	1.698.053	1.326.172	93.355	269.800
Enterprise value	3.376.450	4.842.814	4.101.239	1.647.877	2.115.790	2.100.948	1.945.521	n.a.	n.a.
Number of employees	11.033	11.195	11.486	11.708	11.884	11.952	11.531	11.362	11.118

Tab. 2 - China First Heavy Industries Company Profit & Loss Account

Annual report/Consolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD	31/12/2008 th USD
	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR
Exchange rate: CNY/USD	0.14389	0.15405	0.16343	0.16387	0.15899	0.15871	0.15099	0.14645	0.14631
Profit & loss account									
Operating revenue (Turnover)	449.327	765.845	1.187.512	1.361.602	1.317.579	1.381.895	1.287.340	1.329.479	1.486.086
Sales	440.025	750.829	1.156.022	1.361.602	1.317.579	1.381.895	1.287.340	1.329.479	1.473.782
Costs of goods sold	493.411	665.924	976.749	1.080.460	958.552	977.421	881.283	866.705	1.035.374
Gross profit	-44.084	99.921	210.763	281.142	359.027	404.474	406.057	462.774	450.713
Other operating expenses	243.269	239.168	245.393	250.088	298.210	275.019	254.894	219.609	181.601
Operating P/L [=EBIT]	-287.353	-139.247	-34.630	31.054	60.817	129.455	151.163	243.165	269.111
Financial revenue	6.803	10.821	12.414	4.531	9.060	6.610	9.222	0	1.759
Financial expenses	517.618	150.705	-35.436	10.103	56.873	52.214	-12.817	48.489	69.656
Financial P/L	-510.815	-139.884	47.850	-5.572	-47.814	-45.604	22.040	-48.489	-67.897
P/L before tax	-798.168	-279.132	13.220	25.482	13.004	83.851	173.202	194.677	201.214
Taxation	34.952	360	10.068	23.219	8.784	15.221	52.345	21.211	54.992

P/L after tax	-833.120	-279.492	3.153	2.263	4.219	68.630	120.857	173.466	146.222
Extr. and other revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extr. and other expenses	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extr. and other P/L	8.058	2.968	1.044	556	445	-1.499	-1.605	697	1.023
P/L for period [=Net income]	-825.062	-276.524	4.197	2.818	4.665	67.131	119.252	174.163	147.245
Memo lines									
Export revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Material costs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of employees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Depreciation & Amortization	76.958	94.247	85.159	88.775	117.647	93.840	78.059	61.039	42.620
Other operating items	124.364	104.804	119.555	118.872	139.177	144.152	123.806	158.570	138.981
Interest paid	106.851	119.987	111.894	97.431	80.290	44.645	43.392	66.813	59.939
Research & Development expenses	41.947	40.117	40.679	42.441	41.386	37.027	53.029	0	0
Cash flow	-748.104	-182.277	89.355	91.593	122.312	160.970	197.311	235.202	189.865
Added value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBITDA	-210.395	-45.000	50.529	119.828	178.464	223.295	229.222	304.204	311.731

Tab. 3 - China First Heavy Industries Company Financial Ratios

Annual report/Consolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD	31/12/2008 th USD
	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR	12 months Unqual Local GAAP AR
Exchange rate: CNY/USD	0.14389	0.15405	0.16343	0.16387	0.15899	0.15871	0.15099	0.14645	0.14631
Profitability ratios									
ROE using P/L before tax (%)	-59,71	-12,01	0,48	0,92	0,49	3,16	6,98	29,99	55,60
ROCE using P/L before tax (%)	-42,02	-4,89	2,96	3,14	2,51	3,94	8,07	21,43	27,71
ROA using P/L before tax (%)	-18,24	-4,76	0,20	0,44	0,23	1,55	4,08	5,81	6,94
ROE using Net income (%)	-61,73	-11,90	0,15	0,10	0,18	2,53	4,81	26,83	40,69
ROCE using Net income (%)	-43,65	-4,81	2,75	2,56	2,28	3,43	6,06	19,75	21,98
ROA using Net income (%)	-18,85	-4,72	0,06	0,05	0,08	1,24	2,81	5,20	5,08
Profit margin (%)	n.s.	-36,45	1,11	1,87	0,99	6,07	13,45	14,64	13,54
Gross margin (%)	-9,81	13,05	17,75	20,65	27,25	29,27	31,54	34,81	30,33
EBITDA margin (%)	-46,82	-5,88	4,26	8,80	13,55	16,16	17,81	22,88	20,98
EBIT margin (%)	-63,95	-18,18	-2,92	2,28	4,62	9,37	11,74	18,29	18,11
Cash flow / Operating revenue (%)	n.s.	-23,80	7,53	6,73	9,28	11,65	15,33	17,69	12,78
Enterprise value / EBITDA (x)	n.s.	n.s.	81,17	13,75	11,86	9,41	8,49	n.a.	n.a.
Market cap / Cash flow from operations (x)	24,76	n.s.	n.s.	3,22	n.s.	n.s.	n.s.	n.a.	n.a.
Operational ratios									
Net assets turnover (x)	0,27	0,24	0,28	0,35	0,35	0,42	0,48	1,09	1,58
Interest cover (x)	-2,69	-1,16	-0,31	0,32	0,76	2,90	3,48	3,64	4,49

Stock turnover (x)	0,91	0,76	1,07	1,07	1,07	1,19	1,57	1,77	1,74
Collection period (days)	n.s.	943	572	413	492	392	322	226	166
Credit period (days)	388	263	183	173	167	159	136	102	87
Export revenue / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R&D expenses / Operating revenue (%)	9,34	5,24	3,43	3,12	3,14	2,68	4,12	0,00	0,00
Structure ratios									
Current ratio (x)	1,06	1,62	2,07	2,14	2,05	1,79	1,85	1,04	1,14
Liquidity ratio (x)	0,88	1,23	1,59	1,48	1,44	1,25	1,32	0,69	0,70
Shareholders liquidity ratio (x)	4,33	2,50	1,91	2,42	2,49	4,37	12,12	1,14	0,62
Solvency ratio (Asset based) (%)	30,54	39,63	42,43	47,41	46,17	48,92	58,40	19,37	12,48
Solvency ratio (Liability based) (%)	43,97	65,64	73,70	90,15	85,78	95,76	n.s.	24,02	14,25
Gearing (%)	154,47	104,41	94,00	61,47	68,25	52,70	31,84	282,71	405,46
Per employee ratios									
Profit per employee (th)	-72	-25	1	2	1	7	15	17	18
Operating revenue per employee (th)	41	68	103	116	111	116	112	117	134
Costs of employees / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average cost of employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shareholders funds per employee (th)	121	208	241	237	224	222	215	57	33
Working capital per employee (th)	132	219	208	187	204	172	129	106	106
Total assets per employee (th)	397	524	569	500	484	454	368	295	261

5.1.2 Wuhan Iron and Steel Group

“Wuhan Iron and Steel (Group) Corp.” has been established in 1958 in Wuhan, Hubei province in central China. The company manly engages in the manufacturing of intelligent equipment, intelligent city construction, as well as logistics services, software development and information technology services, energy conservation and environment protection, civil engineering building, management of old-age service enterprises; design, manufacturing of metallurgical products and their by-products, metallurgical minerals and iron and steel extension products, chemical products excluding hazardous chemicals, building materials, metallurgical auxiliary materials, complete metallurgical equipment, mechanical and electrical equipment, sale of automobile to the exclusion of cars, production and supply of fuel gas, industrial technology development and consulting service. The company principally operates this category through subsidiaries including WISCO Echeng Iron & Steel Co., Ltd, Wuhan Iron & Steel Co., Ltd., WISCO Kunming Iron & Steel Co., Ltd and Guangxi Iron & Steel Group Co., Ltd.

On 1 December 2016, the company merged with Shanghai-based Baosteel Group through an equity swap creating China’s second biggest producer of steel: China Baowu Steel Group. The new firm has an output capacity of 60 million tonnes of steel, a registered capital of 52.79 billion Chinese yuan, an asset scale of 739.5 billion Chinese yuan and a number of employees equal to 228,000.

China Baowu is a pilot enterprise of state-owned capital investment company as both Baosteel Group and Wuhan iron and steel group are state-owned enterprises. In 2016, China Baowu achieved the best performance in Chinese steel industry, realizing an operating revenue of RMB 307.2 billion and a profit of 7.02 billion. According to the orientation of state-owned capital investment company, China Baowu, with the development concept of "Innovation, coordination, green, open and sharing" carries out the mission of driving the development of green steel industry ecosphere becoming the corporate model of common development of employee and enterprise. This merging is in line with the recent government policies which entails the creation of big national champions in order to reduce competition and avoid the liquidation of debt-ridden state-owned companies.

The company has 7300 employees in 2016 and it is a limited liability company. The financial report is unconsolidated and follows the local GAAP, the company is 100% directly controlled by the State-owned Asset Supervision and Administration Commission of the State Council. The corporation group includes 16456 companies while Wuhan iron and steel group owns 33 subsidiaries.

Tab. 4 - Balance Sheet Vertical Analysis (USD)

	2016		2015		2014		2013	
TOTAL ASSETS	13,064,335,147		11,926,652,756		18,137,351,379		38,570,547,972	
Fixed assets	8,898,208,150	68.11%	9,973,210,654	83.62%	15,850,028,223	87.39%	27,534,561,197	71.39%
Stock	282,310	0.00%	976,662	0.01%	2,078,771	0.01%	5,335,426,862	13.83%
Debtors	84,160,124	0.64%	436,874,354	3.66%	243,368,204	1.34%	1,315,041,578	3.41%
Cash & cash equiv.	503,666,461	3.86%	177,612,254	1.49%	81,709,432	0.45%	n.a.	n.a.
Shareholders funds	5,219,718,806	39.95%	4,645,305,181	38.95%	5,598,803,882	30.87%	12,901,538,297	33.45%
Long term debt	3,098,380,104	23.72%	988,292,336	8.29%	6,145,112,117	33.88%	n.a.	n.a.
Loans	3,208,058,517	24.56%	1,901,870,049	15.95%	2,585,151,240	14.25%	0	0.00%
Creditors	274,472,084	2.10%	70,963,564	0.59%	75,486,193	0.42%	3,276,374,757	8.49%

	2012		2011		2009		2008	
TOTAL ASSETS	37,051,310,659		35,260,422,276		25,750,350,331		22,829,121,362	
Fixed assets	25,115,908,899	67.79%	23,157,595,820	65.68%	18,734,433,752	72.75%	16,292,625,764	71.37%
Stock	5,291,337,458	14.28%	5,484,092,216	15.55%	2,962,606,394	11.51%	2,858,041,653	12.52%
Debtors	4,026,485,992	10.87%	3,501,232,486	9.93%	490,696,352	1.91%	300,088,220	1.31%
Cash & cash equiv.	1,059,605,987	2.86%	1,801,758,937	5.11%	n.a.	n.a.	n.a.	n.a.
Shareholders funds	12,421,963,691	33.53%	12,500,173,974	35.45%	9,739,898,604	37.82%	9,546,639,930	41.82%
Long term debt	4,385,123,097	11.84%	3,071,595,455	8.71%	3,311,125,898	12.86%	3,511,544,694	15.38%
Loans	9,614,733,579	25.95%	7,695,705,931	21.83%	0	0.00%	0	0.00%
Creditors	3,240,679,444	8.75%	2,503,595,492	7.10%	1,746,775,490	6.78%	1,727,439,014	7.57%

From the vertical analysis, it can be noted that in the last year the loans entry has been considerably increasing reaching 25% of total assets value. In 2009 and 2008 this entry was equal to 0 meaning that the company did not have any pending loans which is unusual for any business, on the other hand the long-term debt has been fluctuating across the years starting from 15% of total assets in 2008 and reaching 24% in 2016. Shareholders' funds were slightly decreasing from 2008 to 2014, and then rapidly increased during the last two reported financial years reaching 40% of total assets in 2016. The increase in the shareholders' funds is linked with the rise in the cash and cash equivalent entry which, even though is low, in 2016 reached one of the highest value recorded (3.86% of total assets). Most of the company's assets are fixed assets which is reasonable considering the sector the company is involved in; however, since 2014 the firm has been reducing its fixed assets reaching 68% of total assets in 2016. The company has never been keeping a great amount of stock, in the last three available financial years the stock entry registered 0% of total assets, the highest level was reached in 2011 when it was equal to 16% of total assets. This data is not in line with the industry levels as steel and iron are among the most overcapacity-affected sectors. The cash and cash equivalent line accounts only for a small percentage of total assets highlighting the fact that the company is not liquid enough. Long-term debt did not increase after the 2008 financial crisis; however, it rose considerably in 2014 reaching 34% of total assets while in 2016 it underwent a contraction of 9 percentage points, in line with the government policies of decreasing the SOEs' leverage. The short-term debt figure has also been rising with the loan entry reaching 25% of total assets in 2016 from the 14% of 2014, this scenario might be associated with the evergreening phenomenon which entails continuous granting of debt by financial institution to allow the company to repay its interest payments. The creditors entry decreased considerably during the years registering 2% of total assets in 2016 meaning that the company is efficient in the repayment of suppliers, on the other hand, the debtors line has been fluctuating during the years reaching 11% in 2012.

Tab. 5 - P/L Account Vertical Analysis (USD)

	2016		2015		2014		2013	
Sales	32,760,657		94,175,456		151,014,876		36,342,716,375	
COGS	10,642,033	32.48%	69,349,146	73.64%	100,065,373	66.26%	33,847,403,141	93.13%
Gross profit	22,118,623	67.52%	45,268,426	48.07%	50,949,503	33.74%	2,544,557,792	7.00%
EBIT	-32,282,945	-98.54%	-69,306,012	-73.59%	-116,025,498	-76.83%	627,048,353	1.73%
Taxation	0	0.00%	-49,022,566	-52.05%	-94,600,428	-62.64%	140,749,536	0.39%
Net Income	-161,875,170	-494.11%	8,076,715	8.58%	16,693,905	11.05%	-58,714,602	-0.16%

	2012		2011		2009		2008	
Sales	33,269,213,175		34,422,218,853		20,438,942,468		17,835,053,956	
COGS	31,378,775,520	94.32%	32,036,758,547	93.07%	18,665,301,627	91.32%	15,441,331,929	86.58%
Gross profit	1,928,786,356	5.80%	2,479,148,350	7.20%	1,773,640,841	8.68%	2,423,616,534	13.59%
EBIT	288,447,429	0.87%	789,882,548	2.29%	528,145,312	2.58%	1,419,058,283	7.96%
Taxation	65,425,144	0.20%	222,522,018	0.65%	67,467,411	0.33%	110,791,119	0.62%
Net Income	47,001,080	0.14%	793,655,819	2.31%	300,233,429	1.47%	840,691,020	4.71%

As long as the profit and loss account is concerned, it can be notice that the EBIT of the "Wuhan iron and steel group" has been declining dramatically during the years. Cost of goods sold (COGS) as a percentage of sales has been increasing from 2008 (86.58%) to 2012 (94.32%), while it decreased considerably n 2016 reaching 32.48% of sales. These data are not consistent with the government anti-dumping policies and with the general trend of the sector, therefore, the company might be purchasing raw material at a price which is lower than the market one thanks to special connections or government aid. The EBIT and net income indices for the last year highlight a critical situation for the company's profitability: both entries are negative, the EBIT line recorded -98.54% of sales while the net income registered -494.11%. Conversely, the gross profit has been rising sharply which corroborates the fact that the company is facing big operating and administrative expenses as, on the contrary, the EBIT rate is very low. It is interesting to notice that the tax entry is a small percentage of sales ranging from -63% to 5% in 2016. In this case the negative figure in the tax entry indicates that not only the company is not paying taxes to the state, but is the company itself receiving tax money, moreover the transaction is not backed by an excessive tax payment in the past as the firm has never paid more than the 25% income tax rate established for the resident enterprise in China.

Tab. 7 - Balance Sheet Horizontal Analysis

	2016/2015	2015/2014	2014/2013	2013/2012	2012/2011	2011/2009	2009/2008
Fixed assets	-10.78%	-37.08%	-42.44%	9.63%	8.46%	23.61%	14.99%
Intan. fixed assets	-6.59%	-6.59%	n.a.	n.a.	32.21%	n.a.	n.a.
Tan. fixed assets	-15.80%	-9.84%	-96.95%	-11.52%	6.64%	58.73%	-7.29%
Other fixed assets	-10.66%	-38.78%	n.a.	n.a.	11.11%	n.a.	n.a.
Current assets	113.27%	-14.60%	-79.27%	-7.54%	-1.38%	72.51%	7.33%
Stock	-71.09%	-53.02%	-99.96%	0.83%	-3.51%	85.11%	3.66%
Debtors	-80.74%	79.51%	-81.49%	-67.34%	15.00%	613.52%	63.52%
Other curr. assets	169.31%	-25.77%	-53.44%	67.54%	-16.04%	-12.49%	5.45%
Cash & cash equiv.	183.58%	117.37%	n.a.	n.a.	-41.19%	n.a.	n.a.
TOTAL ASSETS	9.54%	-34.24%	-52.98%	4.10%	5.08%	36.93%	12.80%
Shareholders funds	12.37%	-17.03%	-56.60%	3.86%	-0.63%	28.34%	2.02%
Capital	55.88%	-5.74%	5.37%	16.73%	4.36%	24.86%	0.09%
Other shareh. funds	-30.42%	-25.77%	-70.18%	1.41%	-1.52%	28.99%	2.39%
Non-current liab.	220.41%	-83.75%	10.16%	27.21%	42.76%	-7.23%	-5.71%
Long term debt	213.51%	-83.92%	n.a.	n.a.	42.76%	-7.23%	-5.71%
Other non-curr liab.	900.93%	n.c.v.	n.a.	n.a.	n.c.v.	n.c.v.	n.c.v.
Provisions	n.a.	n.a.	n.a.	n.a.	n.c.v.	n.c.v.	n.c.v.
Current liabilities	-26.06%	-1.73%	-68.18%	-0.76%	2.82%	55.04%	29.97%
Loans	68.68%	-26.43%	n.c.v.	-100.00%	24.94%	n.c.v.	n.c.v.
Creditors	286.78%	-5.99%	-97.70%	1.10%	29.44%	43.33%	1.12%
Other curr. liabilities	-73.01%	15.47%	-77.80%	127.57%	-22.14%	-13.36%	36.17%
TOT. S. FUNDS & LIAB.	9.54%	-34.24%	-52.98%	4.10%	5.08%	36.93%	12.80%

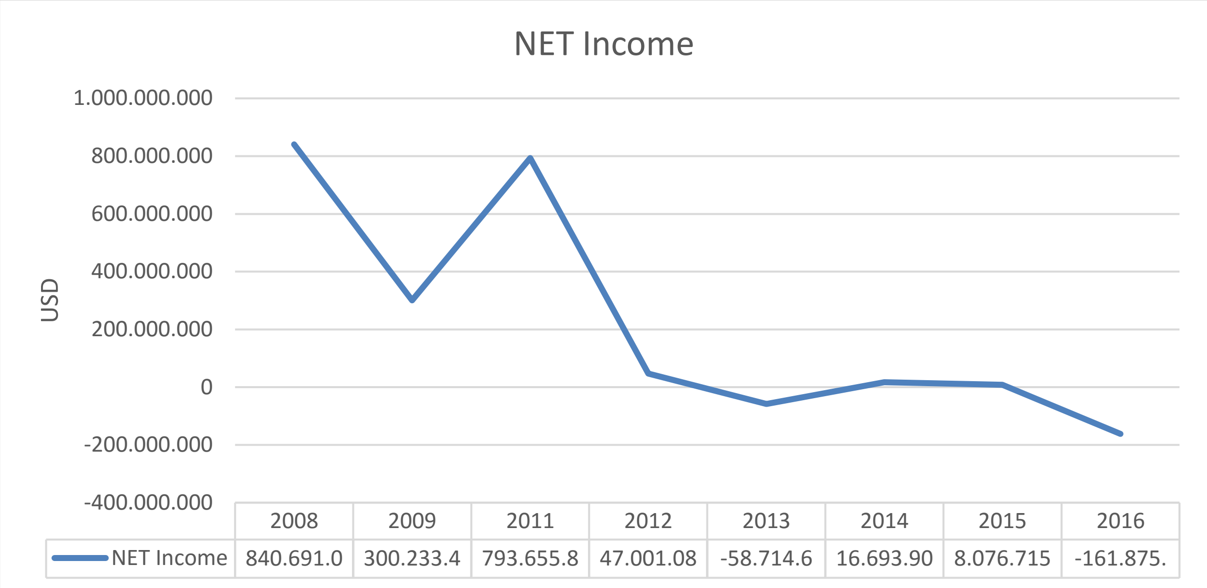
The balance sheet highlights that the company has been cutting its own fixed assets since 2013, intangible assets since 2014 and tangible assets since 2012, at the same time the company reduced its stock levels and collected money from its debtors, it is plausible that the company has been selling out some of its assets in order to get more liquidity to repay its short-term debts as current liabilities have plunged by 26% during the last financial year, while the non-current liabilities escalated sharply in 2016 registering an increase of 220% as compared to 2015. Shareholders' equity registered an increase in 2016 despite the negative trend of the two previous years, it is possible that, in view of the merging with Baosteel Group, the company has been trying to clean its balance sheet from excessive current liabilities.

Tab. 8 - P/L Account Horizontal Analysis

	2016/2015	2015/2014	2014/2013	2013/2012	2012/2011	2011/2009	2009/2008
Operating revenue	-71.42%	-24.10%	-99.59%	9.26%	-3.50%	68.87%	14.41%
Sales	-65.21%	-37.64%	-99.58%	9.24%	-3.35%	68.41%	14.60%
COGS	-84.65%	-30.70%	-99.70%	7.87%	-2.05%	71.64%	20.88%
Gross profit	-51.14%	-11.15%	-98.00%	31.93%	-22.20%	39.78%	-26.82%
Other op. expenses	-52.52%	-31.38%	-91.29%	16.90%	-2.90%	35.63%	23.98%
EBIT	53.42%	40.27%	-118.50%	117.39%	-63.48%	49.56%	-62.78%
Financial revenue	-109.54%	38.45%	186.42%	-42.31%	-82.50%	442.52%	-5.76%
Financial expenses	-27.66%	9.95%	-53.81%	0.92%	18.77%	49.70%	36.99%
Financial P/L	-896.63%	66.92%	85.84%	-12.12%	-337.65%	196.69%	-91.46%
P/L before tax	-211.73%	51.23%	-463.53%	124.38%	-122.14%	228.60%	-76.53%
Taxation	100.00%	48.18%	-167.21%	115.13%	-70.60%	229.82%	-39.10%
P/L after tax	-536.08%	54.05%	-18.51%	69.95%	-136.80%	228.26%	-80.01%
Extr. and other P/L	149.70%	-53.71%	328.76%	-91.70%	2860.18%	-81.72%	117.61%
Net income	-2104.22%	-51.62%	128.43%	-224.92%	-94.08%	164.35%	-64.29%

From the horizontal analysis of the firm's income statement it is clear that the company has been declining dramatically during the years as the sales entry has dropped during the last four years and consequently, the EBIT, gross profit, and net income declined as well. The COGS has been diminishing during the last three years as well because it is related to the decrease in the amount of sales. The financial expenses account has been fluctuating considerably during the years and it has been decreasing in the last year registering a -28 change percentage between 2016 and 2015, which means that the company has been paying less interest expenses in the last year compared to 2015. The taxation entry highlights that the company has been paying less taxes in the last three years while between 2012 and 2013 as well as between 2009 and 2011 the tax line has surged sharply reaching respectively 115 and 230 change percentages.

"Wuhan Iron and Steel Group" registered very negative actual profit for the 2016 financial year (1) and negative EBIT for the last three reported years. (1)

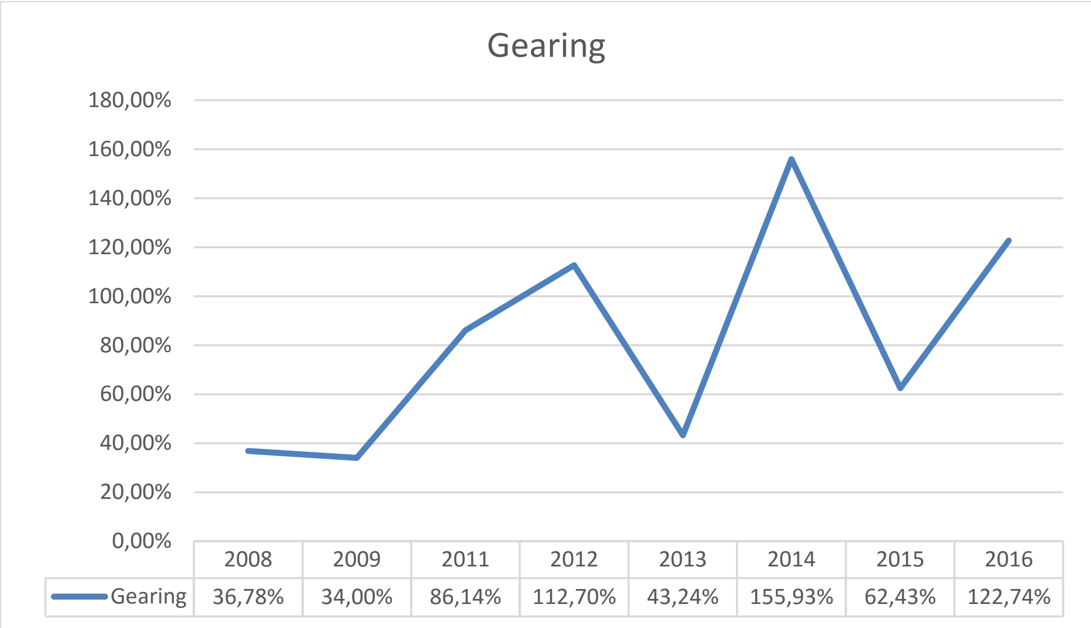


After having investigated the company's profitability, I report the table which depicts the firm's financial condition and includes the company's current and non-current liabilities, market interest rate, the minimum interest payment computed with the Caballero's simplified formula, the actual interest expenses of the firm, the difference between the minimum required payment and the company's paid interest expense, and the actual interest rate paid by the company computed dividing the total debt by the interest paid. (2)

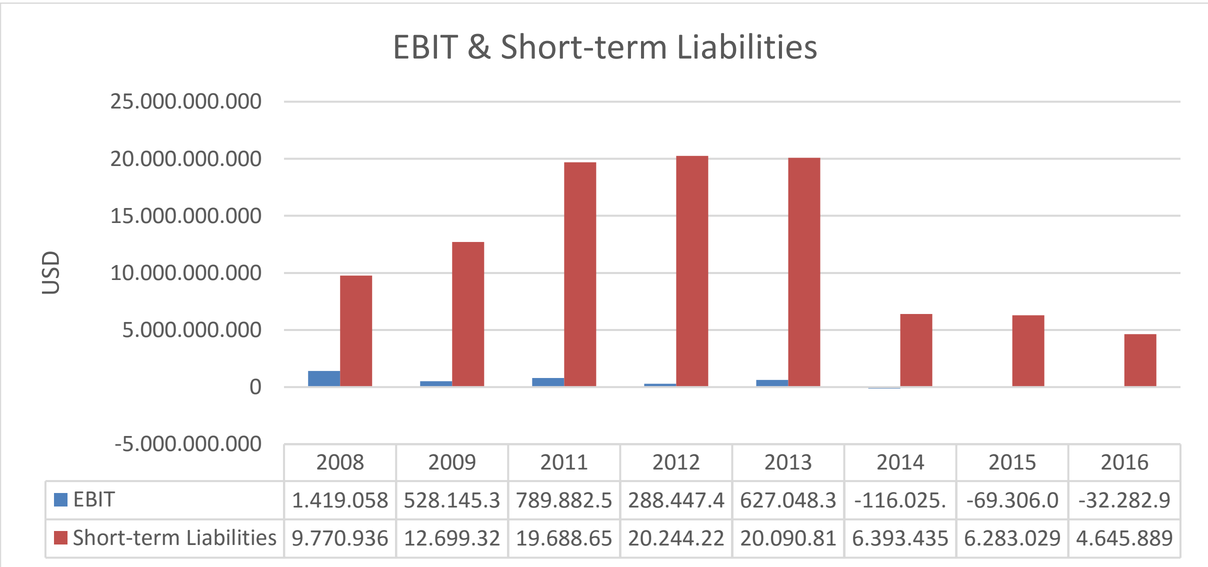
	2016	2015	2014	2013
Current liabilities	4,645,889,172	6,283,029,821	6,393,435,380	20,090,819,317
Non-current liab.	3,198,727,169	998,317,753	6,145,112,117	5,578,190,357
Interest rates	4.35%	4.35%	5.60%	6.00%
R*	370,349,228	330,235,876	726,370,402	1,536,570,539
Interest paid	238,519,106	329,704,983	299,872,537	649,200,292
R*- Ri	131,830,122	530,892	426,497,865	887,370,246
Actual interest cost	3.04%	4.53%	2.39%	2.53%

	2012	2011	2009	2008
Current liabilities	20,244,223,871	19,688,652,847	12,699,325,829	9,770,936,738
Non-current liab.	4,385,123,097	3,071,595,455	3,311,125,898	3,511,544,694
Interest rates	6.00%	6.56%	5.31%	5.31%
R*	1,468,902,869	1,480,601,611	871,611,083	729,950,808
Interest paid	643,286,678	541,615,002	361,805,289	264,110,987
R*- Ri	825,616,192	938,986,609	509,805,793	465,839,821
Actual interest cost	2.61%	2.38%	2.26%	1.99%

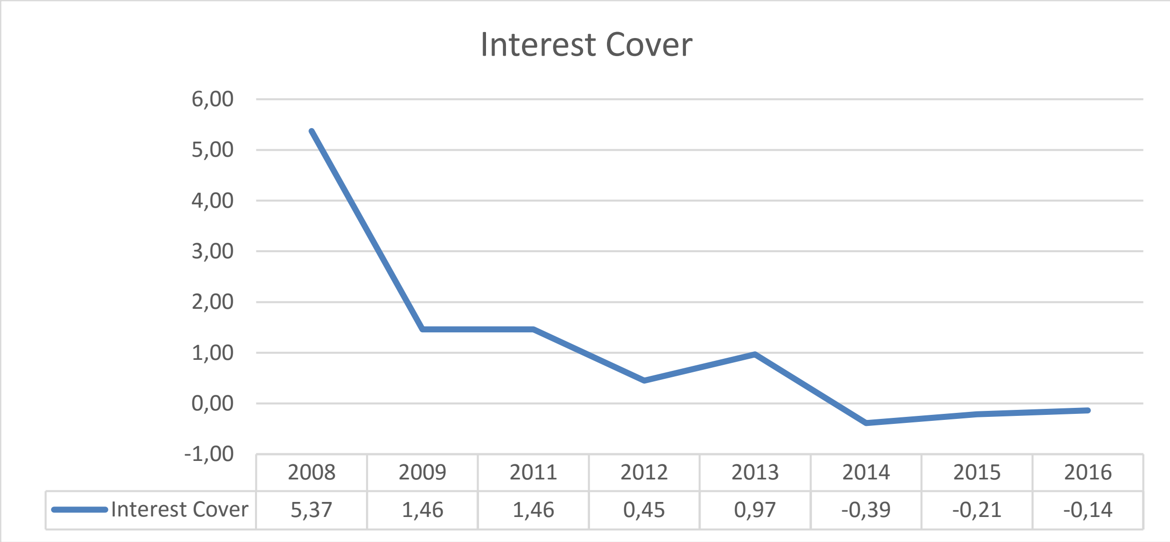
The table highlights that, apart for year 2015, the company has been paying smaller interest rates than the market ones, confirming the fact that the firm has been receiving subsidized credit. It can be noticed that Wuhan Iron and Steel Group has been decreasing current liabilities in the last five years and increasing non-current liabilities in the last year.



The figure above shows that the gearing ratio has been increasing between 2013 and 2014, as well as between 2015 and 2016 reaching 122,74% in 2016 and 155,93% in 2014. However, the gearing ratio has been fluctuating a lot across financial years, registering indices lower than the Nakamura and Fukuda's threshold of 50% in 2008 and 2009. (3)



The graph above focuses on the relationship between the company's EBIT and short-term liabilities, highlighting that the firm has not sufficient liquidity to repay its short-term obligation. (4)



The last graph shows the firm's interest cover which is expressed as the relationship between the company's EBIT and interest expenses. It can be noticed that the firm is not able to repay its interest expenses as the interest cover is even negative in the last three reported years. (5)

	2008	2009	2011	2012
Number of employees	106,999	100,726	120,000	120,000
Fixed assets (USD)	16,292,625,764	18,734,433,752	23,157,595,820	25,115,908,899
Profit margin (%)	7.29	1.50	2.91	-0.67
ROE using P/L b.tax (%)	13.65	3.14	8.04	-1.79
ROA using P/L b.tax (%)	5.71	1.19	2.85	-0.60

	2013	2014	2015	2016
Number of employees	7,300	7,300	7,300	7,300
Fixed assets (USD)	27,534,561,197	15,850,028,223	9,973,210,654	8,898,208,150
Profit margin (%)	0.15	-130.54	-83.88	-914.77
ROE using P/L b.tax (%)	0.42	-3.52	-2.07	-5.74
ROA using P/L b.tax (%)	0.14	-1.09	-0.81	-2.29

As it can be noticed from the chart above the company has not been increasing its employment rate, on the contrary, between 2012 and 2013 the company has been laying off 112,700 people. On the other hand, the company has been rising its fixed assets by 69% from 2008 to 2013 and then decreased by 68% from 2013 to 2016. The profit margin has been fluctuating across the years, however, since 2012 the company registered negative profit margin figures reaching -914.77% in 2016 due to a plunge in the sales account. The ROE figure highlights that the firm is not managing well its shareholder capital to obtain net income, to the extent that for the last financial year the company is losing $5.74 for each dollar of equity. The ROA entry shows that the firm is not managing well its assets to produce capital, this trend might be explained with the plunge in the net income account. Below I report the financial statements of the "Wuhan Iron and Steel Group" from year 2008 to 2016.

Tab. 4 - Wuhan Iron and Steel Group Balance Sheet

Local registry filing/Unconsolidated	31/12/2016 USD	31/12/2015 USD	31/12/2014 USD	31/12/2013 USD	31/12/2012 USD	31/12/2011 USD	31/12/2009 USD	31/12/2008 USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.14645	12 months Local GAAP 0.14631
Balance sheet								
Assets								
Fixed assets	8.898.208.150	9.973.210.654	15.850.028.223	27.534.561.197	25.115.908.899	23.157.595.820	18.734.433.752	16.292.625.764
Intangible fixed assets	308.643.429	330.433.628	353.731.012	n.a.	1.368.964.284	1.035.416.517	n.a.	n.a.
Tangible fixed assets	407.792.474	484.299.446	537.133.533	17.606.411.628	19.897.946.852	18.658.131.980	11.754.982.419	12.679.406.359
Other fixed assets	8.181.772.246	9.158.477.580	14.959.163.678	n.a.	3.848.997.762	3.464.047.323	n.a.	n.a.
Current assets	4.166.126.997	1.953.442.102	2.287.323.156	11.035.986.775	11.935.401.761	12.102.826.456	7.015.916.579	6.536.495.598
Stock	282.310	976.662	2.078.771	5.335.426.862	5.291.337.458	5.484.092.216	2.962.606.394	2.858.041.653
Debtors	84.160.124	436.874.354	243.368.204	1.315.041.578	4.026.485.992	3.501.232.486	490.696.352	300.088.220
Other current assets	4.081.684.563	1.515.591.086	2.041.876.180	4.385.518.334	2.617.578.311	3.117.501.753	3.562.613.833	3.378.365.725
Cash & cash equivalent	503.666.461	177.612.254	81.709.432	n.a.	1.059.605.987	1.801.758.937	n.a.	n.a.
TOTAL ASSETS	13.064.335.147	11.926.652.756	18.137.351.379	38.570.547.972	37.051.310.659	35.260.422.276	25.750.350.331	22.829.121.362
Liabilities & Equity								
Shareholders funds	5.219.718.806	4.645.305.181	5.598.803.882	12.901.538.297	12.421.963.691	12.500.173.974	9.739.898.604	9.546.639.930
Capital	3.590.031.254	2.303.011.522	2.443.209.743	2.318.759.753	1.986.416.092	1.903.499.957	1.524.541.823	1.523.114.407
Other shareholders funds	1.629.687.552	2.342.293.659	3.155.594.139	10.582.778.544	10.435.547.598	10.596.674.017	8.215.356.781	8.023.525.524

Non-current liabilities	3.198.727.169	998.317.753	6.145.112.117	5.578.190.357	4.385.123.097	3.071.595.455	3.311.125.898	3.511.544.694
Long term debt	3.098.380.104	988.292.336	6.145.112.117	n.a.	4.385.123.097	3.071.595.455	3.311.125.898	3.511.544.694
Other non-current liabilities	100.347.065	10.025.417	0	n.a.	0	0	0	0
Provisions	n.a.	n.a.	0	n.a.	0	0	0	0
Current liabilities	4.645.889.172	6.283.029.821	6.393.435.380	20.090.819.317	20.244.223.871	19.688.652.847	12.699.325.829	9.770.936.738
Loans	3.208.058.517	1.901.870.049	2.585.151.240	0	9.614.733.579	7.695.705.931	0	0
Creditors	274.472.084	70.963.564	75.486.193	3.276.374.757	3.240.679.444	2.503.595.492	1.746.775.490	1.727.439.014
Other current liabilities	1.163.358.570	4.310.196.208	3.732.797.947	16.814.444.561	7.388.810.848	9.489.351.424	10.952.550.339	8.043.497.724
TOTAL SHAREH. FUNDS & LIAB.	13.064.335.147	11.926.652.756	18.137.351.379	38.570.547.972	37.051.310.659	35.260.422.276	25.750.350.331	22.829.121.362
Memo lines								
Working capital	-190.029.650	366.887.451	169.960.783	3.374.093.684	6.077.144.006	6.481.729.210	1.706.527.256	1.430.690.858
Net current assets	-479.762.175	-4.329.587.719	-4.106.112.224	-9.054.832.543	-8.308.822.111	-7.585.826.391	-5.683.409.250	-3.234.441.140
Enterprise value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of employees	7.300	7.300	7.300	7.300	120.000	120.000	100.726	106.999

Tab. 5 - Wuhan Iron and Steel Group Profit & Loss Account

Local registry filing/Unconsolidated	31/12/2016 USD	31/12/2015 USD	31/12/2014 USD	31/12/2013 USD	31/12/2012 USD	31/12/2011 USD	31/12/2009 USD	31/12/2008 USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.14645	12 months Local GAAP 0.14631
Profit & loss account								
Operating revenue (Turnover)	32.760.657	114.617.571	151.014.876	36.391.960.933	33.307.561.876	34.515.906.897	20.438.942.468	17.864.948.462
Sales	32.760.657	94.175.456	151.014.876	36.342.716.375	33.269.213.175	34.422.218.853	20.438.942.468	17.835.053.956
Costs of goods sold	10.642.033	69.349.146	100.065.373	33.847.403.141	31.378.775.520	32.036.758.547	18.665.301.627	15.441.331.929
Gross profit	22.118.623	45.268.426	50.949.503	2.544.557.792	1.928.786.356	2.479.148.350	1.773.640.841	2.423.616.534
Other operating expenses	54.401.568	114.574.438	166.975.001	1.917.509.439	1.640.338.927	1.689.265.802	1.245.495.529	1.004.558.250
Operating P/L [=EBIT]	-32.282.945	-69.306.012	-116.025.498	627.048.353	288.447.429	789.882.548	528.145.312	1.419.058.283
Financial revenue	-28.881.408	302.874.514	218.764.510	76.379.782	132.385.522	756.597.462	139.459.441	147.981.736
Financial expenses	238.519.106	329.704.983	299.872.537	649.200.292	643.286.678	541.615.002	361.805.289	264.110.987
Financial P/L	-267.400.514	-26.830.469	-81.108.026	-572.820.510	-510.901.156	214.982.461	-222.345.849	-116.129.251
P/L before tax	-299.683.459	-96.136.482	-197.133.524	54.227.843	-222.453.727	1.004.865.009	305.799.463	1.302.929.032
Taxation	0	-49.022.566	-94.600.428	140.749.536	65.425.144	222.522.018	67.467.411	110.791.119

P/L after tax	-299.683.459	-47.113.916	-102.533.096	-86.521.693	-287.878.871	782.342.991	238.332.052	1.192.137.914
Extr. and other revenue	139.559.419	-55.412.460	125.580.981	274.895.114	380.905.929	109.198.050	n.a.	n.a.
Extr. and other expenses	10.732.683	6.639.451	5.030.234	19.202.280	19.717.152	27.827.929	27.388.915	19.016.328
Extr. and other P/L	137.808.289	55.190.631	119.227.001	27.807.091	334.879.951	11.312.828	61.901.376	-351.446.893
P/L for period [=Net income]	-161.875.170	8.076.715	16.693.905	-58.714.602	47.001.080	793.655.819	300.233.429	840.691.020
Memo lines								
Export revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Material costs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of employees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Depreciation & Amortization	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other operating items	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Interest paid	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Research & Development expenses	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cash flow	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Added value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBITDA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Tab. 6 - Wuhan Iron and Steel Group Financial Ratios

Local registry filing/Unconsolidated	31/12/2016 USD	31/12/2015 USD	31/12/2014 USD	31/12/2013 USD	31/12/2012 USD	31/12/2011 USD	31/12/2009 USD	31/12/2008 USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.14645	12 months Local GAAP 0.14631
Profitability ratios								
ROE using P/L before tax (%)	-5,74	-2,07	-3,52	0,42	-1,79	8,04	3,14	13,65
ROCE using P/L before tax (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using P/L before tax (%)	-2,29	-0,81	-1,09	0,14	-0,60	2,85	1,19	5,71
ROE using Net income (%)	-3,10	0,17	0,30	-0,46	0,38	6,35	3,08	8,81
ROCE using Net income (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using Net income (%)	-1,24	0,07	0,09	-0,15	0,13	2,25	1,17	3,68
Profit margin (%)	n.s.	-83,88	n.s.	0,15	-0,67	2,91	1,50	7,29
Gross margin (%)	67,52	39,50	33,74	6,99	5,79	7,18	8,68	13,57
EBITDA margin (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBIT margin (%)	-98,54	-60,47	-76,83	1,72	0,87	2,29	2,58	7,94
Cash flow / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Enterprise value / EBITDA (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Market cap / Cash flow from operations (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Operational ratios								
Net assets turnover (x)	0,00	0,02	0,01	1,97	1,98	2,22	1,57	1,37
Interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Stock turnover (x)	116,05	117,36	72,65	6,82	6,30	6,29	6,90	6,25

Collection period (days)	925	n.s.	580	13	44	37	9	6
Credit period (days)	n.s.	223	180	32	35	26	31	35
Export revenue / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R&D expenses / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Structure ratios								
Current ratio (x)	0,90	0,31	0,36	0,55	0,59	0,62	0,55	0,67
Liquidity ratio (x)	0,90	0,31	0,36	0,28	0,33	0,34	0,32	0,38
Shareholders liquidity ratio (x)	1,63	4,65	0,91	2,31	2,83	4,07	2,94	2,72
Solvency ratio (Asset based) (%)	39,95	38,95	30,87	33,45	33,53	35,45	37,82	41,82
Solvency ratio (Liability based) (%)	66,54	63,80	44,65	50,26	50,44	54,92	60,84	71,87
Gearing (%)	122,74	62,43	155,93	43,24	112,70	86,14	34,00	36,78
Per employee ratios								
Profit per employee (th)	-41	-13	-27	7	-2	8	3	12
Operating revenue per employee (th)	4	16	21	4.985	278	288	203	167
Costs of employees / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average cost of employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shareholders funds per employee (th)	715	636	767	1.767	104	104	97	89
Working capital per employee (th)	-26	50	23	462	51	54	17	13
Total assets per employee (th)	1.790	1.634	2.485	5.284	309	294	256	213

5.2 Chemical Sector

The performance of the Chinese chemicals industry, which includes speciality chemicals, commodity chemicals, agricultural chemicals, and other chemicals, registered a fall of 5,6% in 2015 as the sector is still hampered by a lack of advanced technology, despite government efforts to accelerate the acquisition of Western know-how. 2015 was a difficult year for China in general with the stock market crash and oil price collapse but the chemicals market was able to continue its period of growth and did not fall into decline as many other commodity chemicals dominated countries did. The market is strong as a result of large investments, good trade routes and increasing domestic demand as a consequence of increased urbanization and industrialization, however following the slowdown in the Chinese GDP, the chemical industry is entering a phase of lower but solid growth.

Nonetheless, many Chinese firms do not invest enough in research and development and rely primarily on imported technology. The government is actively encouraging joint ventures between foreign companies and state-owned enterprises. However, the Chinese chemicals market is expected to generate total revenues of $1,622 billion in 2017, representing a compound annual growth rate (CAGR) of 7.1% between 2013 and 2017, as a matter of fact, China's growing industrialisation and urbanisation will provide further growth opportunities for the chemicals industry, and an expanding middle class will require higher-quality chemical products. Many subsectors have faced oversupplies because of the investment-led growth model that has resulted in excessive spending on new factories in the past. Overcapacity issues have resulted in deteriorating business profitability in some segments like Purified Terephthalic Acid (PTA) and fertilizers, while the lower oil price has hit the oil exploration industry. However, the oil-refining and petrochemicals sectors recorded sustained growth thanks to cost reduction and robust demand. The Chinese petrochemicals industry achieved revenues of CNY 13.29 trillion (EUR 1.79 trillion) in 2016, and profits remained stable around CNY 644.4 billion (EUR 87 billion) with profitability of 4.8% on average. Overcapacity has meanwhile abated in the fine and specialty chemicals segment, leading to market stabilization.

Competition in the Chinese chemicals sector is high as overcapacities have driven businesses to reduce output and cut prices in order to gain a competitive edge. This goes at the expense of smaller and medium-sized companies, which must leave the market or are being taken over by larger entities. The level of payment delays and insolvencies is average in the Chinese chemicals sector, and no major increase of business failures is expected in 2017, as demand for chemical products is relatively stable across all subsectors and among all consumer segments.

My research in the Chinese chemical sector focused on the manufacturing of chemical products such as oil while the analysed companies are: "Jizhong Energy Xingtai Mining Industry Group Company" and "PetroChina Lanzhou Petrochemical Company".

5.2.1 Jizhong Energy Xingtai Mining Industry Group Company

Jizhong Energy Xingtai Mining Industry Group Co. Ltd. operates as a diversified operation enterprise. The Company primarily engages in the manufacturing of chemical products, in addition to coal, electricity, health care, research, education, and other industrial fields.

It has been incorporated in 1990, it is headquartered in Xingtai, Hebei province, North China and it holds a limited liability company legal status. The financial statements are unconsolidated and follows the local registry filing rules (GAAP).

The corporation includes 196 companies while Jizhong Energy Xingtai Mining Industry Group Company holds 15 subsidiaries and is 100% controlled by one shareholder: Jizhong Energy Group Company LTD which is directly owned by the People's Government of Hebei Province State-owned Assets Supervision and Administration Commission.

Jizhong Energy Group Company LTD is a state-owned enterprise engaging in the extraction and selling of coal located in Hebei in North China. The company is among the seven largest coal firms in China and it is China second biggest metallurgical coal miner after Shanxi Coking Coal Group. The company was created in June 2008 following the merge of Jinniu Energy Group and Jizhong Energy Fengfeng Group. One of the main subsidiaries, Jizhong Energy Resource (formerly Hebei Jinniu Energy Resources Company Limited), has been listed on the Shenzhen Stock Exchange. In 2008, the company produced 12 million metric tonnes of raw coal and 4.92 million metric tonnes of clean coal, as well as sold approximately 9.67 million metric tonnes of commercial coal.

The company had 2960 employees in 2010.

Tab. 6 - Balance Sheet Vertical Analysis (USD)

	2015		2013		2012		2011	
TOTAL ASSETS	866,583,800		1,048,537,097		761,931,262		717,260,860	
Fixed assets	382,213,954	44.11%	434,452,004	41.43%	344,826,529	45.26%	322,712,625	44.99%
Stock	0	0.00%	18,080,918	1.72%	12,277,251	1.61%	16,795,061	2.34%
Debtors	13,703,150	1.58%	21,587,244	2.06%	18,609,609	2.44%	18,591,471	2.59%
Cash & cash equiv.	45,647,229	5.27%	n.a.	n.a.	44,586,936	5.85%	35,872,970	5.00%
Shareholders funds	367,549,856	42.41%	408,614,793	38.97%	379,357,659	49.79%	376,748,715	52.53%
Long term debt	117,590,844	13.57%	n.a.	n.a.	7,432,905	0.98%	7,570,347	1.06%
Loans	174,844,019	20.18%	0	0.00%	185,194,602	24.31%	146,137,852	20.37%
Creditors	1,899,561	0.22%	51,989,052	4.96%	21,060,639	2.76%	24,657,112	3.44%

	2010		2009		2008	
TOTAL ASSETS	726,135,954		624,866,551		562,412,855	
Fixed assets	480,850,469	66.22%	369,534,119	59.14%	221,322,529	39.35%
Stock	23,044,246	3.17%	24,216,630	3.88%	23,536,124	4.18%
Debtors	43,431,292	5.98%	32,141,998	5.14%	24,932,548	4.43%
Cash & cash equiv.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shareholders funds	402,646,853	55.45%	413,371,878	66.15%	399,670,489	71.06%
Long term debt	n.a.	n.a.	3,059,078	0.49%	11,498,259	2.04%
Loans	n.a.	n.a.	0	0.00%	0	0.00%
Creditors	n.a.	n.a.	28,558,184	4.57%	25,551,604	4.54%

Through the vertical analysis of the company's balance sheet, it can be noted that in the last year the fixed assets entry registered a slight increase compared to the 2013 figure, but it represents a big decline if taking into consideration the 2010 figure of 66.22% of total assets. Stock has been declining as well reaching the 0% of total assets in 2015 which is unusual for the chemical sector which presumes raw material stock in order to cover time and quality uncertainty. The debtors entry represents a very small percentage of total assets, meaning that the company is good at collecting credit from its customers. Unfortunately, the cash and cash equivalent entry lacks data of several financial years making the analysis of this indicator difficult and not very representative of the overall firm's performance; however, it can be noted that in 2016, 2012 and 2011 financial years, which are the only figures available, the company does not hold enough liquidity. The percentage of cash to total assets is respectively 5%, 6%, and 5%. The Shareholders' capital has been growing during the last two financial years, but it also registered a plunge between 2008 and 2013 when the figure was 39% of total assets from the 71% of 2008, which might be a consequent of the shrinking of operating income coupled with an exponential increase in the total assets entry meaning that the company has been using internal equity in order to finance the acquisition of more assets. The long-term debt account has been rising dramatically in the last financial year reaching 14% of total assets from the 1% of 2012. In the last year the company has been increasing its leverage which reflects a shortage in the firm's liquidity, as a matter of fact also the loan entry has been considerably increasing reaching 20% of total assets in 2015. Conversely, the creditors entry has been shrinking in the last year reaching 0.22% of total assets, five percentage points less than the 2013 figure meaning that the company is better managing its suppliers' payments.

Tab. 7 - P/L Account Vertical Analysis (USD)

	2016		2015		2014		2013	
Sales	4,122,622		59,546,006		80,161,901		115,563,149	
COGS	921,821	22.36%	44,938,063	75.47%	72,076,558	89.91%	99,115,839	85.77%
Gross profit	3,200,801	77.64%	14,607,943	24.53%	24,454,804	30.51%	16,447,309	14.23%
EBIT	-76,408	-1.85%	n.a.	n.a.	-18,265,436	-22.79%	-22,185,194	-19.20%
Taxation	0	0.00%	n.a.	n.a.	136,176	0.17%	1,859,419	1.61%
Net Income	-8,971,270	-217.61%	n.a.	n.a.	-14,523,793	-18.12%	-2,142,585	-1.85%

	2012		2011		2009		2008	
Sales	229,951,909		216,333,836		181,078,460		147,140,136	
COGS	205,335,585	89.30%	178,293,635	82.42%	133,123,657	73.52%	117,913,847	80.14%
Gross profit	24,616,324	10.70%	38,040,201	17.58%	47,954,803	26.48%	38,138,003	25.92%
EBIT	-21,714,993	-9.44%	-11,888,499	-5.50%	-2,149,615	-1.19%	-14,181,664	-9.64%
Taxation	-8,888	0.00%	n.a.	n.a.	4,946,984	2.73%	1,017,763	0.69%
Net Income	-18,537,510	-8.06%	-13,895,179	-6.42%	-8,657,332	-4.78%	5,180,698	3.52%

Through the vertical analysis of the “Jizhong Xingtai Mining Industry Group Company LTD”, it can be noted that the cost of goods sold (COGS) account as a percentage of sales has been decreasing from 2013 rate (90%) to 2015 one (22%) as well as the nominal figure which has been falling since 2011 in line with the plunge in sales. This highlights the fact that the chemical sector in China is affected by the overcapacity issue which cause a glut in the cost of raw material and consequently in the market. The gross profit entry shows great fluctuation across time while the EBIT registered negative figures for all the financial years available meaning that the company has to sustain considerable operating and administrative expenses. The net income account is as well a negative percentage of sales except for the 2008 financial year, in particular in 2015, which was a very bad year for the chemical sector, it registered -217.61% of sales highlighting the poor financial performance of the company. It is interesting to notice that the tax entry is a small percentage of sales ranging from 0% to 2.73% of sales which is much lower than the 25% income tax rate established for the resident enterprise in China. The low tax rate validates the fact that the central government gives special treatment to state-owned enterprises which are in financial distress.

Tab. 8 - Balance Sheet Horizontal Analysis

	2015/2013	2013/2012	2012/2011	2011/2010	2010/2009	2009/2008
Fixed assets	-12.02%	25.99%	6.85%	-32.89%	30.12%	66.97%
Intan. fixed assets	n.a.	n.a.	-2.25%	n.a.	n.a.	n.c.v.
Tan. fixed assets	-95.64%	583.49%	0.04%	n.a.	n.a.	66.97%
Other fixed assets	n.a.	n.a.	13.73%	n.a.	n.a.	n.c.v.
Current assets	-21.12%	47.23%	5.72%	60.85%	-3.93%	-25.14%
Stock	-100.00%	47.27%	-26.90%	-27.12%	-4.84%	2.89%
Debtors	-36.52%	16.00%	0.10%	-57.19%	35.12%	28.92%
Other curr. assets	-18.06%	48.73%	7.53%	100.86%	-10.13%	-32.00%
Cash & cash equiv.	n.a.	n.a.	24.29%	n.a.	n.a.	n.a.
TOTAL ASSETS	-17.35%	37.62%	6.23%	-1.22%	16.21%	11.10%
Shareholders funds	-10.05%	7.71%	0.69%	-6.43%	-2.59%	3.43%
Capital	-16.18%	18.60%	-2.36%	8.71%	2.28%	0.09%
Other shareh. funds	9.14%	-16.32%	8.15%	-30.20%	-9.37%	8.45%
Non-current liab.	17.01%	1330.27%	-1.82%	n.a.	n.a.	-73.39%
Long term debt	n.a.	n.a.	-1.82%	n.a.	n.a.	-73.40%
Other non-curr liab.	n.a.	n.a.	n.c.v.	n.a.	n.a.	n.c.v.
Provisions	n.a.	n.a.	n.c.v.	n.a.	n.a.	n.a.
Current liabilities	-29.79%	42.24%	12.67%	n.a.	n.a.	37.81%
Loans	n.c.v.	-100.00%	26.73%	n.a.	n.a.	n.c.v.
Creditors	-96.35%	146.85%	-14.59%	n.a.	n.a.	11.77%
Other curr. liabilities	-58.91%	185.18%	4.16%	n.a.	n.a.	43.11%
TOT. S. FUNDS & LIAB.	-17.35%	37.62%	6.23%	-1.22%	16.21%	11.10%

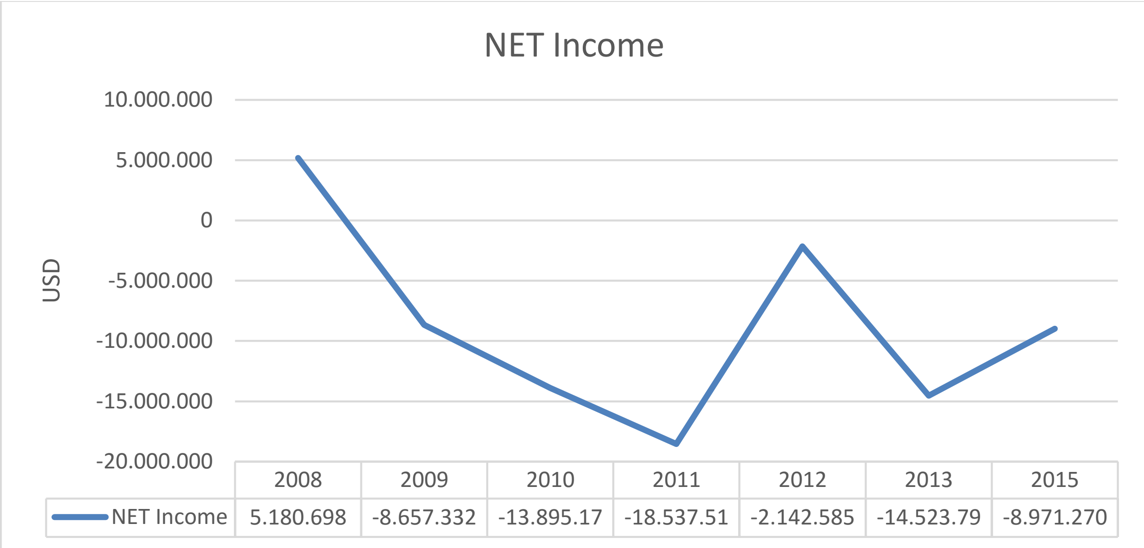
The balance sheet highlights that the company's assets have been fluctuating constantly during the years as in 2008 until 2010 the total assets account registered an increase, consequently between 2010 and 2011 it decreased by 1.22%, then it grew again by 37.62% in 2013 while in 2015 it decreased by 17.35%. Shareholders' funds declined sharply during the last financial year while non-current liabilities increased considerably augmenting the company's leverage; conversely, current liabilities decreased in 2015, therefore the company might have used some of its shareholders' funds to repay due payments. In particular, it should be noted that the company increased its non-current liabilities by 1330.27% in 2013 which is curious since the firm was already experiencing bad profitability levels and high leverage. In general, the company shows significant fluctuations in all the accounts' entries.

Tab. 9 - P/L Account Horizontal Analysis

	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010	2010/2009	2009/2008
Operating revenue	-93.08%	-38.31%	-16.47%	-49.74%	6.29%	19.47%	16.04%
Sales	-93.08%	-25.72%	-30.63%	-49.74%	6.29%	19.47%	23.07%
COGS	-97.95%	-37.65%	-27.28%	-51.73%	15.17%	33.93%	12.90%
Gross profit	-78.09%	-40.27%	48.69%	-33.19%	-35.29%	-20.67%	25.74%
Other op. expenses	n.a.	n.a.	10.58%	-16.62%	-7.21%	-0.35%	-4.23%
EBIT	n.a.	n.a.	17.67%	-2.17%	-82.66%	-453.05%	84.84%
Financial revenue	n.a.	n.a.	-37.92%	132.10%	n.a.	n.a.	-81.91%
Financial expenses	n.a.	n.a.	50.25%	16.12%	88.93%	0.99%	18.85%
Financial P/L	n.a.	n.a.	-77.45%	320.33%	n.a.	n.a.	-98.61%
P/L before tax	n.a.	n.a.	-9008.29%	100.91%	n.a.	n.a.	-120.88%
Taxation	n.a.	n.a.	-92.68%	21021.45%	n.a.	n.a.	386.06%
P/L after tax	n.a.	n.a.	-681.15%	89.56%	n.a.	n.a.	-187.51%
Extr. and other P/L	n.a.	n.a.	-168.47%	79.87%	n.a.	n.a.	26.65%
Net income	n.a.	n.a.	-577.86%	88.44%	-33.41%	-60.50%	-267.11%

From the horizontal analysis of the firm's income statement it can be noted that the company has been dramatically diminishing its profits during the years. When looking at the operating revenue, it can be noted that since 2011 the firm has been registering negative performance reaching -93.08% in 2015 compared to 2014 figure. Even though the cost of goods sold has been declining sharply during the last five years, the company gross profit has been falling as well meaning that the sales have been shrinking and that the operating and administrative expenses have gone up throughout the years. Unlikely, the financial data regarding the other profit and loss statement entries are not available for 2015 and 2014 and therefore making considerations about the recent period more difficult. However, the income statement shows that in 2013 the company was registering negative change percentage especially in the P/L before tax field (-9008.29%), P/L after tax (681.15%), and net income (-577.86%) highlighting that the firm was undergoing financial distress. The taxation account shows fluctuating figures with great increases in 2008 (386.06%) and 2011 (21021.45%) and a fall of 92.68% in 2013, unlikely all the other financial years' data are not available.

"Jizhong Energy Xingtai Mining Industry Group Company LTD" registered very negative actual profit for the last six available periods (1) and negative EBIT for every reported year.



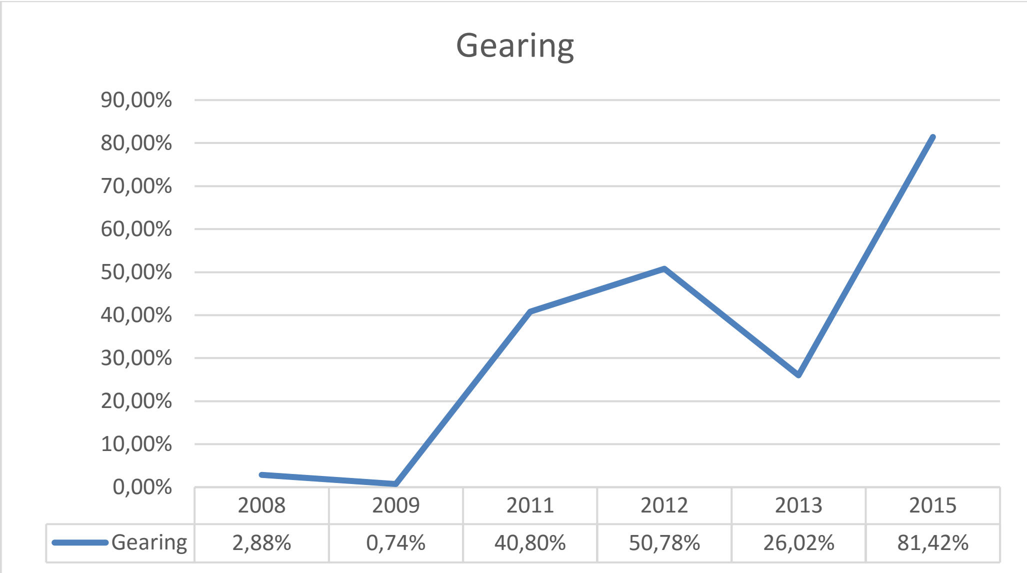
After having investigated the company's profitability, I report the table which depicts the firm's financial condition and includes the company's current and non-current liabilities, market interest rate, the minimum interest payment computed with the Caballero's simplified formula, the actual interest expenses of the firm, the difference between the minimum required payment and the company's paid interest expense, and the actual interest rate paid by the company computed dividing the total debt by the interest paid (2).

	2015	2014	2013	2012
Current liabilities	374,636,661	n.a.	533,611,675	375,140,698
Non-current liab.	124,397,283	n.a.	106,310,628	7,432,905
Interest rates	4.35%	5.60%	6.00%	6.00%
R*	23,389,828	n.a.	38,327,299	22,939,402
Interest paid	8,022,645	n.a.	15,043,917	10,012,878
R*- Ri	15,367,183	n.a.	23,283,383	12,926,524
Actual interest cost	1.61%	n.a.	2.35%	2.62%

	2011	2010	2009	2008
Current liabilities	332,941,799	n.a.	208,435,448	151,244,107
Non-current liab.	7,570,347	n.a.	3,059,225	11,498,259
Interest rates	6.56%	5.81%	5.31%	5.31%
R*	22,302,168	n.a.	11,250,191	8,722,337
Interest paid	8,622,895	4,564,123	4,519,346	3,802,563
R*- Ri	13,679,272	n.a.	6,730,845	4,919,774
Actual interest cost	2.53%	n.a.	2.14%	2.34%

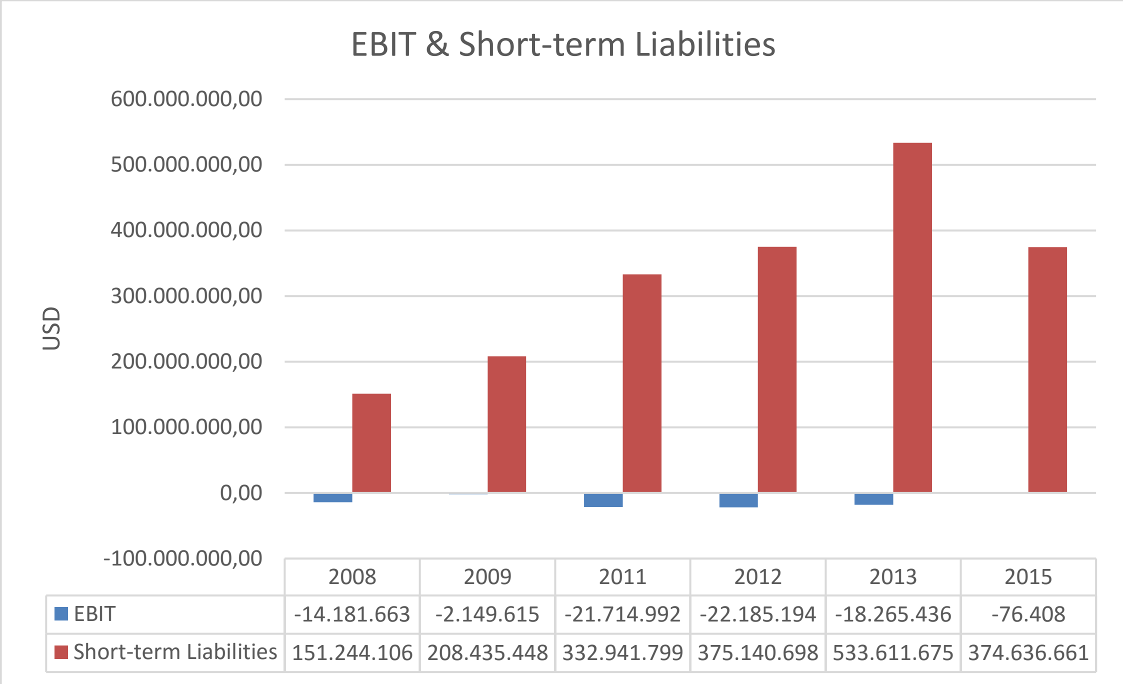
In the table above, it can be noted that the actual interest rate obtained by the "Jizhong Energy Xingtai Mining Industry Company" is much lower than the market one meaning that the company has been enjoying reduced expenses on its debt. However, in the last available year the company had even lower interest cost which is against the latest government policies on reducing the benefits of state-owned enterprise and tackling the "zombie economy" issue.

The company has been increasing its current liabilities from 2008 to 2013 and its non-current liabilities from 2009 to 2015, thus it demonstrates that despite the poor profitability performance and the growing level of debt, the company was able to get new credit throughout the years. The third step of my analysis consists in the focusing of the firm's gearing ratio to investigate whether the company has been increasing its external financing compared to its shareholders' capital.

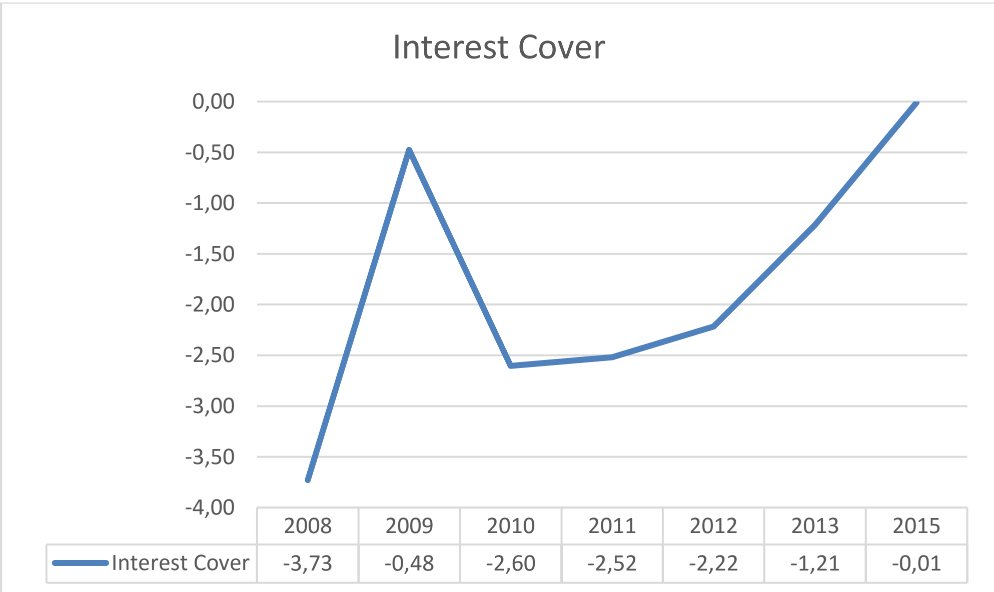


From the graph above, it can be concluded that the firm has a growing gearing ratio trend, highlighting the company's reliance on external debt (3).

The fourth step is the comparison between the EBIT and short-term obligations (4).



The graph above shows that the firm has far more short-term liabilities than earnings before interest and tax which highlights the firm's impossibility to meet its short-term requirement leading to a non-compliance of due payments and the need to get more credit to keep the firm away from bankruptcy. Moreover, the firm is not able to pay its interest payment as the interest cover ratio is very low and even lower than 0 in the last three financial years (5).



This graph shows the interest cover of the firm which is computed by dividing the EBIT by the interest expenses, as this index is negative for all the financial years available it is implied that the company is not able to repay its debt because it cannot even meet its interest payment, therefore it is proved that the firm has been receiving subsidized credit.

In this section, I am going to demonstrate that, even though the company has government support, it fails to improve its financial and profitability performance.

	2008	2009	2010	2011
Number of employees	3,403	2,717	2,960	n.a.
Fixed assets (USD)	221,322,529	369,534,119	480,850,469	322,712,625
Profit margin (%)	5.62	-1.01	n.a.	-7.13
ROE using P/L b.tax (%)	2.19	-0.44	n.a.	-4.35
ROA using P/L b.tax (%)	1.56	-0.29	n.a.	-2.29

	2012	2013	2015
Number of employees	n.a.	n.a.	n.a.
Fixed assets (USD)	344,826,529	434,452,004	382,213,954
Profit Margin (%)	0.13	-13.70	-196.34
ROE using P/L b.tax (%)	0.04	-3.24	-2.20
ROA using P/L b.tax (%)	0.02	-1.26	-0.93

As it can be noticed from the chart above the company has not been increasing its employment rate, on the contrary, since 2008 the company has been laying off 443 people, however as the latest data are not available it is difficult to assess whether the firm has been employing other people from 2010. The fixed assets account has been fluctuating during the years, nonetheless a rise in this field has been registered when the 2008 and 2015 data are to be compared. The profit margin has been declining throughout the years registering a negative performance. ROE highlights that the firm is not managing well its equity to produce net income as the firm is registering negative figures for the 2013 and 2015 year, similarly the ROA index confirms that company is not able to generate net income from its assets. Therefore, the granted credit is not leading to capital accumulation but rather to a disruption of the shareholders' capital and to an increase in the firm leverage.

Below I report the financial statements of the "Jizhong Energy Xingtai Mining Industry Company" from year 2008 to 2015.

Tab. 7 - Jizhong Energy Xingtai Mining Industry Group Company Balance Sheet

Local registry filing/Unconsolidated	31/12/2015 USD	31/12/2014 USD	31/12/2013 USD	31/12/2012 USD	31/12/2011 USD	30/11/2010 USD	31/12/2009 USD	31/12/2008 USD
Exchange rate: CNY/USD	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	11 months Local GAAP 0.14979	12 months Local GAAP 0.14645	12 months Local GAAP 0.14631
Balance sheet								
Assets								
Fixed assets	382.213.954	n.a.	434.452.004	344.826.529	322.712.625	480.850.469	369.534.119	221.322.529
Intangible fixed assets	51.542.630	n.a.	n.a.	82.552.147	84.456.029	n.a.	0	0
Tangible fixed assets	18.936.146	n.a.	434.102.306	63.512.145	63.488.072	n.a.	369.534.119	221.322.529
Other fixed assets	311.735.178	n.a.	n.a.	198.762.237	174.768.523	n.a.	0	0
Current assets	484.369.846	n.a.	614.085.093	417.104.733	394.548.235	245.285.484	255.332.432	341.090.325
Stock	0	n.a.	18.080.918	12.277.251	16.795.061	23.044.246	24.216.630	23.536.124
Debtors	13.703.150	n.a.	21.587.244	18.609.609	18.591.471	43.431.292	32.141.998	24.932.548
Other current assets	470.666.696	n.a.	574.416.931	386.217.873	359.161.703	178.809.946	198.973.804	292.621.653
Cash & cash equivalent	45.647.229	n.a.	n.a.	44.586.936	35.872.970	n.a.	n.a.	n.a.
TOTAL ASSETS	866.583.800	0	1.048.537.097	761.931.262	717.260.860	726.135.954	624.866.551	562.412.855
Liabilities & Equity								
Shareholders funds	367.549.856	n.a.	408.614.793	379.357.659	376.748.715	402.646.853	413.371.878	399.670.489
Capital	259.533.532	n.a.	309.641.934	261.076.055	267.384.339	245.957.723	240.482.545	240.257.361

Other shareholders funds	108.016.324	n.a.	98.972.860	118.281.604	109.364.375	156.689.130	172.889.333	159.413.129
Non-current liabilities	124.397.283	n.a.	106.310.628	7.432.905	7.570.347	n.a.	3.059.225	11.498.259
Long term debt	117.590.844	n.a.	n.a.	7.432.905	7.570.347	n.a.	3.059.078	11.498.259
Other non-current liabilities	6.806.439	n.a.	n.a.	0	0	n.a.	146	0
Provisions	n.a.	n.a.	n.a.	0	0	n.a.	n.a.	0
Current liabilities	374.636.661	n.a.	533.611.675	375.140.698	332.941.799	n.a.	208.435.448	151.244.107
Loans	174.844.019	n.a.	0	185.194.602	146.137.852	n.a.	0	0
Creditors	1.899.561	n.a.	51.989.052	21.060.639	24.657.112	n.a.	28.558.184	25.551.604
Other current liabilities	197.893.082	n.a.	481.622.624	168.885.457	162.146.835	n.a.	179.877.265	125.692.502
TOTAL SHAREH. FUNDS & LIAB.	866.583.800	0	1.048.537.097	761.931.262	717.260.860	726.135.954	624.866.551	562.412.855
Memo lines								
Working capital	11.803.589	n.a.	-12.320.890	9.826.221	10.729.419	n.a.	27.800.444	22.917.068
Net current assets	109.733.184	n.a.	80.473.418	41.964.035	61.606.437	n.a.	46.896.984	189.846.219
Enterprise value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of employees	n.a.	n.a.	n.a.	n.a.	n.a.	2.960	2.717	3.403

Tab. 8 - Jizhong Energy Xingtai Mining Industry Group Company Profit & Loss Account

Local registry filing/Unconsolidated	31/12/2015 USD	31/12/2014 USD	31/12/2013 USD	31/12/2012 USD	31/12/2011 USD	30/11/2010 USD	31/12/2009 USD	31/12/2008 USD
	12 months	12 months	12 months	12 months	12 months	11 months	12 months	12 months
	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP
Exchange rate: CNY/USD	0.15405	0.16343	0.16387	0.15899	0.15871	0.14979	0.14645	0.14631
Profit & loss account								
Operating revenue (Turnover)	4.122.622	59.546.006	96.531.361	115.563.149	229.951.909	216.333.836	181.078.460	156.051.850
Sales	4.122.622	59.546.006	80.161.901	115.563.149	229.951.909	216.333.836	181.078.460	147.140.136
Costs of goods sold	921.821	44.938.063	72.076.558	99.115.839	205.335.585	178.293.635	133.123.657	117.913.847
Gross profit	3.200.801	14.607.943	24.454.804	16.447.309	24.616.324	38.040.201	47.954.803	38.138.003
Other operating expenses	3.277.209	n.a.	42.720.240	38.632.503	46.331.317	49.928.700	50.104.417	52.319.666
Operating P/L [=EBIT]	-76.408	n.a.	-18.265.436	-22.185.194	-21.714.993	-11.888.499	-2.149.615	-14.181.664
Financial revenue	4.775	n.a.	20.080.623	32.346.571	13.936.263	n.a.	4.839.050	26.746.261
Financial expenses	8.022.645	n.a.	15.043.917	10.012.878	8.622.895	4.564.123	4.519.346	3.802.563
Financial P/L	-8.017.869	n.a.	5.036.707	22.333.693	5.313.368	n.a.	319.704	22.943.698
P/L before tax	-8.094.277	n.a.	-13.228.729	148.499	-16.401.625	n.a.	-1.829.911	8.762.034
Taxation	0	n.a.	136.176	1.859.419	-8.888	n.a.	4.946.984	1.017.763

P/L after tax	-8.094.277	n.a.	-13.364.905	-1.710.920	-16.392.737	n.a.	-6.776.895	7.744.272
Extr. and other revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extr. and other expenses	880.228	n.a.	6.245.575	4.869.785	5.277.500	n.a.	2.375.736	3.565.973
Extr. and other P/L	-876.993	n.a.	-1.158.888	-431.665	-2.144.773	n.a.	-1.880.437	-2.563.574
P/L for period [=Net income]	-8.971.270	n.a.	-14.523.793	-2.142.585	-18.537.510	-13.895.179	-8.657.332	5.180.698
Memo lines								
Export revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Material costs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of employees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Depreciation & Amortization	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other operating items	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Interest paid	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Research & Development expenses	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cash flow	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Added value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBITDA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Tabella 9 - Jizhong Energy Xingtai Mining Industry Group Company Financial Ratios

Local registry filing/Unconsolidated	31/12/2015 USD	31/12/2014 USD	31/12/2013 USD	31/12/2012 USD	31/12/2011 USD	30/11/2010 USD	31/12/2009 USD	31/12/2008 USD
	12 months	12 months	12 months	12 months	12 months	11 months	12 months	12 months
	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP
Exchange rate: CNY/USD	0.15405	0.16343	0.16387	0.15899	0.15871	0.14979	0.14645	0.14631
Profitability ratios								
ROE using P/L before tax (%)	-2,20	n.a.	-3,24	0,04	-4,35	n.a.	-0,44	2,19
ROCE using P/L before tax (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using P/L before tax (%)	-0,93	n.a.	-1,26	0,02	-2,29	n.a.	-0,29	1,56
ROE using Net income (%)	-2,44	n.a.	-3,55	-0,57	-4,92	-3,45	-2,09	1,30
ROCE using Net income (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using Net income (%)	-1,04	n.a.	-1,39	-0,28	-2,58	-2,09	-1,39	0,92
Profit margin (%)	n.s.	n.a.	-13,70	0,13	-7,13	n.a.	-1,01	5,62
Gross margin (%)	77,64	24,53	25,33	14,23	10,71	17,58	26,48	24,44
EBITDA margin (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBIT margin (%)	-1,85	n.a.	-18,92	-19,20	-9,44	-5,50	-1,19	-9,09
Cash flow / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Enterprise value / EBITDA (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Market cap / Cash flow from operations (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Operational ratios								
Net assets turnover (x)	0,01	n.a.	0,19	0,30	0,60	n.a.	0,44	0,38
Interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Stock turnover (x)	n.s.	n.a.	5,34	9,41	13,69	10,24	7,48	6,63

Collection period (days)	n.s.	n.a.	81	58	29	66	64	58
Credit period (days)	166	n.a.	194	66	39	n.a.	57	59
Export revenue / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R&D expenses / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Structure ratios								
Current ratio (x)	1,29	n.a.	1,15	1,11	1,19	n.a.	1,23	2,26
Liquidity ratio (x)	1,29	n.a.	1,12	1,08	1,14	n.a.	1,11	2,10
Shareholders liquidity ratio (x)	2,96	n.a.	3,84	51,04	49,77	n.a.	135,12	34,76
Solvency ratio (Asset based) (%)	42,41	n.a.	38,97	49,79	52,53	55,45	66,15	71,06
Solvency ratio (Liability based) (%)	73,65	n.a.	63,85	99,16	n.s.	n.a.	n.s.	n.s.
Gearing (%)	81,42	n.a.	26,02	50,78	40,80	n.a.	0,74	2,88
Per employee ratios								
Profit per employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-1	3
Operating revenue per employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	80	67	46
Costs of employees / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average cost of employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shareholders funds per employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	136	152	117
Working capital per employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	10	7
Total assets per employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	245	230	165

5.2.2 PetroChina Lanzhou Petrochemical Company

The "PetroChina Lanzhou Petrochemical Company" is a state-owned enterprise and it is situated in north-western Gansu province, in the city of Lanzhou where it was founded in 1960 and is one of the country's oil refining hubs. It engages in the manufacture and distribution of petroleum, gasoline, diesel, kerosene, gear lubricants and petrochemicals. Its crude refining capacity amounts to over 200,000 barrels per day. The corporate group consists of 23 companies while the number of recorded subsidiaries amounts at 8. In 2014 this company has experienced one of the worst industrial incidents with a death toll of 69 people and many injured; in addition, the "PetroChina Lanzhou Petrochemical Company" was held responsible for ethylene and ammonia leaks, benzene contamination of water supplies, and air pollution in the city of Lanzhou. The local government publicly accused the biggest oil company in western China of seriously polluting the city of Lanzhou and this was the first time that a major firm was legally prosecuted after the revision of the Environmental Protection Law which entered into effect January 1st 2015. The new law makes local government at or above county level responsible for the enforcement of environmental provisions which consist on a daily basis fine starting from the day the infraction is reported to the authorities. After the incident and the leakage of oil in Lanzhou city water system, the local government wanted the company to move to a new district outside the city, disposal which is not only connected with the pollution of the urban borough but also to the economic growth of the new area. However, the company was not favourable to the moving of the production plant because the operation would have cost a considerable amount of money for the firm and also because it did not find an agreement with the local government about the value of the land the factory was situated on.

The company uses the local GAAP as accounting standards while its financial statements are unconsolidated. In 2014, the company's employees amount to 54.

The "PetroChina Lanzhou Petrochemical Company" is 100% directly controlled by its registered shareholder: "China National Petroleum Corporation" which was funded in 1955, headquartered in Beijing, it is directly administered by the Chinese government. "China National Petroleum Corporation" is one of the largest energy company in China and it engages in the whole gas and oil value chain. It operates in more than 30 countries across Africa, Central Asia, Asia-Pacific, Middle East and Latin America. The firm is also the parent company of "PetroChina Company Limited" which is the listed arm of the corporation. It was estabished in 1998 following the restructuring of the "China National Petroleum Corporation" whose assets and liabilities were spun off the new subsidiary. In 2007, the newly created company which was already listed in the Hong Kong and New York Stock Exchanges, started to sell A shares in the Shanghai Stock Exchange.

Tab. 10 - Balance Sheet Vertical Analysis (th USD)

	2015		2014		2013		2012		2011	
TOTAL ASSETS	580,034		3,644		53,125		1,105,863		1,079,624	
Fixed assets	281,754	48.58%	480	13.17%	9,556	17.99%	487,281	44.06%	489,548	45.34%
Stock	121,418	20.93%	1,024	28.10%	19,100	35.95%	158,767	14.36%	153,287	14.20%
Debtors	90,549	15.61%	112	3.08%	11,490	21.63%	153,462	13.88%	136,417	12.64%
Cash & cash equiv.	20,949	3.61%	n.a.	n.a.	n.a.	n.a.	77,259	6.99%	66,951	6.20%
Shareholders funds	170,992	29.48%	5,464	149.96%	12,812	24.12%	317,890	28.75%	323,880	30.00%
Long term debt	0	0.00%	n.a.	n.a.	n.a.	n.a.	3,217	0.29%	8,923	0.83%
Loans	0	0.00%	0	0.00%	0	0.00%	183,159	16.56%	175,372	16.24%
Creditors	137,660	23.73%	65	1.79%	11,469	21.59%	294,892	26.67%	269,576	24.97%

	2010		2009		2008		2007	
TOTAL ASSETS	856,268		684,404		1,026,758		861,101	
Fixed assets	280,243	32.73%	256,703	37.51%	430,373	41.92%	514,271	59.72%
Stock	346,857	40.51%	297,256	43.43%	233,434	22.74%	85,286	9.90%
Debtors	53,227	6.22%	59,869	8.75%	44,071	4.29%	53,135	6.17%
Cash & cash equiv.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shareholders funds	319,674	37.33%	232,378	33.95%	633,346	61.68%	594,986	69.10%
Long term debt	n.a.	n.a.	68,204	9.97%	57,481	5.60%	127	0.01%
Loans	n.a.	n.a.	0	0.00%	0	0.00%	0	0.00%
Creditors	n.a.	n.a.	134,736	19.69%	142,185	13.85%	109,934	12.77%

Through the vertical analysis of the “PetroChina Lanzhou Petrochemical Company”, it can be noted that the fixed assets percentage of total assets has been surging during the last financial year reaching 48.58%. The stock entry has been considerably fluctuating during the years reaching the maximum level in 2009 when it represented 43.43% of total assets. In fact, after the 2008 financial crisis, overcapacity issues became more serious as companies could not find a market to sell their goods. The level of inventories declined reaching 14.36% of total assets in 2012, consequently it surged the year after accounting for 36%, more recently the company succeeded in lowering the stock level. The debtors line has been oscillating as well peaking in 2013 when accounts receivable represented 21.63% of total assets. Financial Statement analysts argue that some Asian firms inflate this entry in order to overstate their revenue as accounts receivable do not entail any cash flow and therefore it is more difficult to track the transaction. As a matter of fact if a firm wants to overstate its income statement it has to fraudulently overstate its balance sheet as well. The company’s 2015 balance sheet looks inflated if compared to the 2013 one considering that 2015 has been a very bad year for the chemical sector in general. I do not take 2014 financial statement as a means of comparison as in that year the company experienced one of the major industrial incidents with a death toll of 69 people. Looking at the cash and cash equivalent entry, it can be noticed that the firm has non-available data for the major part of the financial years validating the possibility that the firm does not administer transparently its funds and revenues, anyways the company is not very liquid, the highest cash level was registered in 2012 with 6.99% of total assets. Shareholders’ funds line has been declining over the years in line with the plunge in fixed assets. In 2011 the company experienced a surge in almost all the account entries: shareholders’ fund, loans, and creditors line went up generating capital which allowed the growth of total assets and fixed assets. This phenomenon might be connected to the stimulus promoted by the Chinese government in order to grant credit to state-owned firms after the 2008 financial crisis. The long-term debt data is not available for all the financial years; however it can be noted that in 2009 the debt surged at 9.97% of total assets while in recent years it is equal to 0%. The creditors account has been registering an upward trend during the years starting in 2007 with 12.77% of total assets and peaking in 2012 with the 26.67%.

Tab. 11 - P/L Account Vertical Analysis (th USD)

	2015		2014		2013		2012		2011	
Sales	451,153		5,319		47,248		640,364		604,678	
COGS	489,020	108.39%	5,015	94.29%	44,264	93.69%	609,690	95.21%	582,970	96.41%
Gross profit	-37,867	-8.39%	304	5.72%	2,983	6.31%	30,674	4.79%	21,708	3.59%
EBIT	-93,672	-20.76%	-188	-3.53%	-6,303	-13.34%	-11,802	-1.84%	-15,968	-2.64%
Taxation	-323	-0.07%	n.a.	n.a.	127	0.27%	149	0.02%	162	0.03%
Net Income	-33,211	-7.36%	n.a.	n.a.	-6,367	-13.48%	-17,018	-2.66%	-20,962	-3.47%

	2010		2009		2008		2007	
Sales	409,574		690,945		610,760		633,645	
COGS	448,641	109.54%	692,559	100.23%	638,707	104.58%	609,050	96.12%
Gross profit	-39,067	-9.54%	-1,614	-0.23%	-9,101	-1.49%	25,744	4.06%
EBIT	-75,584	-18.45%	-109,467	-15.84%	-125,181	-20.50%	-59,647	-9.41%
Taxation	n.a.	n.a.	803	0.12%	941	0.15%	943	0.15%
Net Income	-1,427	-0.35%	-17,648	-2.55%	-204,209	-33.44%	9,759	1.54%

As long as the profit and loss account is concerned, it can be notice that the cost of goods sold account makes up a very big share of sales and therefore, the company profit is extremely tiny. COGS has been increasing by 12% of sales from 2007 to 2015 in line with the government policies of rising the raw material cost. The company gross profit is negative for 2008, 2009, 2010 and 2015 financial years while the biggest profit are registered in 2013 and 2014, which might be due to the fact that the Chinese government gave financial aid to the company after the incident. The EBIT account is negative for all the available years especially for the 2015 and 2008 financial years when the company registered respectively -20.76% and -20.50% of sales, which does not come as a surprise as 2015 was a very bad year for the chemical sector and 2008 is when the subprime mortgage crisis occurred. The tax line proves that the firm has been receiving a special financial treatment from the institutions as the company never paid more than the 0,27% of sales. The net income line highlights the firm's negative performance for all the recorded year with the exception of 2007 when the company registered a net income figure equal to 1.54% of sales. The worst performances were registered in 2013 and 2008, however this observation is not significant as the other financial years lack relevant data on taxation and interest payment.

Tab. 12 - Balance Sheet Horizontal Analysis

	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010	2010/2009	2009/2008	2008/2007
Fixed assets	58601.11%	-94.98%	-98.04%	-0.46%	74.69%	9.17%	-40.35%	-16.31%
Intan. fixed assets	n.c.v.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tan. fixed assets	42883.89%	-94.93%	-98.03%	-0.59%	n.a.	n.a.	-10.26%	-6.34%
Other fixed assets	n.c.v.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Current assets	9327.56%	-92.74%	-92.96%	4.83%	2.44%	34.68%	-28.28%	71.95%
Stock	11756.94%	-94.64%	-87.97%	3.58%	-55.81%	16.69%	27.34%	173.71%
Debtors	80667.87%	-99.02%	-92.51%	12.49%	156.29%	-11.09%	35.85%	-17.06%
Other curr. assets	4156.55%	-84.38%	-95.76%	1.99%	70.72%	149.29%	-77.87%	53.01%
Cash & cash equiv.	n.a.	n.a.	n.a.	15.40%	n.a.	n.a.	n.a.	n.a.
TOTAL ASSETS	15817.96%	-93.14%	-95.20%	2.43%	26.08%	25.11%	-33.34%	19.24%
Shareholders funds	3029.16%	-57.35%	-95.97%	-1.85%	1.32%	37.57%	-63.31%	6.45%
Capital	n.a.	n.a.	-94.33%	0.18%	-59.08%	2.28%	-21.63%	6.77%
Other shareh. funds	n.a.	n.a.	79.75%	-22.68%	94.62%	11.14%	-37.96%	-7.23%
Non-current liab.	337.36%	-108.91%	604.81%	-63.95%	n.a.	n.a.	18.66%	45096.79%
Long term debt	n.a.	n.a.	n.a.	-63.95%	n.a.	n.a.	18.65%	45096.79%
Other non-curr liab.	n.a.	n.a.	n.a.	n.c.v.	n.a.	n.a.	n.c.v.	n.c.v.
Provisions	n.a.	n.a.	n.a.	n.c.v.	n.a.	n.a.	n.a.	n.c.v.
Current liabilities	203153.83%	-98.87%	-97.75%	5.08%	n.a.	n.a.	14.26%	26.30%
Loans	n.c.v.	n.c.v.	-100.00%	4.44%	n.a.	n.a.	n.c.v.	n.c.v.
Creditors	211012.47%	-99.43%	-96.11%	9.39%	n.a.	n.a.	-5.24%	29.34%
Other curr. liabilities	199320.58%	-97.83%	-97.99%	1.60%	n.a.	n.a.	28.56%	24.15%
TOT. S. FUNDS & LIAB.	15817.96%	-93.14%	-95.20%	2.43%	26.08%	25.11%	-33.34%	19.24%

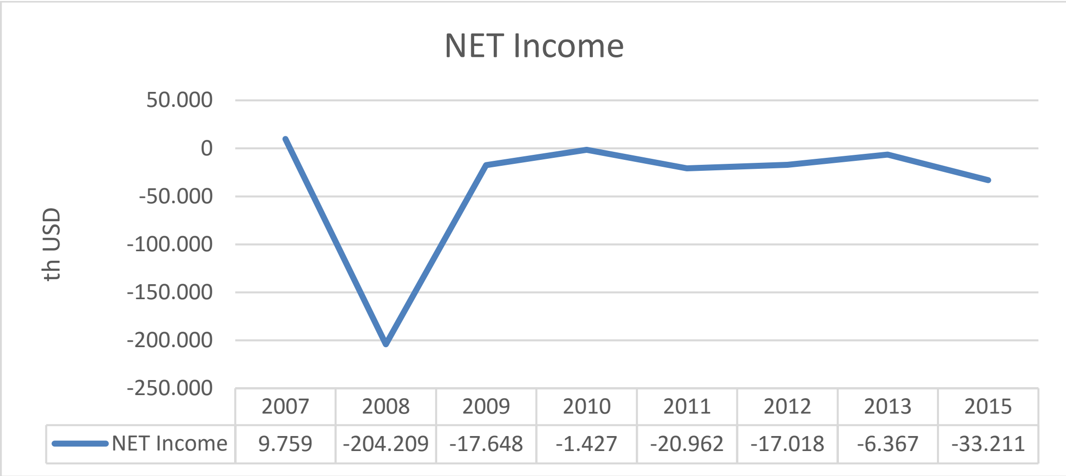
The balance sheet highlights that the company has been increasing dramatically its own fixed assets in the last available year, which shows a reversal with respect to the trend registered in the last three years. More specifically the tangible fixed assets account recorded the greatest increase reaching the 42883.89% change compared to the 2014 financial statement, however it has to be noted that due to the fire broke out in 2014 the company lost part of its fixed assets which were replaced the following year. The stock line registered a significant increase in 2015 after having declined for the previous three years. In 2015 the company boosted its shareholders' funds and drastically reduced its non-current liabilities in an attempt to decrease the firm's leverage. As long as the short-term liabilities are concern, current liabilities skyrocketed in the last available financial year as well as the creditors and other current liabilities line, while in 2014 and 2013 those lines were following a downward trend in line with th government policies on the deleveraging of SOEs.

Tab. 13 - P/L Account Horizontal Analysis

	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010	2010/2009	2009/2008	2008/2007
Operating revenue	8381.91%	-88.74%	-92.62%	5.90%	47.64%	-40.72%	9.74%	-0.82%
Sales	8382.69%	-88.74%	-92.62%	5.90%	47.64%	-40.72%	13.13%	-3.61%
COGS	9651.72%	-88.67%	-92.74%	4.58%	29.94%	-35.22%	8.43%	4.87%
Gross profit	-12543.96%	-89.80%	-90.27%	41.30%	155.57%	-2320.86%	82.27%	-135.35%
Other op. expenses	11237.16%	-94.70%	-78.14%	12.74%	3.17%	-66.14%	-7.09%	35.94%
EBIT	-49741.91%	97.02%	46.60%	26.09%	78.87%	30.95%	12.55%	-109.87%
Financial revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-36.02%	-74.70%
Financial expenses	581318.07%	-98.71%	-98.17%	17.15%	987.21%	18.31%	113.06%	-71.69%
Financial P/L	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-77.43%	-53.29%
P/L before tax	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9.73%	-147.47%
Taxation	n.a.	n.a.	-14.42%	-7.79%	n.a.	n.a.	-14.63%	-0.22%
P/L after tax	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9.77%	-144.65%
Extr. and other P/L	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	209.77%	-240.78%
Net income	n.a.	n.a.	62.59%	18.81%	-1368.61%	91.91%	91.36%	-2192.57%

Through the horizontal analysis of the “PetroChina Lanzhou Petrochemical Company” income statement, the same trends as the balance sheet can be noted: the company measured a better performance in 2015 recovering from the 2014 incident, 2012 and 2011 financial years recorded growing sales and profit, 2010 registered a fall in operating revenue and earnings. The EBIT registered negative change percentages throughout the years with the exceptions of the 2015 figure. The financial expense line which includes the interest payments has been fluctuating a lot throughout the years, while the taxation account shows that the company is enjoying low tax levels compared to the Chinese private enterprises. The net income account recorded very bad performances in 2008 and 2011 when the net income figure plummeted significantly compared to the respective previous year.

“PetroChina Lanzhou Petrochemical Company” registered negative actual profit for all the reported years with the exception of the 2007 figure (1) and negative EBIT for all the periods.

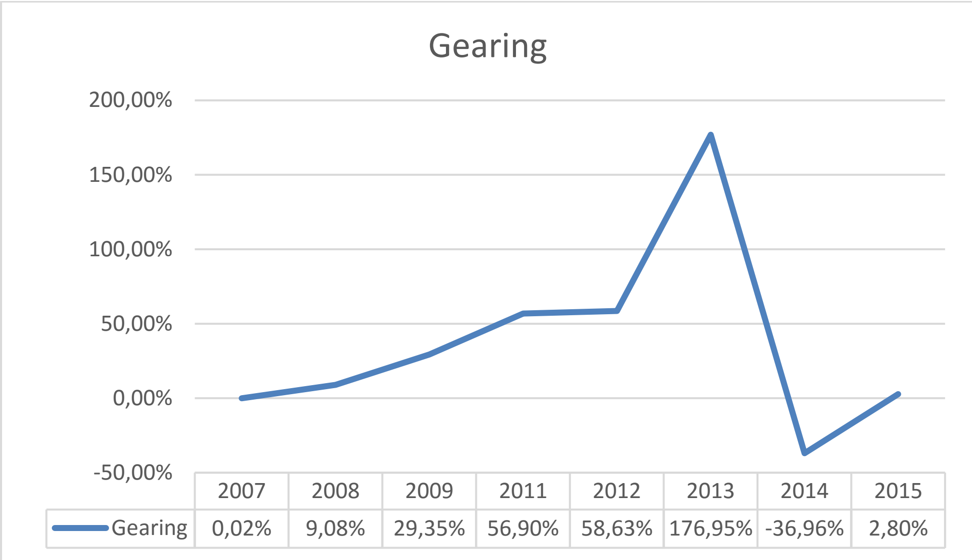


After having investigated the company’s profitability, I report the table which depicts the firm’s financial condition and includes the company’s current and non-current liabilities, market interest rate, the minimum interest payment computed with the Caballero’s simplified formula, the actual interest expenses of the firm, the difference between the minimum required payment and the company’s paid interest expense, and the actual interest rate paid by the company computed dividing the total debt by the interest paid. (2)

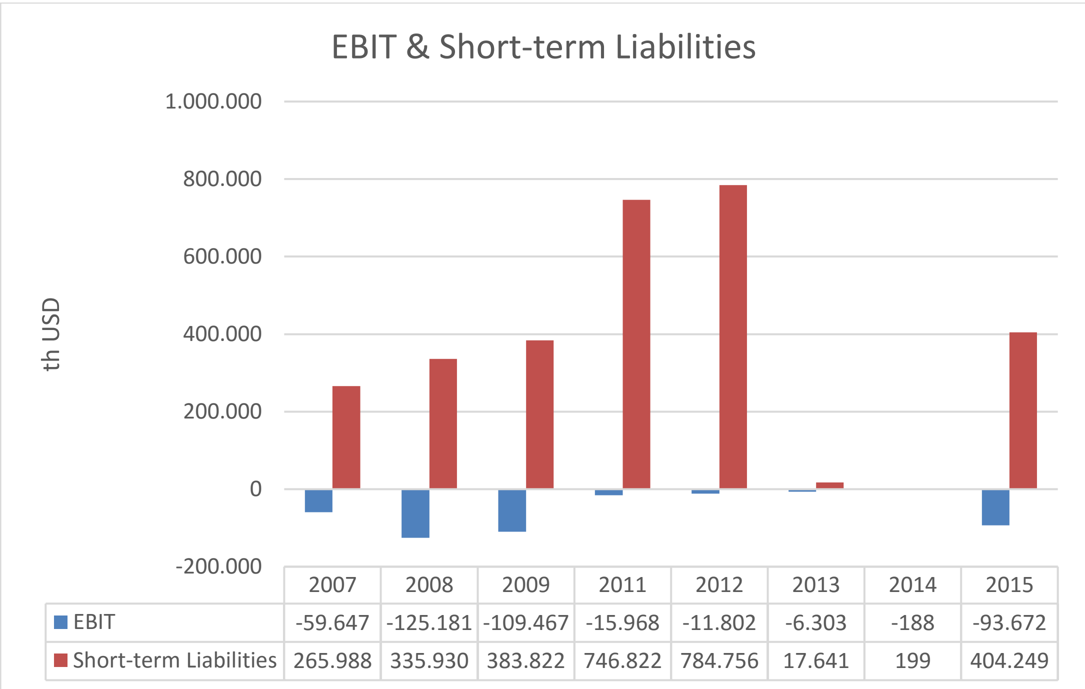
	2015	2014	2013	2012	2011
Current liabilities	404,249	199	17,641	784,756	746,822
Non-current liab.	4,793	-2,019	22,672	3,217	8,923
Interest rates	4.35%	5.60%	6.00%	6.00%	6.56%
R*	17,858	-110	2,404	47,272	49,519
Interest paid	7,601	1	101	5,519	4,711
R*- Ri	10,257	-111	2,303	41,752	44,808
Actual interest cost	1.86%	-0.07%	0.25%	0.70%	0.62%

	2010	2009	2008	2007
Current liabilities	n.a.	383,822	335,930	265,988
Non-current liab.	n.a.	68,205	57,481	127
Interest rates	5.81%	5.31%	5.31%	0.0747
R*	n.a.	24,445	21,294	19,877
Interest paid	433	366	-2,805	-1,634
R*- Ri	n.a.	24,078	24,099	21,511
Actual interest cost	n.a.	0.08%	-0.71%	-0.61%

The table highlights that the company has been paying smaller interest rates than the market one, confirming the fact that the firm has been receiving subsidized credit to the extent that for year 2014, 2008, 2007 the enterprise was even granted negative interest rate on its borrowings.

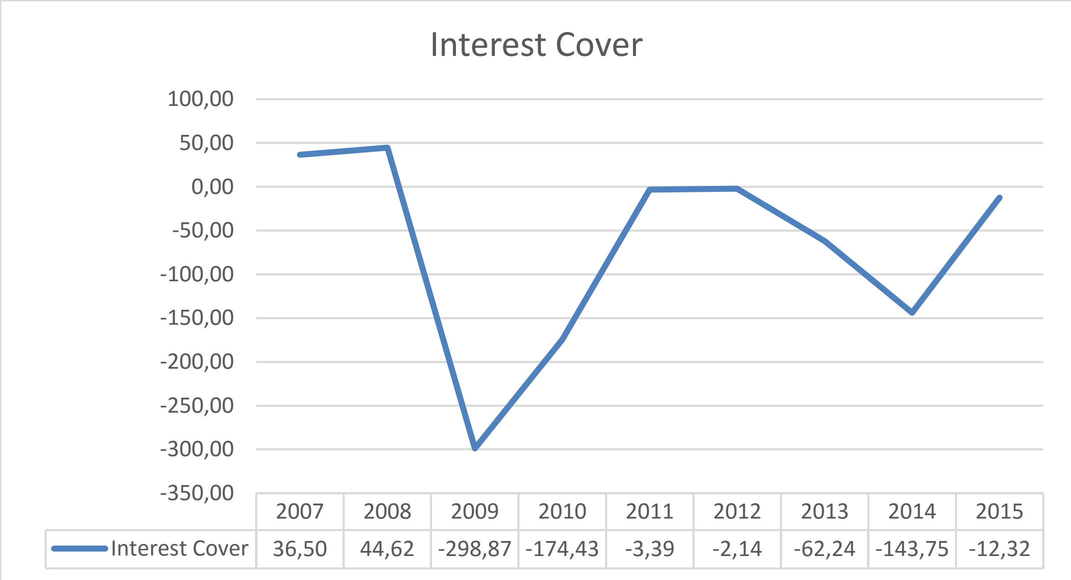


It can be noticed that "PetroChina Lanzhou Petrochemical Company's" gearing ratio presented a positive trend from 2007 to 2013 while plummeted in 2015 thanks to an increase in the shareholders' equity. (3) Therefore, the company exceeds the Nakamura and Fukuda threshold only in 2011, 2012, 2013 financial years.



The graph above focuses on the relationship between the company's EBIT and short-term liabilities, highlighting that the firm has not sufficient liquidity to repay its short-term obligation. (4)

The last graph shows the firm's interest cover which is expressed as the relationship between the company's EBIT and interest expenses. It can be noticed that the firm is not able to repay its interest expenses as the interest cover is negative for all the reported years. (5)



In this section, I am going to demonstrate that, even though the company has government support, it fails to improve its financial and profitability performance.

	2007	2008	2009	2010	2011
Number of employees	12,576	14,721	14,758	13,364	n.a.
Fixed assets (th USD)	514,271	430,373	256,703	280,243	489,548
Profit Margin (%)	-7.64	-19.05	-15.67	n.a.	n.a.
ROE using P/L b.tax (%)	-8.15	-18.94	-46.60	n.a.	n.a.
ROA using P/L b.tax (%)	-5.63	-11.68	-15.82	n.a.	n.a.

	2012	2013	2014	2015
Number of employees	n.a.	n.a.	54	n.a.
Fixed assets (th USD)	487,281	9,556	480	281,754
Profit Margin (%)	n.a.	n.a.	n.a.	-22.12
ROE using P/L b.tax (%)	n.a.	n.a.	n.a.	-58.35
ROA using P/L b.tax (%)	n.a.	n.a.	n.a.	-17.20

As it can be noticed from the chart above the company has been increasing its employment rate as 788 people were hired between 2007 and 2010; however in 2014 the number of employee plummeted at 54 people which means that the company laid off 13.310 employees. On the other hand, the company has been shrinking its fixed assets by 50% in the period ranging from 2007 to 2009 and then increased by 90% from 2009 to 2012, lastly it fell by 42% from 2012 to 2015. It can be concluded that the firm failed on keeping a standard production capacity and operations plan. The profit margin has been negative across the available years reaching -22,12% in 2015 due to an increase of the cost of goods sold and operating expenses. The ROE figure highlights that the firm is not managing well its shareholder capital to obtain net income, reaching -19,42% in 2015. The ROA entry shows that the firm is not managing well its assets to produce capital, this trend might be explained with the plunge in the net income account. Therefore, the firm is not experiencing any capital accumulation along the years, on the contrary, has been reducing its assets and employees' number.

Below I report the financial statements of the "PetroChina Lanzhou Petrochemical Company" from year 2008 to 2015.

Tab. 10 - PetroChina Lanzhou Petrochemical Company Balance Sheet

Local registry filing/Unconsolidated	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	30/11/2010 th USD	31/12/2009 th USD	31/12/2008 th USD	31/12/2007 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	11 months Local GAAP 0.14979	12 months Local GAAP 0.14645	12 months Local GAAP 0.14631	12 months Local GAAP 0.13690
Balance sheet									
Assets									
Fixed assets	281.754	480	9.556	487.281	489.548	280.243	256.703	430.373	514.271
Intangible fixed assets	72.409	0	n.a.	n.a.	n.a.	n.a.	0	n.a.	0
Tangible fixed assets	206.314	480	9.463	479.440	482.271	n.a.	256.703	286.050	305.411
Other fixed assets	3.031	0	n.a.	n.a.	n.a.	n.a.	0	n.a.	n.a.
Current assets	298.280	3.164	43.569	618.582	590.076	576.025	427.701	596.385	346.830
Stock	121.418	1.024	19.100	158.767	153.287	346.857	297.256	233.434	85.286
Debtors	90.549	112	11.490	153.462	136.417	53.227	59.869	44.071	53.135
Other current assets	86.313	2.028	12.979	306.352	300.371	175.940	70.577	318.881	208.409
Cash & cash equivalent	20.949	n.a.	n.a.	77.259	66.951	n.a.	n.a.	n.a.	n.a.
TOTAL ASSETS	580.034	3.644	53.125	1.105.863	1.079.624	856.268	684.404	1.026.758	861.101
Liabilities & Equity									
Shareholders funds	170.992	5.464	12.812	317.890	323.880	319.674	232.378	633.346	594.986
Capital	955.361	n.a.	20.067	353.716	353.081	862.831	843.624	1.076.410	1.008.166

Other shareholders funds	-784.369	n.a.	-7.255	-35.825	-29.202	-543.157	-611.246	-443.064	-413.180
Non-current liabilities	4.793	-2.019	22.672	3.217	8.923	n.a.	68.205	57.481	127
Long term debt	0	n.a.	n.a.	3.217	8.923	n.a.	68.204	57.481	127
Other non-current liabilities	4.793	n.a.	n.a.	0	0	n.a.	0	0	0
Provisions	n.a.	n.a.	n.a.	0	0	n.a.	n.a.	0	0
Current liabilities	404.249	199	17.641	784.756	746.822	n.a.	383.822	335.930	265.988
Loans	0	0	0	183.159	175.372	n.a.	0	0	0
Creditors	137.660	65	11.469	294.892	269.576	n.a.	134.736	142.185	109.934
Other current liabilities	266.589	134	6.172	306.704	301.874	n.a.	249.086	193.745	156.055
TOTAL SHAREH. FUNDS & LIAB.	580.034	3.644	53.125	1.105.863	1.079.624	856.268	684.404	1.026.758	861.101
Memo lines									
Working capital	74.307	1.071	19.121	17.337	20.128	n.a.	222.389	135.319	28.488
Net current assets	-105.969	2.965	25.928	-166.174	-156.746	n.a.	43.879	260.455	80.842
Enterprise value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of employees	n.a.	54	n.a.	n.a.	n.a.	13.364	14.758	14.721	12.576

Tab. 11 - PetroChina Lanzhou Petrochemical Company Profit & Loss Account

Local registry filing/Unconsolidated	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	30/11/2010 th USD	31/12/2009 th USD	31/12/2008 th USD	31/12/2007 th USD
	12 months	12 months	12 months	12 months	12 months	11 months	12 months	12 months	12 months
	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP	Local GAAP
Exchange rate: CNY/USD	0.15405	0.16343	0.16387	0.15899	0.15871	0.14979	0.14645	0.14631	0.13690
Profit & loss account									
Operating revenue (Turnover)	451.153	5.319	47.248	640.364	604.678	409.574	690.945	629.606	634.794
Sales	451.153	5.319	47.248	640.364	604.678	409.574	690.945	610.760	633.645
Costs of goods sold	489.020	5.015	44.264	609.690	582.970	448.641	692.559	638.707	609.050
Gross profit	-37.867	304	2.983	30.674	21.708	-39.067	-1.614	-9.101	25.744
Other operating expenses	55.806	492	9.286	42.476	37.676	36.517	107.854	116.080	85.391
Operating P/L [=EBIT]	-93.672	-188	-6.303	-11.802	-15.968	-75.584	-109.467	-125.181	-59.647
Financial revenue	1.500	n.a.	n.a.	n.a.	n.a.	n.a.	1.544	2.413	9.538
Financial expenses	7.601	1	101	5.519	4.711	433	366	-2.805	-1.634
Financial P/L	-6.101	n.a.	n.a.	n.a.	n.a.	n.a.	1.178	5.219	11.172
P/L before tax	-99.774	n.a.	n.a.	n.a.	n.a.	n.a.	-108.289	-119.962	-48.475
Taxation	-323	n.a.	127	149	162	n.a.	803	941	943

P/L after tax	-99.451	n.a.	n.a.	n.a.	n.a.	n.a.	-109.092	-120.902	-49.418
Extr. and other revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extr. and other expenses	3.316	79	16	481	638	n.a.	1.128	3.569	n.a.
Extr. and other P/L	66.239	n.a.	n.a.	n.a.	n.a.	n.a.	91.444	-83.307	59.177
P/L for period [=Net income]	-33.211	n.a.	-6.367	-17.018	-20.962	-1.427	-17.648	-204.209	9.759
Memo lines									
Export revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Material costs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of employees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Depreciation & Amortization	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other operating items	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Interest paid	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Research & Development expenses	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cash flow	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Added value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBITDA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Tab. 12 - PetroChina Lanzhou Petrochemical Company Financial Ratios

Local registry filing/Unconsolidated	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	30/11/2010 th USD	31/12/2009 th USD	31/12/2008 th USD	31/12/2007 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	11 months Local GAAP 0.14979	12 months Local GAAP 0.14645	12 months Local GAAP 0.14631	12 months Local GAAP 0.13690
Profitability ratios									
ROE using P/L before tax (%)	-58,35	n.a.	n.a.	n.a.	n.a.	n.a.	-46,60	-18,94	-8,15
ROCE using P/L before tax (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using P/L before tax (%)	-17,20	n.a.	n.a.	n.a.	n.a.	n.a.	-15,82	-11,68	-5,63
ROE using Net income (%)	-19,42	n.a.	-49,69	-5,35	-6,47	-0,45	-7,60	-32,24	1,64
ROCE using Net income (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using Net income (%)	-5,73	n.a.	-11,99	-1,54	-1,94	-0,18	-2,58	-19,89	1,13
Profit margin (%)	-22,12	n.a.	n.a.	n.a.	n.a.	n.a.	-15,67	-19,05	-7,64
Gross margin (%)	-8,39	5,72	6,31	4,79	3,59	-9,54	-0,23	-1,45	4,06
EBITDA margin (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBIT margin (%)	-20,76	-3,53	-13,34	-1,84	-2,64	-18,45	-15,84	-19,88	-9,40
Cash flow / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Enterprise value / EBITDA (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Market cap / Cash flow from operations (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Operational ratios									
Net assets turnover (x)	2,57	1,54	1,33	1,99	1,82	n.a.	2,30	0,91	1,07
Interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Stock turnover (x)	3,72	5,19	2,47	4,03	3,95	1,29	2,32	2,70	7,44

Collection period (days)	72	8	88	86	81	43	31	25	30
Credit period (days)	110	4	87	166	160	n.a.	70	81	62
Export revenue / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R&D expenses / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Structure ratios									
Current ratio (x)	0,74	15,91	2,47	0,79	0,79	n.a.	1,11	1,78	1,30
Liquidity ratio (x)	0,44	10,76	1,39	0,59	0,59	n.a.	0,34	1,08	0,98
Shareholders liquidity ratio (x)	35,67	n.s.	0,57	98,82	36,30	n.a.	3,41	11,02	n.s.
Solvency ratio (Asset based) (%)	29,48	n.s.	24,12	28,75	30,00	37,33	33,95	61,68	69,10
Solvency ratio (Liability based) (%)	41,80	n.s.	31,78	40,34	42,86	n.a.	51,41	n.s.	n.s.
Gearing (%)	2,80	n.s.	176,96	58,63	56,90	n.a.	29,35	9,08	0,02
Per employee ratios									
Profit per employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-7	-8	-4
Operating revenue per employee (th)	n.a.	99	n.a.	n.a.	n.a.	33	47	43	50
Costs of employees / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average cost of employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shareholders funds per employee (th)	n.a.	101	n.a.	n.a.	n.a.	24	16	43	47
Working capital per employee (th)	n.a.	20	n.a.	n.a.	n.a.	n.a.	15	9	2
Total assets per employee (th)	n.a.	67	n.a.	n.a.	n.a.	64	46	70	68

5.3Energy Sector

China, due to the size of its territory and population, is the biggest consumer of energy worldwide. The energy sector includes several branches such as the oil and gas industry, the coal industry, the renewable energy industry and the nuclear power industry.

The coal sector and oil and gas sector are the two most significant sources of energy for the country. As long as coal production is concerned, coal has been the main source of energy in China, due to the great amount of natural reserves; therefore, China has invested into creating several large-scale modern coal mines starting from the 1980s, resulting in a gradual increase in coal output, maintained at over one billion tons a year since 1989. Nowadays, China's coal industry has the ability to design, construct, equip and administer 10 million ton opencast coalmines and large and medium-sized mining areas. However, recent environmental concerns regarding the large employment of coal for energy production has led the Chinese government to reduce coal output and close mines in the North-Eastern part of the country. Therefore, in order to keep pace with the growing demand for energy; on the one hand, Beijing has been spending much efforts to develop the renewable energy sector, on the other hand has been increasing the imports of gas from abroad.

Petroleum and natural gas are important energy resources. For nine years running from 1997 to 2005, china has been the fifth world producer of crude oil, registering an annual crude oil output of more than 160 million tons. Oil industry development has accelerated the growth of local economies and related industries, such as machinery manufacturing, iron and steel industries, transport and communications. China's natural gas output exceeded 30 billion cubic meters in 2001 and reached 50 billion cubic meters in 2005.

The Chinese energy consumption sector had total revenues of $2,264.6 billion in 2016, representing a compound annual growth rate (CAGR) of 4.4% between 2012 and 2016. In comparison, over the same period the Singaporean and Indian sectors grew with CAGRs of 3.2% and 12% respectively reaching respective figures of $136.4 billion and $396.3 billion in 2016. A reduced rate of growth in value compared to India reflects the maturity status that the Chinese economy has now gained in relation to other BRIC countries. Consumption has previously been boosted by growing economic output and expanding wages among the workforce, allowing them to live lifestyles which are much more energy intensive than has previously been possible. In time the rate of growth will probably move slowly towards that of Singapore, which has a much more service related economy.

My research in the Chinese energy sector focused on the manufacturing and distribution of electric power generating equipment and the mining and processing of coal while the analysed companies are: “Dongfang Electric Corporation” and “Shanxi Coking Coal Group Company”.

5.3.1 Dongfang Electric Corporation

Headquartered in Chengdu, central China, “Dongfang Electric Corporation” is a manufacturer and distributor of electric power generating equipment. The company operates in four segments: fossil fuel power, hydro power, transportation, transmission and substation. Its products include hydro, thermal, nuclear, and wind power equipment including flame boilers, fuel boilers, direct-driven wind turbine units, gas turbines, and more. The company exports complete plants and equipment to over 30 countries. It is also involved in projects in electric and mechanical works, railways, environmental protection, traffic and transportation, and other fields. It is a state-owned enterprise under the direct control of the People’s Republic of China as the SASAC retains 100% ownership of the firm. The company employed 470 people in 2015.

Due to its distinguished capacity and contribution, the “Dongfang Electric Corporation” represents the top class technological and manufacturing level for China's heavy machinery and equipment industry and is appointed by the Central Government as one of the most important state-owned enterprise groups concerning the national economy of the country.

“Dongfang Electric Corporation” sold to its subsidiary “Dongfang Electric Corporation Limited” all the shares of the “Dongfang Electric Chengdu Intelligent Technology Company Limited” in a stock swap transaction. Together with this acquisition, “Dongfang Electric Corporation Limited” acquired the equipment of “Dongfang Electric Corporation”, the entire share capital of “Dongfang Electric Group International Cooperation Corporation Limited”, “Dongfang Electric Autocontrol Engineering Corporation Limited”, “Dongfang Electric Corporation Materials Corporation”, “Dongfang Electric Corporation Project Cargo Logistics Corporation Limited”, “Dongfang Electric Chengdu Qingneng Technology Corporation Limited” as well as 95% interest in “Dongfang Electric Finance Corporation Limited” and 41.24% stake in “Dongfang Hitachi (Chengdu) Electrical Control Equipments Corporation Limited”. The above reported transactions have a value of 753.903 million Chinese yuan.

“Dongfang Electric Corporation Limited” was founded in 1993 and is headquartered in Chengdu, the People’s Republic of China. It is the listed subsidiary of “Dongfang Electric Corporation” and sells A shares in the Shanghai Stock Exchange and H shares in the Hong Kong Stock Exchange. All the above-mentioned transactions are in line with the government policing on the deleveraging of SOEs in favour to the development of a market economy.

The company uses the local GAAP as accounting standards and its financial statement are unconsolidated. It has 21 recorded subsidiaries one of which and the corporate group is composed by 14,847 companies.

Tab. 14 - Balance Sheet Vertical Analysis (th USD)

	2016		2015		2014		2012		2011		2010		2009	
TOTAL ASSETS	15,014,785		2,590,662		2,794,108		3,233,132		2,480,701		2,429,408		2,337,080	
Fixed assets	3,333,576	22.20%	1,475,799	56.97%	1,876,341	67.15%	n.a.	n.a.	n.a.	n.a.	1,316,326	54.18%	1,221,993	52.29%
Stock	2,959,278	19.71%	308	0.01%	69	0.00%	n.a.	n.a.	n.a.	n.a.	6,604	0.27%	17,485	0.75%
Debtors	3,152,036	20.99%	32,016	1.24%	54,529	1.95%	n.a.	n.a.	n.a.	n.a.	149,773	6.17%	118,631	5.08%
Cash & cash equiv.	4,495,541	29.94%	771,408	29.78%	497,051	17.79%	n.a.	n.a.	n.a.	n.a.	590,254	24.30%	534,390	22.87%
Shareholders funds	4,179,484	27.84%	1,049,381	40.51%	1,072,196	38.37%	1,297,354	40.13%	1,351,258	54.47%	1,160,039	47.75%	1,166,917	49.93%
Long term debt	867,343	5.78%	8,953	0.35%	20,950	0.75%	n.a.	n.a.	n.a.	n.a.	345,527	14.22%	231,705	9.91%
Loans	25,481	0.17%	0	0.00%	0	0.00%	n.a.	n.a.	n.a.	n.a.	0	0.00%	0	0.00%
Creditors	2,216,896	14.76%	64,813	2.50%	91,441	3.27%	n.a.	n.a.	n.a.	n.a.	133,585	5.50%	69,640	2.98%

Through the vertical analysis of “Dongfang Electric Corporation” balance sheet, it can be noted that in the last available year, fixed assets as a percentage of total assets registered a significant fall compared to both 2015 and 2014 figure even though the nominal figure is much bigger than the previous years. Compared to all the available financial years, the 2016 stock’s percentage of total assets increased considerably. Similarly, the debtors account which represents 20,99% of total assets in 2016 surged dramatically. The cash and cash equivalent line rose significantly in 2015 and 2016 meaning that the company has improved its liquidity compared to 2013 figure which might be connected with the selling of shares and equipment to its subsidiary. The shareholders’ funds line fluctuated considerably during the years starting from the 49,93% in 2009 it increased to 54,47% in 2011, while it declined to 38,37% in 2014 and after a temporary increase in 2015 it plummeted in 2016 reaching 27,84% of total assets. When looking at the firm’s liabilities it can be noticed that the company decreased its long-term debt from 2010 when the firm surged at 14,22% of total assets and then decreased reaching 5,78% in 2016. The loans percentage of total assets is very low, however not every financial year’s data are available therefore it is difficult to make further consideration on the firm’s leverage. The creditors line grew significantly in 2016 reaching 14,76 of total asset meaning that the company is increasing its external liabilities.

Tab. 15 - P/L Account Vertical Analysis (th USD)

	2016		2015		2013		2012		2011		2010		2009	
Sales	5,266,658		31,819		30,726		208,048		155,857		358,251		172,495	
COGS	4,550,377	86.40%	25,647	80.60%	26,218	85.33%	245,357	117.93%	177,756	114.05%	356,777	99.59%	209,339	121.36%
Gross profit	716,280	13.60%	6,172	19.40%	4,507	14.67%	-37,309	-17.93%	-21,898	-14.05%	1,475	0.41%	-36,844	-21.36%
EBIT	-107,962	-2.05%	-31,974	-100.49%	-39,851	-129.70%	-76,455	-36.75%	-56,797	-36.44%	-20,740	-5.79%	-54,318	-31.49%
Taxation	-20,513	-0.39%	0	0.00%	0	0.00%	n.a.	n.a.	n.a.	n.a.	0	0.00%	21	0.01%
Net Income	-281,329	-5.34%	95,383	299.76%	-47,225	-153.70%	n.a.	n.a.	n.a.	n.a.	-48,815	-13.63%	-18,220	-10.56%

Through the vertical analysis of the "Dongfang Electric Corporation" income statement, it can be noted that the Cost of goods sold (COGS) account as a percentage of sales has been increasing from 2010 rate (99,59%) to the 2012 one (117,93%), while it has been decreasing reaching 80,60% of sales in 2015 and lastly grew by 86,40% of sales in 2016. The gross profit entry shows negative percentages for 2012, 2011 and 2009 financial years while it increased in 2014 and 2015 reaching 13,60% of total assets in 2016. The EBIT entry shows that the profit earned by the company are not sufficient to cover the operating and financial expenses as this line presents negative percentages for all the available years, despite the low EBIT an upward trend can be identified as in 2016 the EBIT is equal to -2,05% of total assets while in 2014 it was -129,7%. Unfortunately, the data related to the taxation are not available for all the financial years reported, however I can be noted that the company enjoys very low tax duty to the extent that in 2016 the company is receiving tax money instead of paying. The net income line highlights negative performance for the 2016, 2014, 2010, 2009 financial years while for 2012 and 2011 the data are not available; therefore it can be concluded that the company has not been profitable for several years.

Tab. 16 - Balance Sheet Horizontal Analysis

	2016/2015	2015/2014	2014/2012	2012/2011	2011/2010	2010/2009
Fixed assets	125.88%	-21.35%	n.a.	n.a.	n.a.	7.72%
Intan. fixed assets	2312.71%	-9.84%	n.a.	n.a.	n.a.	4.41%
Tan. fixed assets	1529.13%	1.17%	n.a.	n.a.	n.a.	5.57%
Other fixed assets	19.00%	-22.57%	n.a.	n.a.	n.a.	7.83%
Current assets	947.77%	21.48%	n.a.	n.a.	n.a.	-0.18%
Stock	961850.52%	348.19%	n.a.	n.a.	n.a.	-62.23%
Debtors	9745.33%	-41.29%	n.a.	n.a.	n.a.	26.25%
Other curr. assets	414.52%	25.41%	n.a.	n.a.	n.a.	-2.27%
Cash & cash equiv.	482.77%	55.20%	n.a.	n.a.	n.a.	10.45%
TOTAL ASSETS	479.57%	-7.28%	-13.58%	30.33%	2.11%	3.95%
Shareholders funds	298.28%	-2.13%	-17.36%	-3.99%	16.48%	-0.59%
Capital	-6.59%	-5.74%	n.a.	n.a.	n.a.	6.86%
Other shareh. funds	1021.34%	7.65%	n.a.	n.a.	n.a.	-6.01%
Non-current liab.	80.96%	-6.54%	n.a.	n.a.	n.a.	49.12%
Long term debt	9587.81%	-57.27%	n.a.	n.a.	n.a.	49.12%
Other non-curr liab.	-21.08%	-5.34%	n.a.	n.a.	n.a.	n.c.v.
Provisions	n.a.	n.a.	n.a.	n.a.	n.a.	n.c.v.
Current liabilities	1233.35%	-14.83%	n.a.	n.a.	n.a.	-1.56%
Loans	n.c.v.	n.c.v.	n.a.	n.a.	n.a.	n.c.v.
Creditors	3320.44%	-29.12%	n.a.	n.a.	n.a.	91.82%
Other curr. liabilities	1015.76%	-13.04%	n.a.	n.a.	n.a.	-9.04%
TOT. S. FUNDS & LIAB.	479.57%	-7.28%	-13.58%	30.33%	2.11%	3.95%

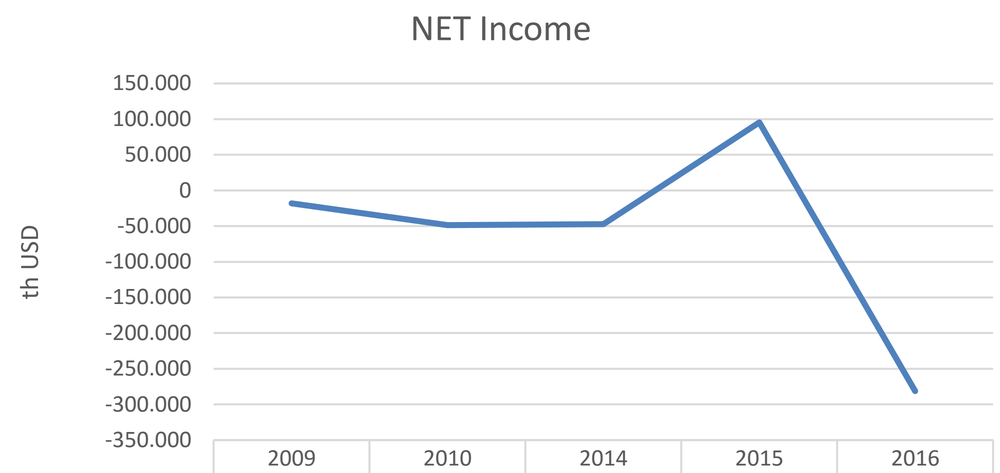
From the horizontal analysis of the company's balance sheet it can be deduced that the firm has been increasing all kind of fixed and current assets in the last available year and consequently it has augmented shareholders' funds, non-current and current liabilities in order to support the company's increased spending. If 2016 has been a year in which the "Dongfang Electric Corporation" invested a lot of resources in its business, 2015 financial year was a year in which the firm contracted its assets in order to limit its debt exposure. Unfortunately, the lack of data does not allow for a thorough analysis of 2014 to 2010 change percentages. In 2010, a rise in the company's fixed assets can be highlighted while the stock account decreased by 62,23%. Conversely, the debtors and cash and cash equivalent line grew significantly. An increase in the company's liabilities (long-term debt and creditors) suggests that the company increased its leverage in 2010.

Tab. 17 - P/L Account Horizontal Analysis

	2016/2015	2015/2014	2014/2012	2012/2011	2011/2010	2010/2009
Operating revenue	16451.69%	3.56%	-85.23%	33.49%	-56.50%	107.69%
Sales	16451.69%	3.56%	-85.23%	33.49%	-56.50%	107.69%
COGS	17642.18%	-2.18%	-89.31%	38.03%	-50.18%	70.43%
Gross profit	11504.89%	36.94%	112.08%	-70.37%	-1585.09%	104.00%
Other op. expenses	2060.72%	-14.00%	13.32%	12.17%	57.10%	27.13%
EBIT	-237.65%	19.77%	47.88%	-34.61%	-173.86%	61.82%
Financial revenue	-76.46%	238.73%	8.83%	44.27%	5.28%	131.20%
Financial expenses	-236.04%	-18.99%	15.99%	30.67%	395.60%	115.86%
Financial P/L	-56.49%	462.80%	3.29%	56.92%	-39.22%	-16.71%
P/L before tax	-116.40%	2600.81%	85.72%	-21.80%	-370.42%	199.59%
Taxation	n.c.v.	n.c.v.	n.a.	n.a.	n.a.	-100.00%
P/L after tax	-103.34%	2600.81%	n.a.	n.a.	n.a.	199.44%
Extr. and other P/L	-348.22%	-50.43%	n.a.	n.a.	n.a.	-1194.57%
Net income	-394.95%	301.98%	n.a.	n.a.	n.a.	-167.92%

In the horizontal analysis of "Dongfang Electric Corporation" it can be noted that the operating revenue and sales increased exponentially in the last financial year. The COGS increased as well as the gross profit; however due to a surge of the operating and administrative expenses the EBIT line registered a negative change percentage. All the profit lines: Financial P/L, P/L before tax, P/L after tax and net income registered a fall in the 2016 financial year despite the increase in the sales account. In addition, the financial expenses declined dramatically meaning that the company's interest payment plummeted as well. In 2015, COGS, operating expenses, financial expenses and net income declined while all the other accounts grew. 2014 saw a fall in the sales account, COGS, gross profit, on the other hand financial expenses augmented compared to the 2012 figure, nonetheless P/L before tax registered an increase of 85.72%. In 2011 and 2010 the change percentage is negative for both EBIT and P/L before tax, while COGS and sales fluctuated considerably. Lastly, the net income for 2010 registered a fall of 162.92%, conversely the sales and COGS registered an increase. Overall the company has been less and less profitable across the years mainly due to the fluctuation in the COGS, as well as the operating and financial expenses.

“Dongfang Electric Corporation” registered very negative actual profit for all the available 5 years except for 2015. (1) and negative EBIT for every reported year.



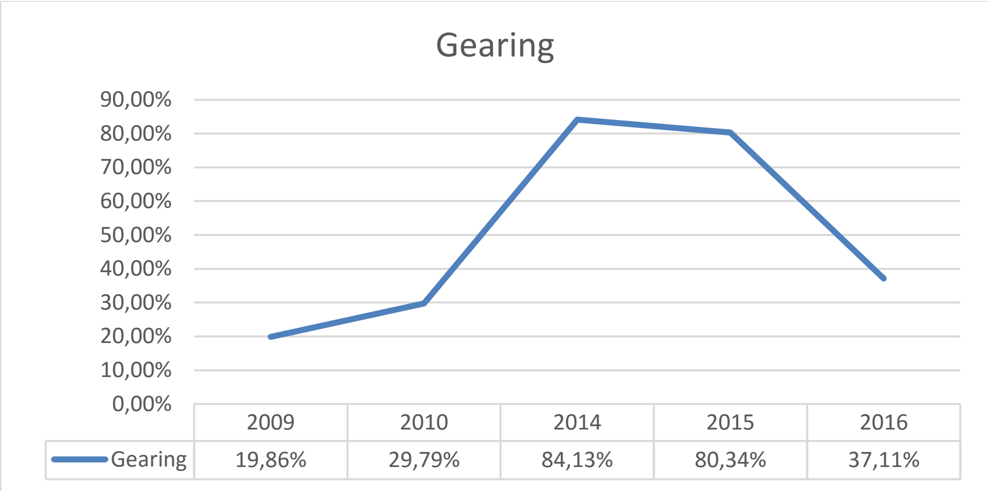
	2009	2010	2014	2015	2016
NET Income	-18.220	-48.815	-47.225	95.383	-281.329

After having investigated the company’s profitability, I report the table which depicts the firm’s financial condition and includes the company’s current and non-current liabilities, market interest rate, the minimum interest payment computed with the Caballero’s simplified formula, the actual interest expenses of the firm, the difference between the minimum required payment and the company’s paid interest expense, and the actual interest rate paid by the company computed dividing the total debt by the interest paid. (2)

	2016	2015	2014	2010	2009
Current liabilities	9,309,707	698,221	819,822	923,843	938,457
Non-current liab.	1,525,594	843,060	902,090	345,527	231,705
Interest rates	4.35%	4.35%	5.60%	5.81%	5.31%
R*	485,219	78,444	99,981	74,421	63,637
Interest paid	-32,168	23,646	29,189	3,886	-24,498
R*- Ri	517,387	54,797	70,792	70,535	88,135
Actual interest cost	-0.30%	1.53%	1.70%	0.31%	-2.09%

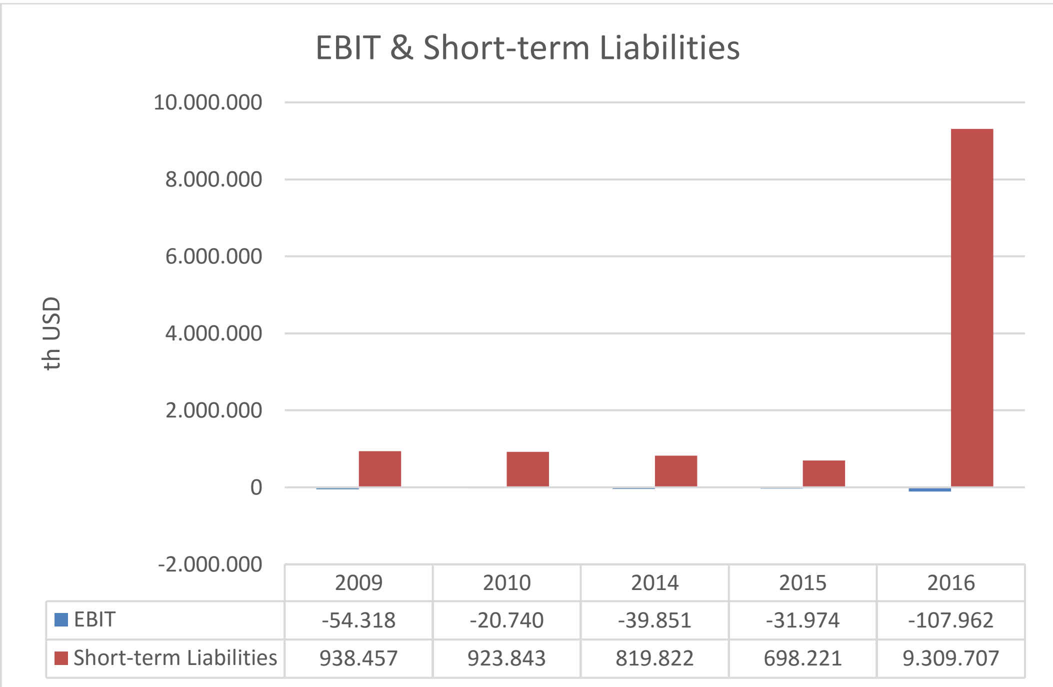
In the table above, it can be noted that the actual interest rate obtain by the “Dongfang Electric Corporation” is much lower than the market one meaning that the company has been enjoying reduced expenses on its debt. Moreover, in the last available year the company had even lower interest cost which is against the latest government policies on reducing the benefits of state-owned enterprise and tackling the zombie economy issue.

The company has been increasing dramatically its current liabilities and non-current liabilities in the last financial year, thus it demonstrate that despite the poor profitability performance and the growing level of debt, the company was able to get new credit throughout the years. The third step of my analysis consists in the focusing of the firm's gearing ratio to investigate whether the company has been increasing its external financing compared to its shareholders' capital. (3)

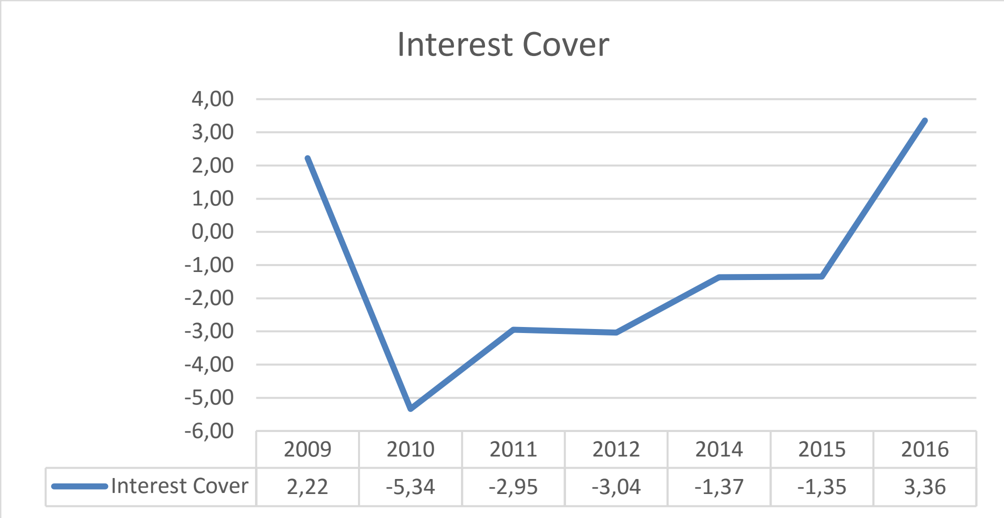


From the graph above, it can be concluded that the firm has a growing gearing ratio trend from 2010 to 2014 while in 2016 it registered a fall, highlighting that the company was relying much on external debt between 2014 and 2015 when the index was exceeding the Nakamura and Fukuda threshold.

The fourth step is the comparison between the EBIT and short-term obligations (4).



The graph above shows that the firm has far more short-term liabilities than earnings before interest and tax which highlights that the firm is not able to meet its short-term requirement leading to a non-compliance of due payments and the need to get more credit to keep the firm away from bankruptcy. Moreover, the firm is not able to pay its interest payment as the interest cover ratio is very low and even lower than 0 in the last three financial years (5).



The graph above shows the interest cover of the firm which is computed by dividing the EBIT by the interest expenses, as this index is negative for all the financial years available it is implied that the company is not able to repay its debt because it cannot even meet its interest payment, in fact except for the 2009 and 2016 figure all the others are negative which means that the company has more interest to pay than its earnings before tax, therefore it is proved that the firm has been receiving subsidized credit. (5)

In this section, I am going to demonstrate that, even though the company has government support, it fails to improve its financial and profitability performance.

	2009	2010	2011	2012	2014	2015	2016
Number of employees	30	30	30,000	30,000	470	470	n.a.
Fixed assets (th USD)	1,221,993	1,316,326	n.a.	n.a.	1,876,341	1,475,799	3,333,576
Profit Margin (%)	-7.77	3.72	-23.15	-21.12	-20.43	493.35	-0.49
ROE using P/L b.tax (%)	-1.15	1.15	-2.67	-3.39	-0.59	14.96	-0.62
ROA using P/L b.tax (%)	-0.57	0.55	-1.46	-1.36	-0.23	6.06	-0.17

As it can be noticed from the chart above the company has been increasing its employment rate from 2010 to 2012 hiring 29970 people however in 2014 the number of employers plummeted at 470 people. In the last available year, the fixed assets account registered an increase of 172,80% compared to the 2009 figure. As long as the profit margin is concerned the company improved its performance in 2016, however it is still a negative percentage meaning that the firm is not earning any profit from its operations. The same conclusions can be drawn for the ROE and ROA using P/L before tax. All the three profitability index registered a positive figure in 2015 while in 2016 the company recorded a negative performance. It can be concluded that the company did not succeed in increasing its employment rate, however the company augmented its fixed assets across time and to some extent improved the company profitability which registered a very negative performance for the 2011 and 2012 years. Below I report the financial statements of the "Dongfang Electric Corporation" from year 2009 to 2016.

Tab. 13 - Dongfang Electric Corporation Balance Sheet

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.15099	12 months Local GAAP 0.14645
Balance sheet							
Assets							
Fixed assets	3.333.576	1.475.799	1.876.341	n.a.	n.a.	1.316.326	1.221.993
Intangible fixed assets	184.911	7.664	8.500	n.a.	n.a.	6.282	6.017
Tangible fixed assets	1.512.039	92.813	91.741	n.a.	n.a.	53.992	51.146
Other fixed assets	1.636.626	1.375.323	1.776.100	n.a.	n.a.	1.256.052	1.164.830
Current assets	11.681.209	1.114.863	917.766	n.a.	n.a.	1.113.082	1.115.086
Stock	2.959.278	308	69	n.a.	n.a.	6.604	17.485
Debtors	3.152.036	32.016	54.529	n.a.	n.a.	149.773	118.631
Other current assets	5.569.895	1.082.540	863.169	n.a.	n.a.	956.705	978.971
Cash & cash equivalent	4.495.541	771.408	497.051	n.a.	n.a.	590.254	534.390
TOTAL ASSETS	15.014.785	2.590.662	2.794.108	3.233.132	2.480.701	2.429.408	2.337.080
Liabilities & Equity							
Shareholders funds	4.179.484	1.049.381	1.072.196	1.297.354	1.351.258	1.160.039	1.166.917
Capital	689.470	738.146	783.081	n.a.	n.a.	525.245	491.520
Other shareholders funds	3.490.014	311.235	289.115	n.a.	n.a.	634.794	675.398

Non-current liabilities	1.525.594	843.060	902.090	n.a.	n.a.	345.527	231.705
Long term debt	867.343	8.953	20.950	n.a.	n.a.	345.527	231.705
Other non-current liabilities	658.251	834.107	881.140	n.a.	n.a.	0	0
Provisions	n.a.	n.a.	n.a.	n.a.	n.a.	0	0
Current liabilities	9.309.707	698.221	819.822	n.a.	n.a.	923.843	938.457
Loans	25.481	0	0	n.a.	n.a.	0	0
Creditors	2.216.896	64.813	91.441	n.a.	n.a.	133.585	69.640
Other current liabilities	7.067.329	633.408	728.381	n.a.	n.a.	790.257	868.817
TOTAL SHAREH. FUNDS & LIAB.	15.014.785	2.590.662	2.794.108	3.233.132	2.480.701	2.429.408	2.337.080
Memo lines							
Working capital	3.894.417	-32.490	-36.843	n.a.	n.a.	22.791	66.476
Net current assets	2.371.502	416.642	97.945	n.a.	n.a.	189.239	176.630
Enterprise value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of employees	n.a.	470	470	30.000	30.000	30	30

Tab. 14 - Dongfang Electric Corporation Profit & Loss Account

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.15099	12 months Local GAAP 0.14645
Profit & loss account							
Operating revenue (Turnover)	5.266.658	31.819	30.726	208.048	155.857	358.251	172.495
Sales	5.266.658	31.819	30.726	208.048	155.857	358.251	172.495
Costs of goods sold	4.550.377	25.647	26.218	245.357	177.756	356.777	209.339
Gross profit	716.280	6.172	4.507	-37.309	-21.898	1.475	-36.844
Other operating expenses	824.242	38.147	44.359	39.146	34.898	22.214	17.474
Operating P/L [=EBIT]	-107.962	-31.974	-39.851	-76.455	-56.797	-20.740	-54.318
Financial revenue	50.042	212.601	62.764	57.671	39.974	37.969	16.422
Financial expenses	-32.168	23.646	29.189	25.165	19.259	3.886	-24.498
Financial P/L	82.211	188.954	33.574	32.506	20.715	34.083	40.920
P/L before tax	-25.751	156.980	-6.277	-43.949	-36.082	13.343	-13.397
Taxation	-20.513	0	0	n.a.	n.a.	0	21

P/L after tax	-5.238	156.980	-6.277	n.a.	n.a.	13.343	-13.418
Extr. and other revenue	298.362	68.866	42.782	n.a.	n.a.	n.a.	n.a.
Extr. and other expenses	69.565	29	333	n.a.	n.a.	19.872	116
Extr. and other P/L	-276.091	-61.597	-40.948	n.a.	n.a.	-62.158	-4.801
P/L for period [=Net income]	-281.329	95.383	-47.225	n.a.	n.a.	-48.815	-18.220
Memo lines							
Export revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Material costs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of employees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Depreciation & Amortization	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other operating items	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Interest paid	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Research & Development expenses	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cash flow	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Added value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBITDA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Tab. 15 - Dongfang Electric Corporation Financial Ratios

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.15099	12 months Local GAAP 0.14645
Profitability ratios							
ROE using P/L before tax (%)	-0,62	14,96	-0,59	-3,39	-2,67	1,15	-1,15
ROCE using P/L before tax (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using P/L before tax (%)	-0,17	6,06	-0,23	-1,36	-1,46	0,55	-0,57
ROE using Net income (%)	-6,73	9,09	-4,41	n.a.	n.a.	-4,21	-1,56
ROCE using Net income (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using Net income (%)	-1,87	3,68	-1,69	n.a.	n.a.	-2,01	-0,78
Profit margin (%)	-0,49	n.s.	-20,43	-21,12	-23,15	3,72	-7,77
Gross margin (%)	13,60	19,40	14,67	-17,93	-14,05	0,41	-21,36
EBITDA margin (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBIT margin (%)	-2,05	n.s.	n.s.	-36,75	-36,44	-5,79	-31,49
Cash flow / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Enterprise value / EBITDA (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Market cap / Cash flow from operations (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Operational ratios							
Net assets turnover (x)	0,92	0,02	0,02	n.a.	n.a.	0,24	0,12
Interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Stock turnover (x)	1,78	103,43	447,64	n.a.	n.a.	54,25	9,87

Collection period (days)	215	362	639	n.a.	n.a.	151	248
Credit period (days)	152	733	n.s.	n.a.	n.a.	134	145
Export revenue / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R&D expenses / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Structure ratios							
Current ratio (x)	1,26	1,60	1,12	n.a.	n.a.	1,21	1,19
Liquidity ratio (x)	0,94	1,60	1,12	n.a.	n.a.	1,20	1,17
Shareholders liquidity ratio (x)	2,74	1,25	1,19	n.a.	n.a.	3,36	5,04
Solvency ratio (Asset based) (%)	27,84	40,51	38,37	40,13	54,47	47,75	49,93
Solvency ratio (Liability based) (%)	38,57	68,09	62,27	n.a.	n.a.	91,39	99,72
Gearing (%)	37,11	80,34	84,14	n.a.	n.a.	29,79	19,86
Per employee ratios							
Profit per employee (th)	n.a.	334	-13	-1	-1	445	n.s.
Operating revenue per employee (th)	n.a.	68	65	7	5	11.942	5.750
Costs of employees / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average cost of employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shareholders funds per employee (th)	n.a.	2.233	2.281	43	45	n.s.	n.s.
Working capital per employee (th)	n.a.	-69	-78	n.a.	n.a.	760	2.216
Total assets per employee (th)	n.a.	5.512	5.945	108	83	80.980	77.903

5.3.2 Shanxi Coking Coal Group Company Limited

The company is headquartered in the city of Taiyuan in Shanxi region, Northern China and is a state-owned enterprise under the direct control of the “Shanxi State-owned direct investment operation company limited” which is wholly owned by the “Shanxi State-owned Asset Supervision and Management Committee”. “Shanxi Coking Coal Company Group Limited” was founded in 2001 as a holding company of the Fenxi Mining Industry Group, Xishan Coal Electricity Group and Huozhou Coal Electricity Group. In 2016, it is the largest metallurgical coal producer in China its production capability amounts at nearly 46 million metric tons of coke, according to the company.

The main activities of the firm are mining of mineral resources which includes mining, processing and selling of coal; repair, manufacture of machinery; wholesale, retail of steel, rolling and forging products, chemicals, building materials; road transport of goods; repair of auto; planting and breeding industry; providing coal technology development and services;

The company uses the local GAAP as accounting standards while its financial statement are unconsolidated. The corporate group is composed by 223 companies while the number of recorded subsidiaries amounts at 40 of which Nafine Chemical Industry Group, Shanxi Coking Company and Xishan Coal and Electricity Power are publicly traded.

Following the supply-side structural reform in the coal industry, the resolution on the reduction of the fossil industry corporate debt and the new environmental policies, “Shanxi Coking Coal Group Limited” production shrank markedly while rolling out to local branch of the China Construction Bank debt-to-equity swaps worth 2 billion Chinese yuan. As a matter of fact, in 2016 the fossil industry witnessed a reduction of 74% of the annual target outlined by th government. Moreover, due to environmental protection policies, the stock of coke has lowered and many production sites in the North-eastern region of China such as Shanxi, Shandong, and Hebei have closed.

Thanks to the 2016 regulation which states that Chinese mines have to reduce their annual operation days from 330 to 276 and the growing demand for raw material stimulated by the construction and transportation industries, the price of coal surged increasing the profitability of those firms working in the sector. By November 2016 the national development and reform commission declared that China had over achieved its coal de-capacity objective for the year.

Tab. 18 - Balance Sheet Vertical Analysis (th USD)

	2016		2015		2014		2013	
TOTAL ASSETS	39,204,427		40,773,149		40,061,276		37,293,451	
Fixed assets	25,583,643	65.26%	24,596,702	60.33%	22,141,534	55.27%	20,714,215	55.54%
Stock	2,689,000	6.86%	2,779,029	6.82%	2,443,069	6.10%	2,465,204	6.61%
Debtors	3,486,460	8.89%	3,947,859	9.68%	4,139,973	10.33%	5,173,806	13.87%
Cash & cash equiv.	4,665,537	11.90%	6,146,963	15.08%	6,324,573	15.79%	4,286,542	11.49%
Shareholders funds	8,596,327	21.93%	8,513,880	20.88%	8,261,207	20.62%	8,626,184	23.13%
Long term debt	8,815,440	22.49%	6,329,505	15.52%	4,184,943	10.45%	3,747,767	10.05%
Loans	4,893,127	12.48%	4,242,111	10.40%	3,724,846	9.30%	3,213,177	8.62%
Creditors	4,789,743	12.22%	4,892,307	12.00%	5,359,372	13.38%	5,901,533	15.82%

Through the vertical analysis of the "Shanxi Coking Coal Group Limited's" balance sheet, it can be noted that the fixed assets entry registered an increase throughout the available financial years as a matter of fact fixed assets represented 56% of total assets in 2013 and it rose up to 65% in 2016. The company has been able to increase its fixed assets thanks to a growth in the shareholders' funds account which registered an increase compared to 2015 and 2014 levels but decreased from 2013 figure; long-term debt line which augmented to 22.49% of total asset in 2016 compared to 15.52% of 2015; and loans entry which registered 2 percentage points increase. The level of stock has been kept stable during the four available financial years while the debtors line has been decreasing by 5 percentage points from 2013 to 2016 meaning that the company is more efficient in the collection of credit from its clients. The cash and cash equivalent line rose significantly from 2013 to 2014 while it decreased reaching 12% in 2016 showing that the company have invested liquid money in the acquisition of new assets in the last year. While on the one hand the long-term debt and the loans lines surged in the last available financial year, the creditors line has decreased in 2016 meaning that the company is more efficient in the repayment of its suppliers.

Tab. 19 - P/L Account Vertical Analysis (th USD)

	2016		2015		2014		2013	
Sales	23,643,533		29,659,427		41,851,763		38,381,152	
COGS	21,321,950	90.18%	27,148,036	91.53%	38,727,428	92.53%	34,871,199	90.86%
Gross profit	2,321,582	9.82%	2,511,390	8.47%	3,092,859	7.39%	3,509,953	9.14%
EBIT	605,636	2.56%	652,330	2.20%	650,318	1.55%	785,637	2.05%
Taxation	90,170	0.38%	93,739	0.32%	110,767	0.26%	201,198	0.52%
Net Income	-51,646	-0.22%	-75,722	-0.26%	18,997	0.05%	23,800	0.06%

Through the vertical analysis of the "Shanxi Coking Coal Group Limited's" profit and loss account, it can be noted that the Cost of goods sold (COGS) line as a percentage of sales has been decreasing by more than 3 percentage points from 2014 rate (92.53%) to 2016 one (90.18%). This phenomenon is not in line with the government policies on the de-capacity of coal and environmental protection resolutions. Even though the total sales account have plunged in the last three years due to overcapacity issues in the coal sector, the cost of goods sold, as a percentage of sales, has been depreciating considerably from 2014 to 2016. Unexpectedly, the gross profit account registered a growth in 2016 compared to the 2014 data reaching 9.82% of sales from 7.39%. This is explained by a fall in operating and financial expenses which are mainly composed of interest payment, and a rise in the financial revenue. The EBIT figure has been increasing in the last years thanks to a fall in operating expenses which more than counterbalanced the fall in the operating revenue. Taxation always represented a very small percentage (lower than 1) of sales which confirms the fact that the firm was receiving financial aid from the government. Net income represents as well a small percentage of sales, to the extent that it is negative in the last two available years, this is due to the fact that the firm increased its extraordinary and other expenses.

Tab. 20 - Balance Sheet Horizontal Analysis

	2016/2015	2015/2014	2014/2013
Fixed assets	4.01%	11.09%	6.89%
Intan. fixed assets	20.59%	2.61%	24.61%
Tan. fixed assets	2.65%	1.80%	9.12%
Other fixed assets	-8.12%	120.41%	-30.21%
Current assets	-15.80%	-9.73%	8.09%
Stock	-3.24%	13.75%	-0.90%
Debtors	-11.69%	-4.64%	-19.98%
Other curr. assets	-21.21%	-16.65%	26.81%
Cash & cash equiv.	-24.10%	-2.81%	47.54%
TOTAL ASSETS	-3.85%	1.78%	7.42%
Shareholders funds	0.97%	3.06%	-4.23%
Capital	44.38%	-2.02%	-0.26%
Other shareh. funds	-7.11%	4.06%	-4.98%
Non-current liab.	-6.66%	11.90%	-0.02%
Long term debt	39.28%	51.24%	11.66%
Other non-curr liab.	-86.55%	-22.95%	-8.51%
Provisions	n.a.	n.a.	n.a.
Current liabilities	-4.43%	-2.63%	15.87%
Loans	15.35%	13.89%	15.92%
Creditors	-2.10%	-8.71%	-9.19%
Other curr. liabilities	-11.67%	-4.72%	29.75%
TOT. S. FUNDS & LIAB.	-3.85%	1.78%	7.42%

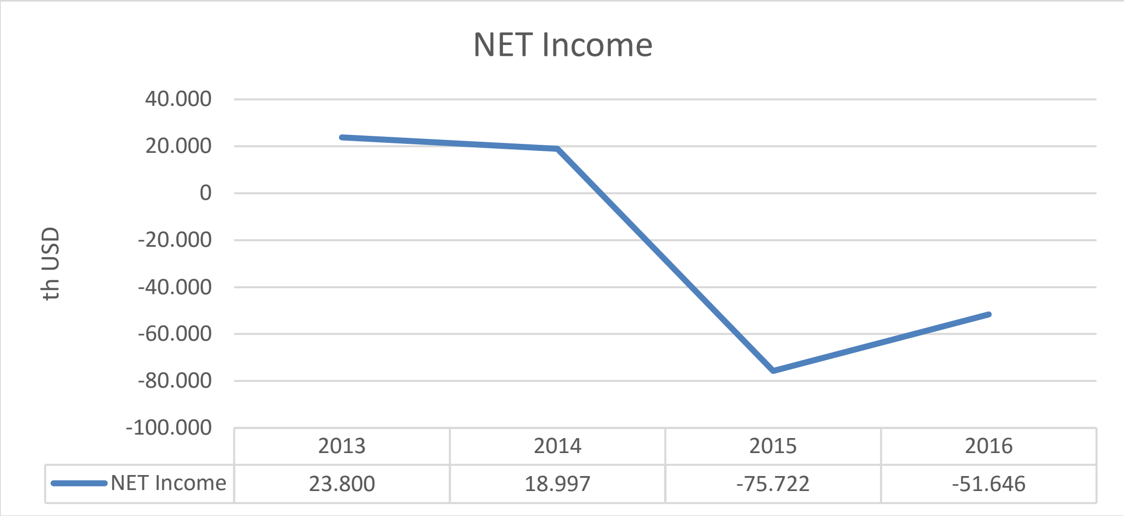
Through the horizontal analysis of the “Shanxi Coking Coal Group Limited’s” balance sheet it can be noted that the company’s assets have been increasing during the years registering a change percentage equal to 23,51% from 2013 to 2016. On the other hand other fixed assets and current assets registered a decrease in the last available year, as the company has been decreasing its debtors, stock and cash and cash equivalent lines. Shareholders’ funds showed a positive change percentage in the last two periods, while non-current and current liabilities lines registered a fall in comparison to the previous year, meaning that the company has been reducing its debt, however the long-term debt and loans lines have been increasing in the last period meaning that the firm has increased its reliance on external financing.

Tab. 21 - P/L Account Horizontal Analysis

	2016/2015	2015/2014	2014/2013
Operating revenue	-20.28%	-29.08%	8.96%
Sales	-20.28%	-29.13%	9.04%
COGS	-21.46%	-29.90%	11.06%
Gross profit	-7.56%	-18.80%	-11.88%
Other op. expenses	-7.70%	-23.89%	-10.34%
EBIT	-7.16%	0.31%	-17.22%
Financial revenue	15.58%	-54.82%	174.54%
Financial expenses	-18.64%	0.98%	11.11%
Financial P/L	22.93%	-19.47%	7.20%
P/L before tax	852.42%	-113.20%	-49.53%
Taxation	-3.81%	-15.37%	-44.95%
P/L after tax	102.95%	-529.86%	-11.44%
Extr. and other P/L	-280.09%	-15.15%	-7.90%
Net income	31.80%	-498.60%	-20.18%

From the horizontal analysis of the firm's income statement it can be noted that the company has been dramatically diminishing its operating revenue during the years, registering two consequent negative change percentage in the last two periods respectively -20% between 2016 and 2015 and -29% between 2015 and 2014 which is connected with the fall in the sales. Cost of goods sold have been reducing as well throughout the years in relation to the plunge in the sales account. Gross profit and EBIT accounts registered negative performance for all the years available. The income statement shows that in 2015 the company was registering negative change percentage especially in the P/L before tax field (-113%), P/L after tax (-580%), and net income (-499%) highlighting that the firm was undergoing financial distress. The taxation account shows continuous reduction in the payable amount registering -45% in 2014, -15% in 2015 and -4% in 2016 which are consistent with the company's shrinking of profit. As long as the expenses are concerned, the company registered a fall of other expenses for the three consequent period and a plunge in the financial expenses which are associated with the interest payment for the last available year.

The “Shanxi Coking Coal Group” registered very negative actual profit for the last two available periods (1).

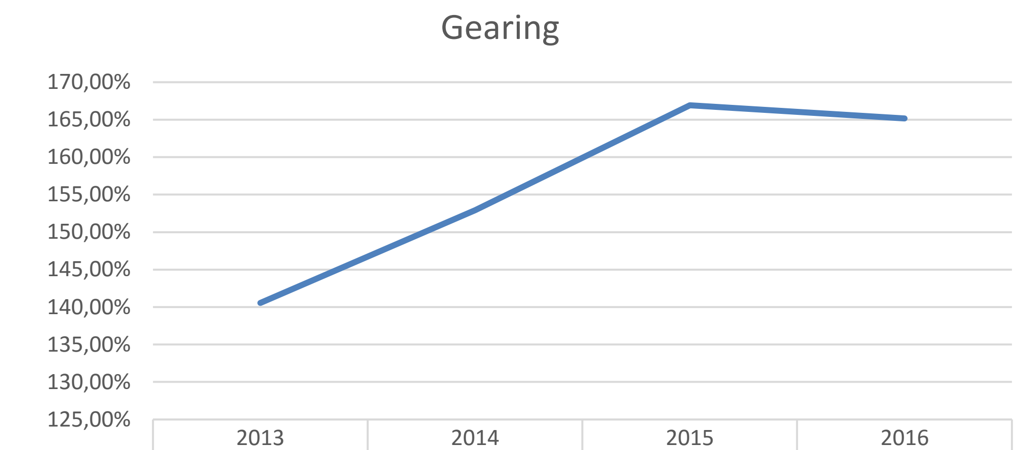


After having investigated the company’s profitability, I report the table which depicts the firm’s financial condition and includes the company’s current and non-current liabilities, market interest rate, the minimum interest payment computed with the Caballero’s simplified formula, the actual interest expenses of the firm, the difference between the minimum required payment and the company’s paid interest expense, and the actual interest rate paid by the company computed dividing the total debt by the interest paid (2).

	2016	2015	2014	2013
Current liabilities	21,303,171	22,289,971	22,891,196	19,756,199
Non-current liab.	9,304,929	9,969,297	8,908,873	8,911,069
Interest rates	4.35%	4.35%	5.60%	6.00%
R*	1,416,127	1,538,063	1,815,905	1,714,333
Interest paid	608,628	748,041	740,793	666,724
R*- Ri	807,500	790,022	1,075,111	1,047,609
Actual interest cost	1.99%	2.32%	2.33%	2.33%

In the table above, it can be noted that the actual interest rate obtain by the “Shanxi Coking Coal Group Limited” is much lower than the market one meaning that the company has been enjoying reduced expenses on its debt. As a matter of fact, following my calculations, the company has been enjoying a 2,12% interest rate in 2013 and 2,18 in 2016. This slight increase in the interest rate does not reflect the government policies about the tackling of zombie enterprises. The company has been slightly decreasing its current liabilities and non-current liabilities from 2015 to 2016, thus the 2016 figures are considerable higher than the 2013 ones meaning that the firm has been able to increase its liabilities without a correspondent raise in profits.

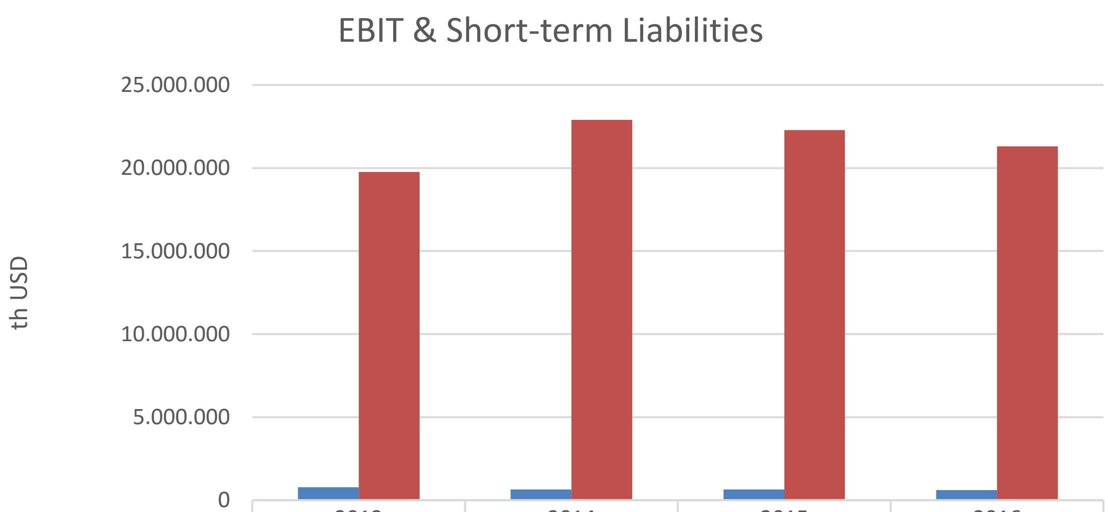
The third step of my analysis consists in the focusing of the firm's gearing ratio to investigate whether the company has been increasing its external financing compared to its shareholders' capital (3).



	2013	2014	2015	2016
Gearing	140,55%	152,93%	166,92%	165,16%

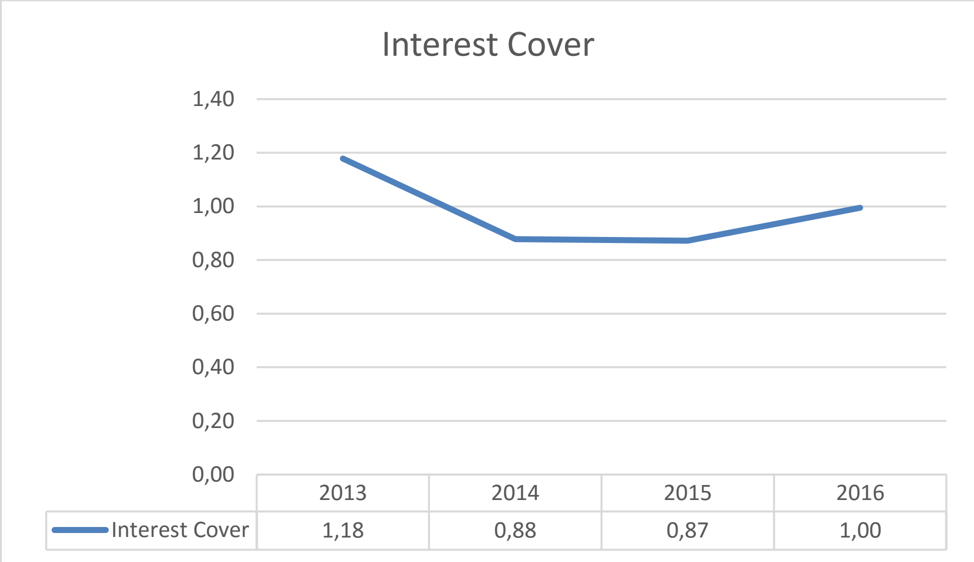
From the graph above, it can be concluded that the firm has a growing gearing ratio trend, highlighting the company's reliance on external debt. However, due to an increase in shareholders' funds, in 2016 the company registered a decrease of gearing ratio.

The fourth step is the comparison between the EBIT and short-term obligations (4).



	2013	2014	2015	2016
EBIT	785.637	650.318	652.330	605.636
Short-term Liabilities	19.756.199	22.891.196	22.289.971	21.303.171

The graph above shows that the firm has far more short-term liabilities than earnings before interest and tax which highlights that the firm is not able to meet its short-term requirement leading to a non-compliance of due payments and the need to get more credit to keep the firm away from bankruptcy. Moreover, the firm is not able to pay its interest payment as the interest cover ratio is very low and even lower than 1 in 2015 and 2014.



This graph shows the interest cover of the firm which is computed by dividing the EBIT by the interest expenses, is very low or equal to 1, therefore it is implied that the company is not able to repay its liabilities because it does not have enough earnings to meet its interest payment, therefore it is proved that the firm has been receiving subsidized credit (5).

In this section, I am going to demonstrate that, even though the company has government support, it fails to improve its financial and profitability performance.

	2013	2014	2015	2016
Number of employees	60,000	60,000	n.a.	60,000
Fixed assets (th USD)	20,714,215	22,141,534	24,596,702	25,583,643
Profit Margin (%)	0.49	0.23	-0.04	0.40
ROE using P/L b.tax (%)	2.16	1.14	-0.15	1.09
ROA using P/L b.tax (%)	0.50	0.23	-0.03	0.24

As it can be noticed from the chart above the company has not been increasing its employment rate, which stayed unchanged since 2013. The fixed assets account has been increasing during the years demonstrating that the company have been investing in its fixed assets. The profit margin has been declining throughout the years registering a negative performance in 2015 while it increased reaching 0,40 in 2016. ROE and ROA indices (using P/L before tax) highlight the same trend: a decrease in profitability from 2013 to 2015, reaching negative performance in 2015 and a slight recover in 2016 figures. Therefore, it can be concluded that the firm is not managing well its equity and assets to produce net income even though a small improvement has been registered in the last available year. Therefore, in this case, the granted credit is leading to capital accumulation with regards to growing fixed assets, but the overall profitability of the company and the employment rate has not been increasing significantly. Below I report the financial statements of the "Shanxi Coking Coal Group" from year 2013 to 2016.

Tab. 16 - Shanxi Coking Coal Group Company Balance Sheet

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387
Balance sheet				
Assets				
Fixed assets	25.583.643	24.596.702	22.141.534	20.714.215
Intangible fixed assets	4.972.406	4.123.460	4.018.709	3.224.903
Tangible fixed assets	17.156.067	16.712.519	16.416.617	15.044.460
Other fixed assets	3.455.170	3.760.724	1.706.208	2.444.852
Current assets	13.620.784	16.176.446	17.919.742	16.579.236
Stock	2.689.000	2.779.029	2.443.069	2.465.204
Debtors	3.486.460	3.947.859	4.139.973	5.173.806
Other current assets	7.445.324	9.449.558	11.336.700	8.940.226
Cash & cash equivalent	4.665.537	6.146.963	6.324.573	4.286.542
TOTAL ASSETS	39.204.427	40.773.149	40.061.276	37.293.451
Liabilities & Equity				
Shareholders funds	8.596.327	8.513.880	8.261.207	8.626.184
Capital	1.927.691	1.335.155	1.362.643	1.366.218
Other shareholders funds	6.668.636	7.178.725	6.898.564	7.259.966

Non-current liabilities	9.304.929	9.969.297	8.908.873	8.911.069
Long term debt	8.815.440	6.329.505	4.184.943	3.747.767
Other non-current liabilities	489.488	3.639.792	4.723.929	5.163.301
Provisions	n.a.	n.a.	n.a.	n.a.
Current liabilities	21.303.171	22.289.971	22.891.196	19.756.199
Loans	4.893.127	4.242.111	3.724.846	3.213.177
Creditors	4.789.743	4.892.307	5.359.372	5.901.533
Other current liabilities	11.620.302	13.155.553	13.806.978	10.641.489
TOTAL SHAREH. FUNDS & LIAB.	39.204.427	40.773.149	40.061.276	37.293.451
Memo lines				
Working capital	1.385.717	1.834.581	1.223.670	1.737.477
Net current assets	-7.682.387	-6.113.525	-4.971.454	-3.176.962
Enterprise value	n.a.	n.a.	n.a.	n.a.
Number of employees	60.000	n.a.	60.000	60.000

Tab. 17 - Shanxi Coking Coal Group Company Profit & Loss Account

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387
Profit & loss account				
Operating revenue (Turnover)	23.643.533	29.659.427	41.820.287	38.381.152
Sales	23.643.533	29.659.427	41.851.763	38.381.152
Costs of goods sold	21.321.950	27.148.036	38.727.428	34.871.199
Gross profit	2.321.582	2.511.390	3.092.859	3.509.953
Other operating expenses	1.715.946	1.859.061	2.442.541	2.724.316
Operating P/L [=EBIT]	605.636	652.330	650.318	785.637
Financial revenue	96.294	83.311	184.391	67.165
Financial expenses	608.628	748.041	740.793	666.724
Financial P/L	-512.334	-664.730	-556.402	-599.559
P/L before tax	93.302	-12.400	93.916	186.078
Taxation	90.170	93.739	110.767	201.198

P/L after tax	3.133	-106.140	-16.851	-15.121
Extr. and other revenue	259.910	186.561	105.344	96.729
Extr. and other expenses	36.011	41.775	69.495	57.808
Extr. and other P/L	-54.779	30.418	35.848	38.921
P/L for period [=Net income]	-51.646	-75.722	18.997	23.800
Memo lines				
Export revenue	n.a.	n.a.	n.a.	n.a.
Material costs	n.a.	n.a.	n.a.	n.a.
Costs of employees	n.a.	n.a.	n.a.	n.a.
Depreciation & Amortization	n.a.	n.a.	n.a.	n.a.
Other operating items	n.a.	n.a.	n.a.	n.a.
Interest paid	n.a.	n.a.	n.a.	n.a.
Research & Development expenses	n.a.	n.a.	n.a.	n.a.
Cash flow	n.a.	n.a.	n.a.	n.a.
Added value	n.a.	n.a.	n.a.	n.a.
EBITDA	n.a.	n.a.	n.a.	n.a.

Tab. 18 - Shanxi Coking Coal Group Company Financial Ratios

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387
Profitability ratios				
ROE using P/L before tax (%)	1,09	-0,15	1,14	2,16
ROCE using P/L before tax (%)	n.a.	n.a.	n.a.	n.a.
ROA using P/L before tax (%)	0,24	-0,03	0,23	0,50
ROE using Net income (%)	-0,60	-0,89	0,23	0,28
ROCE using Net income (%)	n.a.	n.a.	n.a.	n.a.
ROA using Net income (%)	-0,13	-0,19	0,05	0,06
Profit margin (%)	0,40	-0,04	0,23	0,49
Gross margin (%)	9,82	8,47	7,40	9,15
EBITDA margin (%)	n.a.	n.a.	n.a.	n.a.
EBIT margin (%)	2,56	2,20	1,56	2,05
Cash flow / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.
Enterprise value / EBITDA (x)	n.a.	n.a.	n.a.	n.a.
Market cap / Cash flow from operations (x)	n.a.	n.a.	n.a.	n.a.
Operational ratios				
Net assets turnover (x)	1,32	1,61	2,44	2,19
Interest cover (x)	n.a.	n.a.	n.a.	n.a.
Stock turnover (x)	8,79	10,67	17,12	15,57

Collection period (days)	53	48	36	49
Credit period (days)	73	59	46	55
Export revenue / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.
R&D expenses / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.
Structure ratios				
Current ratio (x)	0,64	0,73	0,78	0,84
Liquidity ratio (x)	0,51	0,60	0,68	0,71
Shareholders liquidity ratio (x)	0,92	0,85	0,93	0,97
Solvency ratio (Asset based) (%)	21,93	20,88	20,62	23,13
Solvency ratio (Liability based) (%)	28,09	26,39	25,98	30,09
Gearing (%)	165,16	166,92	152,93	140,55
Per employee ratios				
Profit per employee (th)	2	n.a.	2	3
Operating revenue per employee (th)	394	n.a.	697	640
Costs of employees / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.
Average cost of employee (th)	n.a.	n.a.	n.a.	n.a.
Shareholders funds per employee (th)	143	n.a.	138	144
Working capital per employee (th)	23	n.a.	20	29
Total assets per employee (th)	653	n.a.	668	622

5.4 Shipping Sector

In this section, I am going to talk about the condition of the freight shipping industry in China which consists in the cargo transportation by sea of freights from the “Middle Kingdom” to other countries including the leasing of containers and logistics service of Chinese companies all over the world.

As long as the freight shipping is concerned, due to the recent trade spats between the US and China, this sector saw a reduction of profit. As a matter of fact, the freight transport by sea in China mainly involves the export of Chinese goods to other countries in Europe, Middle East and North America. After the Trump declarations on imposing high tariffs on key Chinese goods for the American market with a view to diminishing the US trade deficit with China, plenty of Chinese vessels had been forced to renounce to proceed to sea bearing huge losses inverting the trend of the last five years in which the industry registered increasing revenues at an annual rate of 2.8%. In fact, China's shipping industry and container transportation have achieved international standards in handling efficiency and building networks, while the number of container units managed by Chinese ports in 2011 amounted at more than 150 million. Conversely, in 2018 the freight shipping sector is deemed to experience a crisis as the global trade is slowing down and the new American presidency is enforcing protectionist measures. Therefore, the price charged by freight shipping companies remains volatile which poses great threats to the industry. On the other hand, the exit of the US from the Trans-Pacific Partnership (TPP), which entails free trade agreement among 12 countries- the US, Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam- left a huge void in the region which China is more than willing to fill. However, the freight shipping sector is highly affected by overcapacity issues- as container shipping capacity had been annually increasing on average by 3% faster than the actual demand since 2008- which urged big carriers companies to collaborate in order to survive and avoid leaving many vessels idle. Due to the slowing down of the Chinese economic growth, to world geopolitical critical situations such as the Ukraine crisis which led to the Russian embargo and the conflicts in the Middle East, the industry will have to face great challenges also in the largest trading country in world.

The shrinking of the freight shipping industry involved as a consequence the decline in the production of ships which China is a global leader producer putting into trouble many state-owned shipyards, one of which, the “Zhoushan Wuzhou Ship Repairing & Building”, went bankrupt in 2015. More recently, the two Chinese shipbuilder giants “China State Shipbuilding Corp.” and “China Shipbuilding Industry Corp.” announced a merge plan in order to reduce overcapacity in the sector and to gain a competitive advantage against the South Korean competitors.

My research in the Chinese shipping sector focused on the analysis of two companies: “Cosco Shipping Holdings Company” and “Cosco Shipping Lines Company Limited”.

5.4.1 *Cosco Shipping Holdings Company Limited*

Cosco Shipping Holdings is an investment holding company, headquartered in Tianjin, Northern China, principally involved in the provision of different types of shipping containers ranging from dry bulk shipping; moreover it manages and operates container terminals, container leasing and logistics services all over the world across the container shipping value chain for both international and domestic customers through its various subsidiaries. The Company operates its business through two segments: The Container Shipping segment engaged in the transportation of goods across the Pacific, Asia and Europe, and other international routes; while the terminal operation and investment segment main business consists in the operation and management of ports. In 2017, it operated 360 self-operating container vessels with a total shipping capacity of 1,819,091 twenty-foot equivalent units and employed 21,609 people

The Company was incorporated in the People's Republic of China on March 3, 2005 as a joint stock company with limited liability under the Company Law of the PRC. The H-Shares were listed on the Main Board of the Stock Exchange of Hong Kong Limited since 30 June 2005, while the A-Shares of the company were quoted in the Shanghai Stock Exchange since 26 June 2007.

The firm reports consolidated financial statements using IFRS as accounting standards as those are all requirements for the listed companies in China. There are 198 companies in the corporate group, 257 recorded subsidiaries and 17 shareholders among whom many state-owned enterprises can be distinguished such as “China State Shipbuilding Corporation”, “China National Nuclear Corporation”, the People’s Republic of China via its funds, and asset-management companies such as “Central Huijin Asset Management Company Limited” and “China Asset Management Corporation”.

Effect from 4 November 2016, the Company has changed name from “China Cosco Holdings Company Limited” to “Cosco Shipping Holdings Company Limited” and it is a restructured subsidiary after the two biggest state-owned enterprises in the shipping sector namely “China Ocean Shipping Group Company” (COSCO) and “China Shipping Group Company” (CSG) decided to merge in February 2016. The newly-formed “China Cosco Shipping Corporation Limited” (Cosco Shipping) headquartered in Shanghai took some time after the official launch to manage and harmonize all the covered sectors of the two companies integrating all the subsidiaries owned by the previous entities. The merger plan cost 8.6 billion US dollars, however it has been deemed necessary following the State-owned enterprise reforms, in order to reduce the overcapacity issues, consolidate the sector to make Chinese firms more competitive, and respond to the downward trend in the container and maritime shipping industry which put serious pressure on the two state-owned companies.

Tab. 22 - Balance Sheet Vertical Analysis (th USD)

	2017		2016		2015		2014		2013	
TOTAL ASSETS	20,454,266		17,216,717		24,723,637		24,315,813		26,524,335	
Fixed assets	14,397,046	70.39%	10,689,555	62.09%	17,538,325	70.94%	16,026,918	65.91%	15,952,906	60.14%
Stock	357,857	1.75%	225,142	1.31%	231,424	0.94%	314,875	1.29%	389,188	1.47%
Debtors	951,509	4.65%	853,513	4.96%	965,085	3.90%	587,252	2.42%	707,562	2.67%
Cash & cash equiv.	4,006,657	19.59%	4,678,152	27.17%	5,314,207	21.49%	6,712,037	27.60%	8,694,483	32.78%
Shareholders funds	6,712,725	32.82%	5,402,871	31.38%	8,190,876	33.13%	7,020,422	28.87%	6,901,187	26.02%
Long term debt	6,743,776	32.97%	6,830,258	39.67%	11,599,787	46.92%	11,122,191	45.74%	11,200,737	42.23%
Loans	3,004,862	14.69%	1,425,660	8.28%	1,720,957	6.96%	3,086,512	12.69%	4,595,569	17.33%
Creditors	2,504,896	12.25%	1,104,788	6.42%	1,094,619	4.43%	789,323	3.25%	890,475	3.36%

	2012		2011		2010		2009		2008	
TOTAL ASSETS	26,275,045		24,989,904		22,796,602		20,172,417		17,559,213	
Fixed assets	16,232,984	61.78%	15,029,564	60.14%	13,645,087	59.86%	12,103,342	60.00%	10,962,191	62.43%
Stock	434,273	1.65%	537,547	2.15%	319,623	1.40%	261,063	1.29%	225,234	1.28%
Debtors	1,384,204	5.27%	912,532	3.65%	891,464	3.91%	658,160	3.26%	751,912	4.28%
Cash & cash equiv.	7,439,180	28.31%	7,534,345	30.15%	7,154,018	31.38%	6,483,088	32.14%	4,734,443	26.96%
Shareholders funds	6,630,024	25.23%	5,506,402	22.03%	9,406,743	41.26%	6,149,840	30.49%	7,629,354	43.45%
Long term debt	12,574,063	47.86%	8,778,699	35.13%	8,293,445	36.38%	7,779,129	38.56%	3,408,599	19.41%
Loans	2,244,725	8.54%	3,445,974	13.79%	886,244	3.89%	1,059,278	5.25%	534,044	3.04%
Creditors	1,300,720	4.95%	912,772	3.65%	1,027,285	4.51%	788,348	3.91%	765,193	4.36%

The vertical analysis of the "Cosco Shipping Holdings Company Limited" balance sheet highlights that the company's assets have been fluctuating considerably during the years as for instance the firm's fixed assets account reached 70.39% of total assets in 2017, while in 2016 it amounted at 62.09% and in 2015 it represented 70.94% of total assets. However, an upward trend can be highlighted as in 2008 the company was holding fixed assets equal to 62.43% of total assets. This tendency is explained as in 2016 the "China Ocean Shipping Group Company" merged with "China Shipping Group Company" in an effort to endure despite the sector growth is declining; therefore it is plausible that after the restructuring of all the subsidiaries of the previous entities, the "Cosco Shipping Holdings Company Limited" acquired new fixed assets. The stock line was slightly fluctuating across time, however the figure never reached high levels, on the contrary it is below the industry standards. The debtors line kept stable during the years meaning that the company is good at managing its credit collection, on the other hand the cash and cash equivalent line declined dramatically in the last year maybe due to the efforts in the restructuring of the merged company. The Shareholders' funds kept fluctuating reaching two peaks in 2010 and 2008 reaching more than 40% of total assets, on the other hand the company retains a high leverage as the long-term debt line increased since 2008 probably due to the financial crisis reaching a peak in 2012, however in the last three reported year this line is characterized by a downward trend meaning that the government reforms on the state-owned enterprise together with the merging resulted in a reduction of the firm's external credit reliance. The loans account highlights an upward trend registering its peak of 17,33% of total assets in 2013, while it decreased considerable in the three consequent years and then surged again in 2017. Lastly, the creditors line increased considerably in 2017 meaning that the company is lagging behind its suppliers' payments.

Tab. 23 - P/L Account Vertical Analysis (th USD)

	2017		2016		2015		2014		2013	
Sales	13,862,027		10,277,658		10,186,155		10,933,394		10,838,008	
COGS	11,932,347	86.08%	10,127,320	98.54%	7,921,961	77.77%	10,263,563	93.87%	10,979,812	101.31%
Gross profit	1,983,153	14.31%	231,991	2.26%	2,566,769	25.20%	1,011,838	9.25%	-73,169	-0.68%
EBIT	425,877	3.07%	-685,249	-6.67%	423,990	4.16%	295,566	2.70%	-761,897	-7.03%
Taxation	133,969	0.97%	73,786	0.72%	85,084	0.84%	-170,540	-1.56%	49,074	0.45%
Net Income	408,799	2.95%	-1,425,365	-13.87%	72,295	0.71%	59,246	0.54%	38,586	0.36%

	2012		2011		2010		2009		2008	
Sales	10,854,030		13,432,871		14,568,570		9,949,858		19,154,030	
COGS	11,464,876	105.63%	14,218,052	105.85%	12,683,300	87.06%	10,074,490	101.25%	15,422,536	80.52%
Gross profit	-458,539	-4.22%	-687,994	-5.12%	1,915,497	13.15%	122,282	1.23%	3,795,625	19.82%
EBIT	-1,142,364	-10.52%	-1,567,444	-11.67%	1,143,434	7.85%	-1,023,713	-10.29%	1,994,082	10.41%
Taxation	82,531	0.76%	163,633	1.22%	180,559	1.24%	65,989	0.66%	435,118	2.27%
Net Income	-1,519,832	-14.00%	-1,665,682	-12.40%	1,024,535	7.03%	-1,093,672	-10.99%	1,698,144	8.87%

The vertical analysis of the "Cosco Shipping Holdings Company Limited" income statement highlights that the COGS as a percentage of sales have been fluctuating considerably during the years registering a negative trend from 2011 to 2015 with a lower figure registered in 2015 when the COGS was equal to 77,77% of sales. In fact the shipping sector is highly affected by overcapacity issues which led to a fall in the prices in 2015. In 2016 the government policies on the tackling of overcapacity apparently worked as the COGS account surged to 98.54% of sales, however it plummeted in 2017 following the merger of the two giant state-owned companies. The firm's gross profit oscillated substantially across the years registering negative figures in 2011, 2012 and 2013. The EBIT and net income accounts highlight that the company is undergoing big operating, administrative and financial costs as the indicators registered negative figures for four years. Taxation, as for all the other state-owned enterprises, represents a very low percentage of sales.

Tab. 24 - Balance Sheet Horizontal Analysis

	2017/2016	2016/2015	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010	2010/2009	2009/2008
Fixed assets	34.68%	-39.05%	9.43%	0.46%	-1.73%	8.01%	10.15%	12.74%	10.41%
Intan. fixed assets	218.01%	-15.99%	1689.50%	-6.69%	-41.75%	3.47%	-2.10%	1.26%	15.32%
Tan. fixed assets	26.49%	-47.54%	1.47%	-1.87%	4.03%	10.63%	14.41%	10.74%	11.95%
Other fixed assets	37.24%	-12.29%	35.07%	12.53%	-23.20%	-0.87%	-2.14%	19.11%	5.81%
Current assets	-7.20%	-9.16%	-13.31%	-21.59%	5.27%	0.82%	8.84%	13.41%	22.31%
Stock	58.95%	-2.71%	-26.50%	-19.09%	-10.38%	-19.21%	68.18%	22.43%	15.91%
Debtors	11.48%	-11.56%	64.34%	-17.00%	-48.88%	51.69%	2.36%	35.45%	-12.47%
Other curr. assets	-12.86%	-9.02%	-18.93%	-22.04%	15.21%	-3.37%	7.18%	11.06%	27.22%
Cash & cash equiv.	-14.35%	-11.97%	-20.83%	-22.80%	16.87%	-1.26%	5.32%	10.35%	36.93%
TOTAL ASSETS	18.80%	-30.36%	1.68%	-8.33%	0.95%	5.14%	9.62%	13.01%	14.88%
Shareholders funds	24.24%	-34.04%	16.67%	1.73%	4.09%	20.41%	-41.46%	52.96%	-19.39%
Capital	6.73%	-6.59%	-5.74%	-0.27%	3.07%	0.18%	5.11%	3.10%	0.09%
Other shareh. funds	30.79%	-40.57%	23.66%	2.37%	4.42%	28.85%	-50.60%	68.99%	-24.14%
Non-current liab.	1.10%	-41.22%	4.10%	-2.81%	-11.10%	11.34%	30.69%	-9.25%	77.53%
Long term debt	-1.27%	-41.12%	4.29%	-0.70%	-10.92%	43.23%	5.85%	6.61%	128.22%
Other non-curr liab.	105.10%	-45.41%	-3.19%	-46.08%	-14.53%	-79.35%	292.49%	-64.66%	-0.05%
Provisions	-1.62%	-70.41%	-8.85%	-4.24%	-27.53%	17.95%	9.20%	-9.33%	-7.43%
Current liabilities	38.34%	3.87%	-20.94%	-25.36%	22.45%	-15.54%	76.74%	7.29%	-6.45%
Loans	110.77%	-17.16%	-44.24%	-32.84%	104.73%	-34.86%	288.83%	-16.34%	98.35%
Creditors	126.73%	0.93%	38.68%	-11.36%	-31.54%	42.50%	-11.15%	30.31%	3.03%
Other curr. liabilities	-49.11%	25.37%	-8.51%	-16.22%	-17.19%	-11.37%	35.97%	10.46%	-27.56%
TOT. S. FUNDS & LIAB.	18.80%	-30.36%	1.68%	-8.33%	0.95%	5.14%	9.62%	13.01%	14.88%

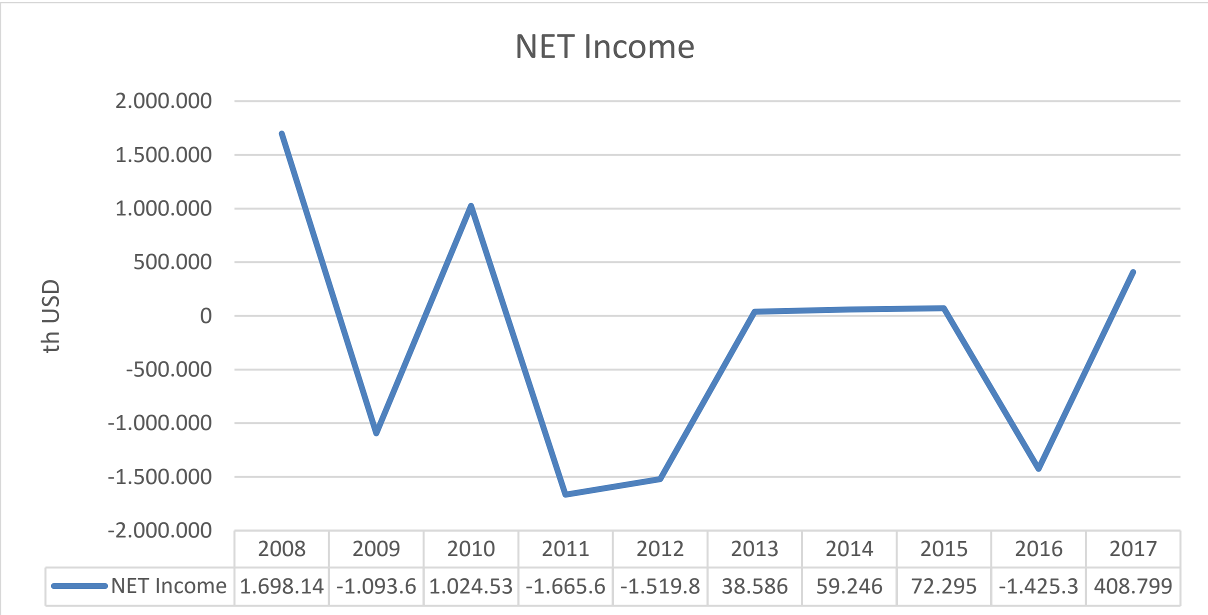
Through the horizontal analysis of the company's balance sheet it can be noted that the firm has been increasing its fixed assets apart for the 2016 and 2012 fiscal years in which the company registered respectively a fall of 39,05% and 1,73% change percentage compared to the previous years, on the other hand the current assets account fell considerably in the last four years as well as the cash and cash equivalent line meaning that the firm has been using its liquid assets to finance the acquisition of new fixed assets. The shareholders' funds increased in the last year due to the merge between "China Ocean Shipping Group Company" with "China Shipping Group Company" which attracted new investors into the newly-formed company, however in 2016 and 2011 the firm assisted to a shrinkage in its shareholders' capital of respectively 34,04% and 50,60% in comparison with the previous years. As long as non-current liabilities are concerned, the horizontal analysis shows fluctuating change percentages characterized by an increase of long-term debt up to 2011 and then a decrease up to 2014. Current liabilities have been surging in the last two years, following constant oscillations in the previous years.

Tab. 25 - P/L Account Horizontal Analysis

	2017/2016	2016/2015	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010	2010/2009	2009/2008
Operating revenue	34.33%	-1.23%	-6.98%	3.38%	-0.91%	-18.65%	-7.32%	43.17%	-46.94%
Sales	34.88%	0.90%	-6.83%	0.88%	-0.15%	-19.20%	-7.80%	46.42%	-48.05%
COGS	17.82%	27.84%	-22.81%	-6.52%	-4.23%	-19.36%	12.10%	25.90%	-34.68%
Gross profit	754.84%	-90.96%	153.67%	1482.88%	84.04%	33.35%	-135.92%	1466.46%	-96.78%
Other op. expenses	69.78%	-57.19%	199.16%	4.00%	0.72%	-22.24%	13.91%	-32.63%	-36.39%
EBIT	162.15%	-261.62%	43.45%	138.79%	33.31%	27.12%	-237.08%	211.69%	-151.34%
Financial revenue	0.60%	-41.80%	-24.29%	-2.64%	32.80%	-62.41%	253.41%	26.79%	-42.67%
Financial expenses	-238.45%	37.62%	-47.27%	208.54%	-199.00%	2259.57%	109.75%	-291.92%	76.91%
Financial P/L	324.03%	-169.06%	64.90%	-141.38%	329.85%	-169.66%	29.87%	117.27%	-61.93%
P/L before tax	198.84%	-353.65%	321.38%	133.42%	81.84%	-9.58%	-189.64%	252.81%	-139.69%
Taxation	81.56%	-13.28%	149.89%	-447.51%	-40.54%	-49.56%	-9.37%	173.62%	-84.83%
P/L after tax	177.29%	-463.24%	4.27%	185.30%	79.49%	-2.72%	-216.54%	223.98%	-152.54%
Extr. and other P/L	28.45%	-142.49%	1.15%	-157.85%	570.35%	72.07%	-37.78%	-57.55%	26.23%
Net income	128.68%	-2071.60%	22.02%	53.54%	102.54%	8.76%	-262.58%	193.68%	-164.40%

Through the horizontal analysis of the company's income statement it is clear that the profitability of the "Cosco Shipping Holdings Company Limited" has been declining considerably during the years. In the last reported year, an increase in the sales and gross profit lines as well as a positive change percentage in the EBIT account, financial P/L and net income together with the reduction in the financial expenses highlights that the company has been experiencing a better financial performance. Moreover in 2017 the firm has been paying more taxes to the state in line with the recent policies on state-owned enterprises. COGS account has been rising in the last two reported years inverting the negative tendency started in 2012, this trend is coherent with the Chinese government resolutions on cutting overcapacity in order to stimulate a rise in the prices. Apart for the last reported year, the profitability of the firm has been fluctuating significantly as the operating and financial expenses went up and down across the years. The taxation line, apart from the 2017, 2015 and 2010 years reported negative change percentages compared to the previous financial period highlighting the preferential treatment received by the government.

"Cosco Shipping Holdings Group" registered very negative actual profit in 2009, 2011, 2012 and 2016. (1) and negative EBIT in five out of ten reported year.



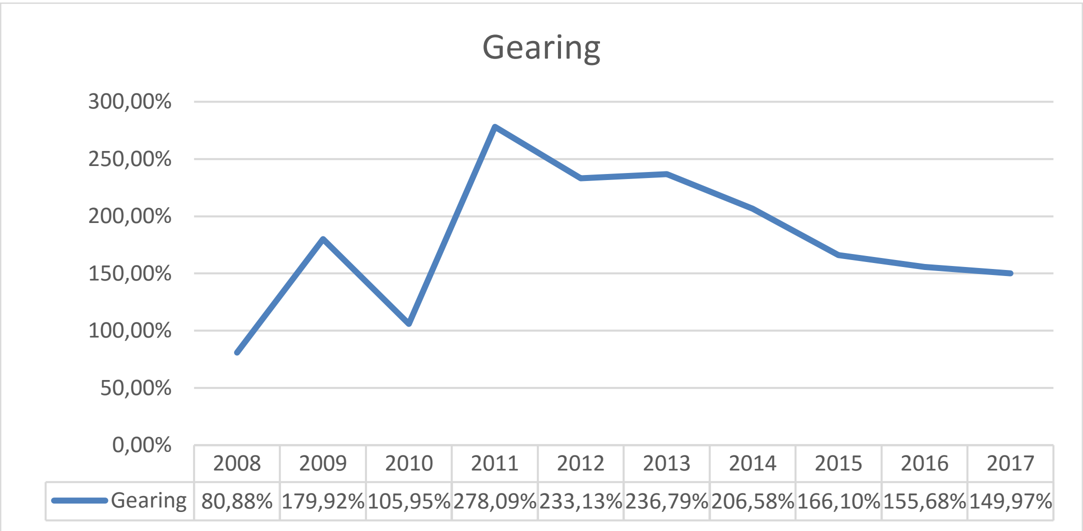
After having investigated the company's profitability, I report the table which depicts the firm's financial condition and includes the company's current and non-current liabilities, market interest rate, the minimum interest payment computed with the Caballero's simplified formula, the actual interest expenses of the firm, the difference between the minimum required payment and the company's paid interest expense, and the actual interest rate paid by the company computed dividing the total debt by the interest paid (2).

	2017	2016	2015	2014	2013
Current liabilities	6,679,156	4,828,242	4,648,423	5,879,259	7,877,293
Non-current liab.	7,062,386	6,985,604	11,884,338	11,416,133	11,745,855
Interest rates	4.35%	4.35%	4.35%	5.60%	6.00%
R*	638,719	577,471	879,851	1,013,521	1,169,872
Interest paid	324,039	275,242	286,654	484,715	526,396
R*- Ri	314,679	302,229	593,198	528,807	643,475
Actual interest cost	2.36%	2.33%	1.73%	2.80%	2.68%

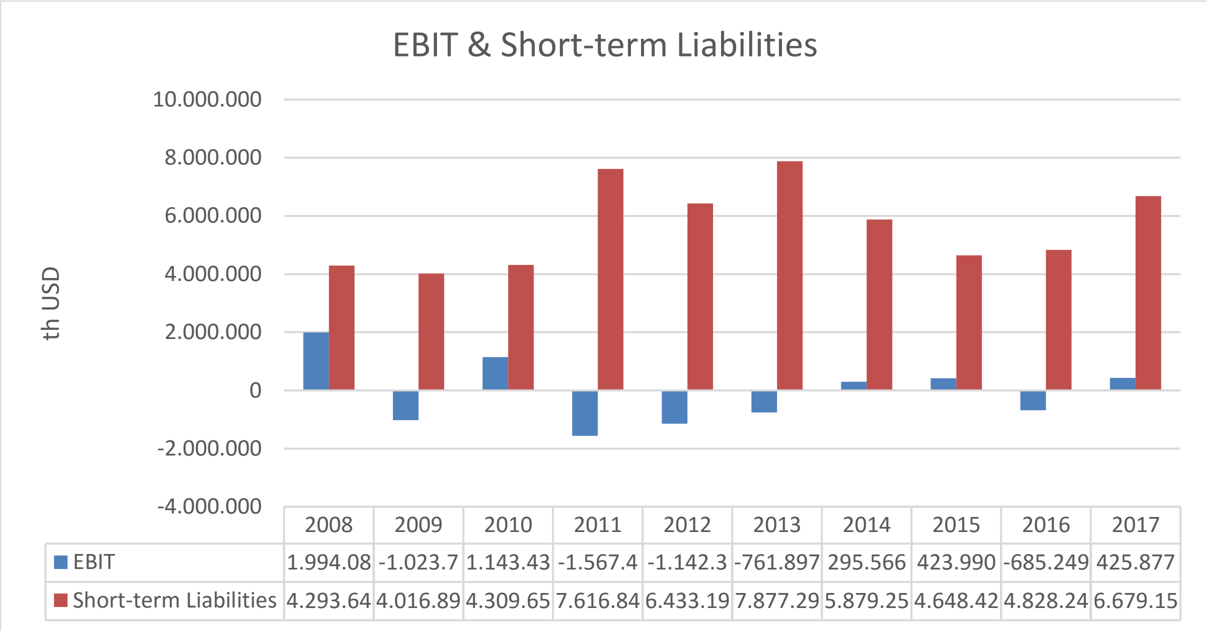
	2012	2011	2010	2009	2008
Current liabilities	6,433,194	7,616,847	4,309,650	4,016,891	4,293,649
Non-current liab.	13,211,827	11,866,655	9,080,210	10,005,685	5,636,210
Interest rates	6.00%	6.56%	5.81%	0.0531	0.0531
R*	1,152,013	1,222,582	795,566	809,436	566,842
Interest paid	389,676	275,150	199,526	182,070	149,231
R*- Ri	762,337	947,432	596,040	627,366	417,611
Actual interest cost	1.98%	1.41%	1.49%	1.30%	1.50%

In the table above, it can be noted that the actual interest rate obtained by the "Cosco Shipping Holdings Company Limited" is much lower than the market one meaning that the company has been enjoying reduced expenses on its debt.

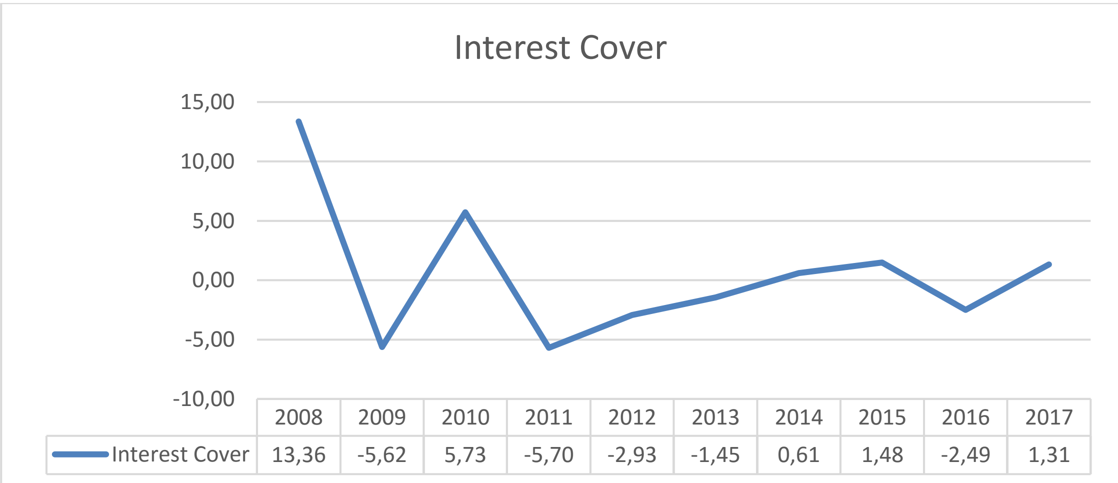
The company has been trying to limit its current liabilities, while drastically decreased its non-current liabilities in the last year, thus it demonstrate that despite the poor profitability performance and the growing level of debt, the company was able to get new credit throughout the years. The third step of my analysis consists in the focusing of the firm's gearing ratio to investigate whether the company has been increasing its external financing compared to its shareholders' capital (3).



From the graph above, it can be concluded that the firm has a growing gearing ratio trend which peaked in 2011 reaching 278,09% while declined registering 149,97% in 2017. In every reported year the gearing ratio is greater than the 50% threshold indicated by Nakamura and Fukuda. The fourth step is the comparison between the EBIT and short-term obligations (4).



The graph above shows that the firm has far more short-term liabilities than earnings before interest and tax which highlights the firm is not able to meet its short-term requirement leading to a non-compliance of due payments and the need to get more credit to keep the firm away from bankruptcy. Moreover, the firm is not able to pay its interest payment as the interest cover ratio is very low and even lower than 0 in five of the ten reported years (5).



This graph shows the interest cover of the firm which is computed by dividing the EBIT by the interest expenses. The company has an astonishingly high interest cover in 2008, while in 2011 it registered a negative figure of -5,70, while in 2017 it reached 1,31 due to an increase in the EBIT of the company. In this section, I am going to demonstrate that, even though the company has government support, it fails to improve its financial and profitability performance.

	2008	2009	2010	2011	2012
Number of employees	34,304	39,226	39,458	40,632	46,221
Fixed assets (th USD)	10,962,191	12,103,342	13,645,087	15,029,564	16,232,984
Profit Margin (%)	11.93	-8.92	9.53	-9.21	-12.41
ROE using P/L b.tax (%)	30.05	-14.80	14.78	-22.64	-20.60
ROA using P/L b.tax (%)	13.06	-4.51	6.10	-4.99	-5.20

	2013	2014	2015	2016	2017
Number of employees	39,397	30,079	34,913	20,790	21,609
Fixed assets (th USD)	15,952,906	16,026,918	17,538,325	10,689,555	14,397,046
Profit Margin (%)	-2.27	0.74	3.33	-8.55	6.29
ROE using P/L b.tax (%)	-3.59	1.18	4.27	-16.40	13.05
ROA using P/L b.tax (%)	-0.94	0.34	1.41	-5.15	4.28

As it can be noticed from the chart above the company has been decreasing its employment rate from 2008 to 2017 laying off 12695 people. The fixed assets account registered a significant increase by 31,33% in the last year compared to the 2008 figure which is connected with the merger of “China Ocean Shipping Group Company” with “China Shipping Group Company”. As long as the profit margin is concerned the company improve its performance in 2017, probably due as well to the merger of the two companies, however it still represents a poor performance as the firm is not earning enough profit to finance its own operations. As long as the ROE using P/L before tax is concerned the data highlight that the company was managing well its equity to produce earnings only in 2008 and 2010 when the company was earning for each dollar of shareholders’ equity respectively 30,05 and 14,78 dollars. The ROA using P/L before tax reflects the same situation.

Below I report the financial statements of the “Cosco Shipping Holdings Company Limited” from year 2017 to 2008.

Tab. 19 - Cosco Shipping Holdings Company Balance Sheet

Annual report/Consolidated	31/12/2017 th USD	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD	31/12/2008 th USD
	12 months Unqual Local GAAP AR	12 months Unqual IFRS AR	12 months Unqual IFRS AR	12 months Unqual IFRS AR	12 months Unqual IFRS AR	12 months Local GAAP AR	12 months Unqual IFRS AR	12 months Unqual IFRS AR	12 months Unqual IFRS AR	12 months Unqual IFRS AR
Exchange rate: CNY/USD	0.15357	0.14389	0.15405	0.16343	0.16387	0.15899	0.15871	0.15099	0.14645	0.14631
Balance sheet										
Assets										
Fixed assets	14,397,046	10,689,555	17,538,325	16,026,918	15,952,906	16,232,984	15,029,564	13,645,087	12,103,342	10,962,191
Intangible fixed assets	836,604	263,072	313,150	17,499	18,753	32,196	31,115	31,782	31,388	27,218
Tangible fixed assets	8,814,119	6,967,980	13,281,875	13,089,941	13,339,677	12,822,471	11,590,358	10,130,719	9,147,993	8,171,519
Other fixed assets	4,746,323	3,458,504	3,943,300	2,919,478	2,594,476	3,378,318	3,408,092	3,482,586	2,923,962	2,763,454
Current assets	6,057,220	6,527,162	7,185,313	8,288,894	10,571,429	10,042,061	9,960,340	9,151,515	8,069,075	6,597,022
Stock	357,857	225,142	231,424	314,875	389,188	434,273	537,547	319,623	261,063	225,234
Debtors	951,509	853,513	965,085	587,252	707,562	1,384,204	912,532	891,464	658,160	751,912
Other current assets	4,747,854	5,448,507	5,988,803	7,386,767	9,474,679	8,223,584	8,510,260	7,940,428	7,149,852	5,619,877
Cash & cash equivalent	4,006,657	4,678,152	5,314,207	6,712,037	8,694,483	7,439,180	7,534,345	7,154,018	6,483,088	4,734,443
TOTAL ASSETS	20,454,266	17,216,717	24,723,637	24,315,813	26,524,335	26,275,045	24,989,904	22,796,602	20,172,417	17,559,213
Liabilities & Equity										
Shareholders funds	6,712,725	5,402,871	8,190,876	7,020,422	6,901,187	6,630,024	5,506,402	9,406,743	6,149,840	7,629,354
Capital	1,568,934	1,470,010	1,573,792	1,669,599	1,674,140	1,624,312	1,621,399	1,542,545	1,496,188	1,494,787
Other shareholders funds	5,143,790	3,932,861	6,617,084	5,350,823	5,227,047	5,005,712	3,885,002	7,864,198	4,653,652	6,134,567

Non-current liabilities	7,062,386	6,985,604	11,884,338	11,416,133	11,745,855	13,211,827	11,866,655	9,080,210	10,005,685	5,636,210
Long term debt	6,743,776	6,830,258	11,599,787	11,122,191	11,200,737	12,574,063	8,778,699	8,293,445	7,779,129	3,408,599
Other non-current liabilities	318,610	155,346	284,551	293,942	545,118	637,764	3,087,957	786,765	2,226,556	2,227,611
Provisions	46,660	47,428	160,291	175,851	183,628	253,384	214,825	196,721	216,972	234,389
Current liabilities	6,679,156	4,828,242	4,648,423	5,879,259	7,877,293	6,433,194	7,616,847	4,309,650	4,016,891	4,293,649
Loans	3,004,862	1,425,660	1,720,957	3,086,512	4,595,569	2,244,725	3,445,974	886,244	1,059,278	534,044
Creditors	2,504,896	1,104,788	1,094,619	789,323	890,475	1,300,720	912,772	1,027,285	788,348	765,193
Other current liabilities	1,169,398	2,297,795	1,832,848	2,003,424	2,391,249	2,887,749	3,258,100	2,396,121	2,169,265	2,994,412
TOTAL SHAREH. FUNDS & LIAB.	20,454,266	17,216,717	24,723,637	24,315,813	26,524,335	26,275,045	24,989,904	22,796,602	20,172,417	17,559,213
Memo lines										
Working capital	-1,195,530	-26,133	101,891	112,805	206,274	517,757	537,307	183,802	130,875	211,952
Net current assets	-621,936	1,698,919	2,536,889	2,409,636	2,694,136	3,608,867	2,343,493	4,841,865	4,052,184	2,303,373
Enterprise value	7,091,750	4,766,459	9,419,974	8,944,663	8,622,984	9,102,654	6,531,854	4,924,234	5,842,979	1,195,419
Number of employees	21,609	20,790	34,913	30,079	39,397	46,221	40,632	39,458	39,226	34,304

Tab. 20 - Cosco Shipping Holdings Company Profit & Loss Account

Annual report/Consolidated	31/12/2017 th USD	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD	31/12/2008 th USD
Exchange rate: CNY/USD	12 months Unqual Local GAAP AR 0.15357	12 months Unqual IFRS AR 0.14389	12 months Unqual IFRS AR 0.15405	12 months Unqual IFRS AR 0.16343	12 months Unqual IFRS AR 0.16387	12 months Local GAAP AR 0.15899	12 months Unqual IFRS AR 0.15871	12 months Unqual IFRS AR 0.15099	12 months Unqual IFRS AR 0.14645	12 months Unqual IFRS AR 0.14631
Profit & loss account										
Operating revenue (Turnover)	13,915,500	10,359,311	10,488,730	11,275,401	10,906,643	11,006,336	13,530,058	14,598,797	10,196,772	19,218,161
Sales	13,862,027	10,277,658	10,186,155	10,933,394	10,838,008	10,854,030	13,432,871	14,568,570	9,949,858	19,154,030
Costs of goods sold	11,932,347	10,127,320	7,921,961	10,263,563	10,979,812	11,464,876	14,218,052	12,683,300	10,074,490	15,422,536
Gross profit	1,983,153	231,991	2,566,769	1,011,838	-73,169	-458,539	-687,994	1,915,497	122,282	3,795,625
Other operating expenses	1,557,276	917,240	2,142,779	716,272	688,728	683,825	879,450	772,064	1,145,995	1,801,543
Operating P/L [=EBIT]	425,877	-685,249	423,990	295,566	-761,897	-1,142,364	-1,567,444	1,143,434	-1,023,713	1,994,082
Financial revenue	72,336	71,905	123,538	163,180	167,601	126,210	335,743	95,000	74,925	130,683
Financial expenses	-377,614	272,750	198,185	375,843	-346,263	349,777	14,824	-152,113	-38,812	-168,061
Financial P/L	449,950	-200,844	-74,647	-212,663	513,864	-223,567	320,919	247,113	113,737	298,744
P/L before tax	875,827	-886,094	349,343	82,904	-248,033	-1,365,931	-1,246,525	1,390,546	-909,976	2,292,826
Taxation	133,969	73,786	85,084	-170,540	49,074	82,531	163,633	180,559	65,989	435,118

P/L after tax	741,858	-959,879	264,258	253,444	-297,107	-1,448,462	-1,410,158	1,209,987	-975,965	1,857,709
Extr. and other revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extr. and other expenses	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Extr. and other P/L	-333,059	-465,486	-191,963	-194,197	335,694	-71,370	-255,524	-185,452	-117,707	-159,565
P/L for period [=Net income]	408,799	-1,425,365	72,295	59,246	38,586	-1,519,832	-1,665,682	1,024,535	-1,093,672	1,698,144
Memo lines										
Export revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Material costs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of employees	n.a.	910,662	867,605	1,183,404	1,221,064	n.a.	1,351,326	n.a.	962,860	940,991
Depreciation & Amortization	752,590	23,600	22,708	32,604	32,961	n.a.	50,167	65,408	495,409	541,048
Other operating items	802,602	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Interest paid	324,039	275,242	286,654	484,715	526,396	389,676	275,150	199,526	182,070	149,231
Research & Development expenses	2,084	0	0	12,199	4,422	4,291	0	0	0	0
Cash flow	1,161,389	-1,401,765	95,003	91,850	71,547	n.a.	-1,615,515	1,089,943	-598,263	2,239,192
Added value	n.a.	-142,076	1,334,346	1,589,428	1,868,082	n.a.	174,594	n.a.	612,656	3,764,531
EBITDA	1,178,467	-661,649	446,698	328,170	-728,936	n.a.	-1,517,277	1,208,841	-528,304	2,535,130

Tab. 21 - Cosco Shipping Holdings Company Financial Ratios

Annual report/Consolidated	31/12/2017 th USD	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD	31/12/2009 th USD	31/12/2008 th USD
Exchange rate: CNY/USD	12 months Unqual Local GAAP AR 0.15357	12 months Unqual IFRS AR 0.14389	12 months Unqual IFRS AR 0.15405	12 months Unqual IFRS AR 0.16343	12 months Unqual IFRS AR 0.16387	12 months Local GAAP AR 0.15899	12 months Unqual IFRS AR 0.15871	12 months Unqual IFRS AR 0.15099	12 months Unqual IFRS AR 0.14645	12 months Unqual IFRS AR 0.14631
Profitability ratios										
ROE using P/L before tax (%)	13.05	-16.40	4.27	1.18	-3.59	-20.60	-22.64	14.78	-14.80	30.05
ROCE using P/L before tax (%)	8.71	-4.93	3.17	3.08	1.49	-4.92	-5.59	8.60	-4.51	18.41
ROA using P/L before tax (%)	4.28	-5.15	1.41	0.34	-0.94	-5.20	-4.99	6.10	-4.51	13.06
ROE using Net income (%)	6.09	-26.38	0.88	0.84	0.56	-22.92	-30.25	10.89	-17.78	22.26
ROCE using Net income (%)	5.32	-9.28	1.79	2.95	3.03	-5.70	-8.00	6.62	-5.64	13.93
ROA using Net income (%)	2.00	-8.28	0.29	0.24	0.15	-5.78	-6.67	4.49	-5.42	9.67
Profit margin (%)	6.29	-8.55	3.33	0.74	-2.27	-12.41	-9.21	9.53	-8.92	11.93
Gross margin (%)	14.25	2.24	24.47	8.97	-0.67	-4.17	-5.09	13.12	1.20	19.75
EBITDA margin (%)	8.47	-6.39	4.26	2.91	-6.68	n.a.	-11.21	8.28	-5.18	13.19
EBIT margin (%)	3.06	-6.62	4.04	2.62	-6.99	-10.38	-11.59	7.83	-10.04	10.38
Cash flow / Operating revenue (%)	8.35	-13.53	0.91	0.82	0.66	n.a.	-11.94	7.47	-5.87	11.65
Enterprise value / EBITDA (x)	6.02	n.s.	21.09	27.26	n.s.	n.a.	n.s.	4.07	n.s.	0.47
Market cap / Cash flow from operations (x)	1.22	4.13	1.07	1.29	n.s.	n.s.	n.s.	1.65	n.s.	0.48
Operational ratios										
Net assets turnover (x)	1.01	0.84	0.52	0.61	0.59	0.56	0.78	0.79	0.63	1.45
Interest cover (x)	1.31	-2.49	1.48	0.61	-1.45	-2.93	-5.70	5.73	-5.62	13.36

Stock turnover (x)	38.89	46.01	45.32	35.81	28.02	25.34	25.17	45.68	39.06	85.33
Collection period (days)	25	30	33	19	23	45	24	22	23	14
Credit period (days)	65	38	38	25	29	43	24	25	28	14
Export revenue / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R&D expenses / Operating revenue (%)	0.02	0.00	0.00	0.11	0.04	0.04	0.00	0.00	0.00	0.00
Structure ratios										
Current ratio (x)	0.91	1.35	1.55	1.41	1.34	1.56	1.31	2.12	2.01	1.54
Liquidity ratio (x)	0.85	1.31	1.50	1.36	1.29	1.49	1.24	2.05	1.94	1.48
Shareholders liquidity ratio (x)	0.95	0.77	0.69	0.62	0.59	0.50	0.46	1.04	0.62	1.35
Solvency ratio (Asset based) (%)	32.82	31.38	33.13	28.87	26.02	25.23	22.04	41.26	30.49	43.45
Solvency ratio (Liability based) (%)	48.85	45.73	49.54	40.59	35.17	33.75	28.26	70.25	43.86	76.83
Gearing (%)	149.97	155.68	166.10	206.58	236.79	233.13	278.09	105.95	179.92	80.88
Per employee ratios										
Profit per employee (th)	41	-43	10	3	-6	-30	-31	35	-23	67
Operating revenue per employee (th)	644	498	300	375	277	238	333	370	260	560
Costs of employees / Operating revenue (%)	n.a.	8.79	8.27	10.50	11.20	n.a.	9.99	n.a.	9.44	4.90
Average cost of employee (th)	n.a.	44	25	39	31	n.a.	33	n.a.	25	27
Shareholders funds per employee (th)	311	260	235	233	175	143	136	238	157	222
Working capital per employee (th)	-55	-1	3	4	5	11	13	5	3	6
Total assets per employee (th)	947	828	708	808	673	568	615	578	514	512

5.4.2 Cosco Shipping Lines Company LTD

The “Cosco Shipping Lines Company Limited” headquartered in Shanghai, China is a limited liability company and it is 100% owned by the “Cosco Shipping Holdings Company Limited” which is indirectly controlled by the state. The firm’s predecessor is the former “Cosco Container Lines Company Limited” which was founded the 11th of November 1997 and in November 2018 the enterprise was renamed as “Cosco Shipping Lines Company Limited”. The company is involved in the international and domestic maritime container transport, accept booking, ship leasing, ship trading; as well as supply of ship material, spare parts, food, fuel and ocean shipping related other businesses and onshore industry. Moreover, its business scope also includes domestic coastal cargo transportation and shipping agency, providing communication services, dispatching foreign labours of crew; warehousing and multimodal transport of goods; ship transportation between the mainland open ports to Hong Kong, Macau; domestic coastal areas, the middle and lower reaches of the Yangtze River and the Pearl River Delta ordinary cargo ship, container feeder liner transportation; import and export of goods and technology; e-commerce; however it cannot be engaged in value-added telecommunications, financial business; business advisory with the exception of broker. By the end of March 2018, the “Cosco Shipping Lines Company Limited” holds a total of 373 container ships, with an overall capacity of 1.9 million twenty-foot equivalent units, ranking the 4th place in the world, and the 1st place in the Asia. The firm operates 362 international and domestic shipping routes, consisting of 227 international services (including international feeder services), 49 domestic services, 86 Yangtze River and Pearl River shipping services, covering 289 ports in 90 countries and regions worldwide. It retains offices in the main hubs of Asia, Europe, America, Africa and Australia.

The firm reports unconsolidated financial statements using the local GAAP. There are 198 companies in the corporate group while the recorded subsidiaries number amounts at 23.

The company employed 1500 people in 2016.

Tab. 26 - Balance Sheet Vertical Analysis (th USD)

	2016		2015		2014		2013		2012		2011		2010	
TOTAL ASSETS	5,580,307		4,971,499		6,023,915		6,299,937		8,269,344		7,740,106		7,620,334	
Fixed assets	2,773,941	49.71%	2,763,481	55.59%	2,903,290	48.20%	3,099,587	49.20%	n.a.	n.a.	4,286,246	55.38%	4,104,895	53.87%
Stock	209,034	3.75%	85,826	1.73%	135,711	2.25%	187,253	2.97%	0	0.00%	242,521	3.13%	163,559	2.15%
Debtors	430,170	7.71%	180,590	3.63%	242,432	4.02%	324,360	5.15%	0	0.00%	395,694	5.11%	430,368	5.65%
Cash & cash equiv.	1,781,638	31.93%	1,595,686	32.10%	2,057,975	34.16%	2,225,025	35.32%	n.a.	n.a.	2,622,057	33.88%	2,815,458	36.95%
Shareholders funds	150,973	2.71%	519,223	10.44%	553,050	9.18%	826,325	13.12%	444,948	5.38%	798,680	10.32%	1,739,605	22.83%
Long term debt	1,881,877	33.72%	1,555,784	31.29%	1,569,820	26.06%	1,375,442	21.83%	4,909,628	59.37%	1,566,764	20.24%	2,519,413	33.06%
Loans	364,487	6.53%	160,930	3.24%	101,324	1.68%	399,639	6.34%	0	0.00%	138,198	1.79%	30,198	0.40%
Creditors	1,475,005	26.43%	657,900	13.23%	80,335	1.33%	65,092	1.03%	0	0.00%	1,427,987	18.45%	1,060,855	13.92%

Through the vertical analysis of the "Cosco Shipping Lines Company Limited" it can be noted that in 2016 the company has been decreasing its fixed assets reaching 49.71% of total assets representing a major fall from the 2015 figure of 55.59% of total assets. Conversely, the stock line has been rising considerably in the last year registering 3.75% of total assets. The debtors account surged in 2016 reaching 7.71% meaning that the company is less efficient in the collection of credit from its clients. The cash and cash equivalent line is decreasing, as a matter of fact the company in 2010 reported a cash value equal to 33.06% of total assets while in 2016 it accounted only for 31.93% of total assets meaning that the firm might incur in liquidity problems. Shareholders' funds trend is very negative as in 2010 it amounted at 33.06% of total assets and in 2016 it decreased registering 2.71% which shows that the company has less internal capital available to invest in its operations. The long-term debt and loans lines registered significant growth in the last years as the firm finds itself in financial distress. Lastly the creditors account increased exponentially in 2016 representing 26.43% of total assets highlighting that the company has difficulties in repaying its suppliers.

Tab. 27 - P/L Account Vertical Analysis

	2016		2015		2014		2013		2012		2011		2010	
Sales	6,313,655		4,831,234		5,761,294		5,269,170		6,863,477		5,762,004		6,222,778	
COGS	6,882,315	109.01%	4,712,009	97.53%	5,630,685	97.73%	5,591,451	106.12%	0	0.00%	6,363,493	110.44%	5,333,276	85.71%
Gross profit	-568,661	-9.01%	119,226	2.47%	130,610	2.27%	-322,280	-6.12%	6,863,477	100.00%	-601,489	-10.44%	889,502	14.29%
EBIT	-977,221	-15.48%	-157,920	-3.27%	-212,899	-3.70%	-610,005	-11.58%	n.a.	n.a.	-951,240	-16.51%	562,814	9.04%
Taxation	172	0.00%	1,256	0.03%	12,782	0.22%	6,937	0.13%	0	0.00%	25,215	0.44%	20,476	0.33%
Net Income	-1,035,204	-16.40%	-2,114	-0.04%	-271,361	-4.71%	-394,538	-7.49%	-356,770	-5.20%	-959,807	-16.66%	536,530	8.62%

The vertical analysis of the “Cosco Shipping Lines Company Limited” highlights that the firm has a bad profitability trend as the gross profit for 2016 registered a negative figure (-9,01% of sales) while kept fluctuating in the other available years. As a matter of fact the COGS for the last year is almost 12 percentage points higher than the 2015 figure, registering percentages exceeding the sales figure in all the other available years. The EBIT line registered a negative performance for all the available years with the exception of 2012 and 2010 highlighting that the company does not earn enough money to cover its operating and administrative expenses. The taxation account shows that even for this firm the level of taxation is far lower than private companies as it never rises over 0% of sales. Lastly, the net income line registers negative figures for all the available years with the exception of 2010.

Tab. 28 - Balance Sheet Horizontal Analysis

	2016/2015	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010
Fixed assets	0.38%	-4.82%	-6.33%	n.a.	n.a.	4.42%
Intan. fixed assets	-11.57%	59.69%	4.89%	n.c.v.	-100.00%	-0.10%
Tan. fixed assets	-10.37%	-20.10%	-16.71%	n.c.v.	-100.00%	4.61%
Other fixed assets	4.34%	1.88%	-0.71%	n.a.	n.a.	1.88%
Current assets	27.10%	-29.24%	-2.49%	n.a.	n.a.	-1.75%
Stock	143.55%	-36.76%	-27.53%	n.c.v.	-100.00%	48.28%
Debtors	138.20%	-25.51%	-25.26%	n.c.v.	-100.00%	-8.06%
Other curr. assets	11.62%	-29.20%	2.00%	n.a.	n.a.	-3.62%
Cash & cash equiv.	11.65%	-22.46%	-7.51%	n.a.	n.a.	-6.87%
TOTAL ASSETS	12.25%	-17.47%	-4.38%	-23.82%	6.84%	1.57%
Shareholders funds	-70.92%	-6.12%	-33.07%	85.71%	-44.29%	-54.09%
Capital	34.45%	-5.74%	-0.27%	n.a.	n.a.	5.11%
Other shareh. funds	-80.47%	5.57%	-27.08%	n.a.	n.a.	-120.44%
Non-current liab.	20.88%	-34.10%	8.84%	-72.21%	158.19%	-25.49%
Long term debt	20.96%	-0.89%	14.13%	-71.98%	213.36%	-37.81%
Other non-curr liab.	-13.15%	-99.55%	-0.28%	-72.60%	99.14%	-5.44%
Provisions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Current liabilities	22.52%	-6.82%	-5.91%	n.c.v.	-100.00%	115.66%
Loans	126.49%	58.83%	-74.65%	n.c.v.	-100.00%	357.64%
Creditors	124.20%	718.94%	23.42%	n.c.v.	-100.00%	34.61%
Other curr. liabilities	-17.80%	-29.04%	3.11%	n.c.v.	-100.00%	224.58%
TOT. S. FUNDS & LIAB.	12.25%	-17.47%	-4.38%	-23.82%	6.84%	1.57%

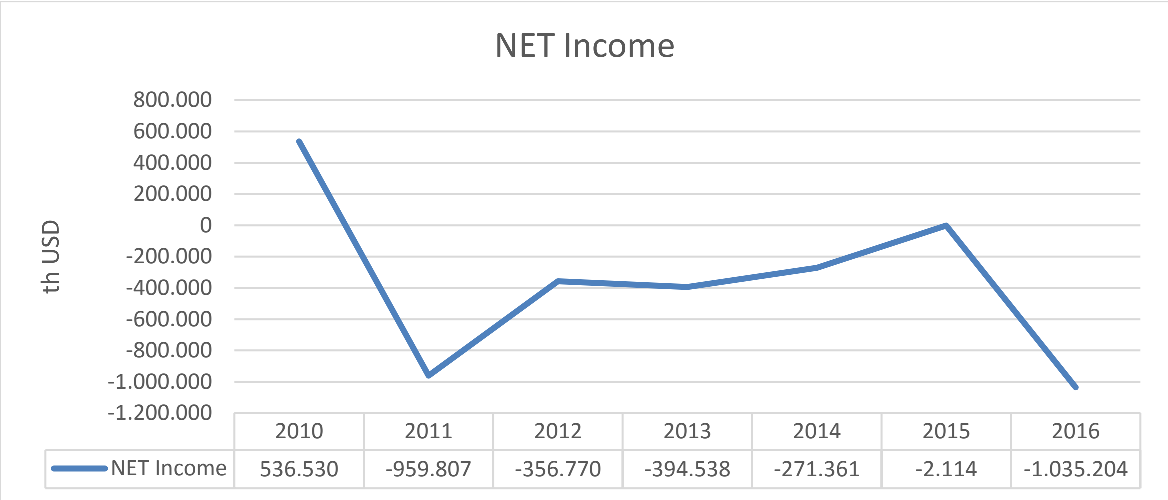
In the horizontal analysis of the "Cosco Shipping Lines Company Limited" balance sheet it can be noted that in the last year the company has been decreasing its fixed assets and increasing its current assets in comparison with 2015 data, while for 2015 and 2014 a general shrinking in the total assets of the company can be observed. Apart from 2013 which registered a positive change percentage compare to the 2012 data, all the other shareholders' funds change percentage are negative meaning that the company has been decreasing its internal credit. Non-current liabilities have been fluctuating considerably during the years; however it should be noted that in 2016, 2014 and 2012 there has been significant increases in the long-term liabilities. On the other hand, current liabilities registered a considerable growth in 2016 and 2010, while in the other reported years the short-term liabilities account fell considerably.

Tab. 29 - P/L Account Horizontal Analysis

	2016/2015	2015/2014	2014/2013	2013/2012	2012/2011	2011/2010
Operating revenue	30.68%	-16.14%	9.34%	-23.23%	19.12%	-7.40%
Sales	30.68%	-16.14%	9.34%	-23.23%	19.12%	-7.40%
COGS	46.06%	-16.32%	0.70%	n.c.v.	-100.00%	19.32%
Gross profit	-576.96%	-8.72%	140.53%	-104.70%	1241.08%	-167.62%
Other op. expenses	47.42%	-19.32%	19.39%	n.a.	n.a.	7.06%
EBIT	-518.81%	25.82%	65.10%	n.a.	n.a.	-269.02%
Financial revenue	-87.30%	n.c.v.	n.c.v.	n.c.v.	-100.00%	-95.22%
Financial expenses	60.68%	33.00%	37.24%	n.c.v.	100.00%	-206.61%
Financial P/L	-452.04%	63.51%	-37.24%	n.c.v.	-100.00%	233.45%
P/L before tax	-513.11%	31.83%	60.39%	n.a.	n.a.	-269.97%
Taxation	-86.34%	-90.17%	84.27%	n.c.v.	-100.00%	23.15%
P/L after tax	-508.78%	34.63%	58.84%	n.a.	n.a.	-281.35%
Extr. and other P/L	-86.33%	3327.44%	-102.11%	n.a.	n.a.	-133.70%
Net income	-48879.81%	99.22%	31.22%	-10.59%	62.83%	-278.89%

Through the horizontal analysis of the "Cosco Shipping Lines Company Limited" income statement it can be noted that the volume of sales has been fluctuating throughout the years registering significant falls in 2015, 2013 and 2011. The COGS has been oscillating as well with considerable decreases in 2015 and 2012. The gross profit registered a negative trend for both 2016 and 2015 meaning that the firm has been reducing its profitability in the last available years, which is connected with an increase in the operating expenses in 2016. The EBIT line highlights a negative change percentage for 2016 which shows that the firm does not have enough money to cover its operating, administrative and financial expenses. Moreover, even though for the 2015 and 2014 the company registered a growth in the EBIT line, however the nominal figure is still negative. As long as the financial expenses are concerned, they increased dramatically since 2012 after a major fall in 2011, similarly financial revenue shows a negative trend. P/L before tax, P/L after tax, extraordinary and other P/L and net income lines highlight the bad profitability performance of the firm.

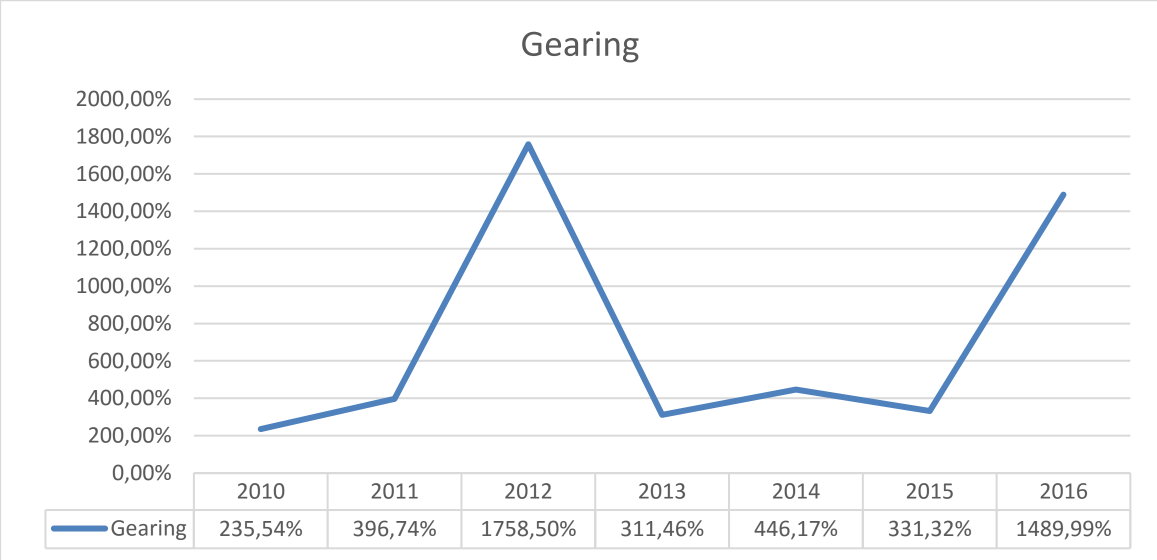
The “Cosco Shipping Lines Company LTD” registered very negative actual profit for the last six available periods (1).



After having investigated the company’s profitability, I report the table which depicts the firm’s financial condition and includes the company’s current and non-current liabilities, market interest rate, the minimum interest payment computed with the Caballero’s simplified formula, the actual interest expenses of the firm, the difference between the minimum required payment and the company’s paid interest expense, and the actual interest rate paid by the company computed dividing the total debt by the interest paid (2).

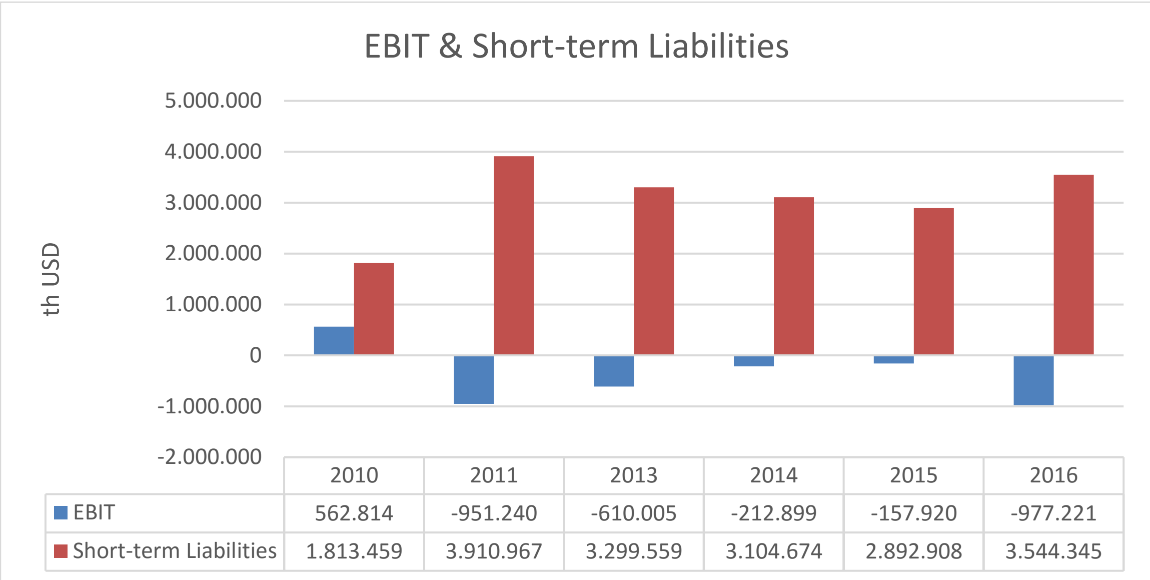
	2016	2015	2014	2013	2012	2011	2010
Current liabilities	3,544,345	2,892,908	3,104,674	3,299,559	0	3,910,967	1,813,459
Non-current liab.	1,884,989	1,559,368	2,366,192	2,174,053	7,824,396	3,030,459	4,067,270
Interest rates	4.35%	4.35%	5.60%	6.00%	6.00%	6.56%	5.81%
R*	253,329	214,757	315,691	327,025	453,658	441,175	349,561
Interest paid	86,247	53,675	40,356	29,406	0	-19,485	18,277
R*- Ri	167,083	161,081	275,335	297,619	453,658	460,660	331,284
Actual interest cost	1.59%	1.21%	0.74%	0.54%	0.00%	-0.28%	0.31%

In the table above, it can be noted that the actual interest rate obtained by “Cosco Shipping Lines Company Limited” is much lower than the market one meaning that the company has been enjoying reduced expenses on its debt. As a matter of fact, following my calculations, the company has been enjoying a 1.59% interest rate in 2016 and 0% in 2012 and even negative interest rate in 2011 (-0.28%). In the last year reported, the company has been increasing its current liabilities and non-current liabilities from 2015, thus validating the hypothesis that the firm has been receiving subsidised credit. The third step of my analysis consists in the focus of the firm’s gearing ratio to investigate whether the company has been increasing its external financing compared to its shareholders’ capital (3).

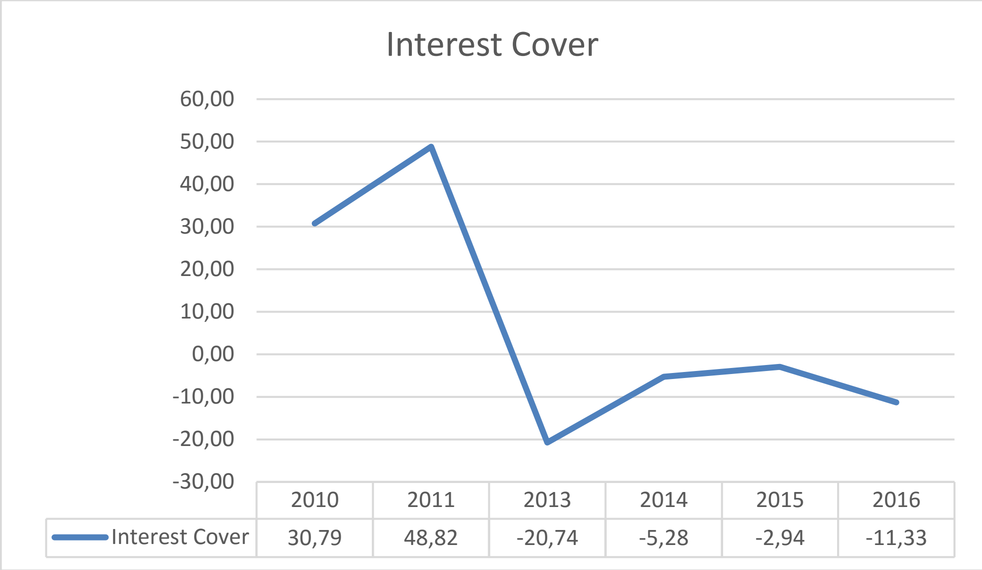


From the graph above, it can be concluded that the firm has a fluctuating gearing ratio trend registering a peak in 2012 and in 2016 which highlights the company's reliance on external debt. Moreover, for every financial year the company reports a gearing ratio figure far higher than the 50% Nakamura and Fukuda threshold for zombie firms.

The fourth step is the comparison between the EBIT and short-term obligations (4).



The graph above shows that the firm has far more short-term liabilities than earnings before interest and tax which highlights that the firm is not able to meet its short-term debt requirements leading to a non-compliance of due payments and the need to get more credit to keep the firm away from bankruptcy. Moreover, the firm is not able to pay its interest payment as the interest cover ratio is very low and even negative in the last four reported years (5).



This graph shows that the interest cover of the firm which is computed by dividing the EBIT by the interest expenses, is very low except for the first two periods, therefore it is implied that the company is not able to repay its liabilities because it does not have enough earnings to meet its interest payments; therefore it is proved that the firm has been receiving subsidized credit in the last available years.

In this section, I am going to demonstrate that, even though the company has government support, it fails to improve its financial and profitability performance.

	2009	2010	2011	2012	2014	2015	2016
Number of employees	491	45	45	1,500	1,500	1,500	1,500
Fixed assets (th USD)	4,104,895	4,286,246	n.a.	3,099,587	2,903,290	2,763,481	2,773,941
Profit Margin (%)	8.81	-16.17	n.a.	-12.14	-4.40	-3.57	-16.77
ROE using P/L b.tax (%)	31.51	-116.64	n.a.	-77.38	-45.79	-33.25	-701.13
ROA using P/L b.tax (%)	7.19	-12.04	n.a.	-10.15	-4.20	-3.47	-18.97

As it can be noticed from the chart above the company has been increasing its employment rate, after a reduction of 446 employees between 2010 and 2011, the company has been hiring 1455 people from 2012 to 2013 and the number has been kept stable across the last four years. The fixed assets account has been decreasing during the years demonstrating that the company have been selling its fixed assets to minimize the fall in sales. The profit margin has been declining throughout the years registering a negative performance for the last five available periods registering a negative peak of -16.17% in 2011. ROE and ROA (using P/L before tax) highlight the same trend: a decrease in profitability and negative performances for the last five available years. Therefore, it can be concluded that the firm is not managing well its equity and assets to produce net income. In this case, the granted credit is not leading to capital accumulation as the fixed assets account is declining, however the company is investing in its human capital as it has hired 97% more people from 2012 and 2013. Below I report the financial statements of the "Cosco Shipping Lines Company Limited" from year 2016 to 2010.

Tab. 22 - Cosco Shipping Lines Company Balance Sheet

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.15099
Balance sheet							
Assets							
Fixed assets	2,773,941	2,763,481	2,903,290	3,099,587	n.a.	4,286,246	4,104,895
Intangible fixed assets	13,968	15,795	9,891	9,430	0	67,300	67,366
Tangible fixed assets	651,875	727,278	910,215	1,092,845	0	4,048,038	3,869,775
Other fixed assets	2,108,098	2,020,408	1,983,184	1,997,312	n.a.	170,907	167,754
Current assets	2,806,366	2,208,018	3,120,625	3,200,349	n.a.	3,453,860	3,515,439
Stock	209,034	85,826	135,711	187,253	0	242,521	163,559
Debtors	430,170	180,590	242,432	324,360	0	395,694	430,368
Other current assets	2,167,162	1,941,602	2,742,482	2,688,736	n.a.	2,815,645	2,921,512
Cash & cash equivalent	1,781,638	1,595,686	2,057,975	2,225,025	n.a.	2,622,057	2,815,458
TOTAL ASSETS	5,580,307	4,971,499	6,023,915	6,299,937	8,269,344	7,740,106	7,620,334
Liabilities & Equity							
Shareholders funds	150,973	519,223	553,050	826,325	444,948	798,680	1,739,605
Capital	2,296,723	1,708,197	1,812,186	1,817,115	n.a.	966,332	919,336
Other shareholders funds	-2,145,750	-1,188,974	-1,259,136	-990,790	n.a.	-167,652	820,269

Non-current liabilities	1,884,989	1,559,368	2,366,192	2,174,053	7,824,396	3,030,459	4,067,270
Long term debt	1,881,877	1,555,784	1,569,820	1,375,442	4,909,628	1,566,764	2,519,413
Other non-current liabilities	3,113	3,584	796,371	798,611	2,914,768	1,463,695	1,547,856
Provisions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Current liabilities	3,544,345	2,892,908	3,104,674	3,299,559	0	3,910,967	1,813,459
Loans	364,487	160,930	101,324	399,639	0	138,198	30,198
Creditors	1,475,005	657,900	80,335	65,092	0	1,427,987	1,060,855
Other current liabilities	1,704,854	2,074,077	2,923,015	2,834,827	0	2,344,781	722,406
TOTAL SHAREH. FUNDS & LIAB.	5,580,307	4,971,499	6,023,915	6,299,937	8,269,344	7,740,106	7,620,334
Memo lines							
Working capital	-835,801	-391,484	297,808	446,521	0	-789,772	-466,928
Net current assets	-737,979	-684,889	15,951	-99,209	n.a.	-457,106	1,701,980
Enterprise value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of employees	1,500	1,500	1,500	1,500	45	45	491

Tab. 23 - Cosco Shipping Lines Company Profit & Loss Account

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.15099
Profit & loss account							
Operating revenue (Turnover)	6,313,655	4,831,234	5,761,294	5,269,170	6,863,477	5,762,004	6,222,778
Sales	6,313,655	4,831,234	5,761,294	5,269,170	6,863,477	5,762,004	6,222,778
Costs of goods sold	6,882,315	4,712,009	5,630,685	5,591,451	0	6,363,493	5,333,276
Gross profit	-568,661	119,226	130,610	-322,280	6,863,477	-601,489	889,502
Other operating expenses	408,560	277,145	343,509	287,725	n.a.	349,752	326,688
Operating P/L [=EBIT]	-977,221	-157,920	-212,899	-610,005	n.a.	-951,240	562,814
Financial revenue	4,948	38,948	0	0	0	170	3,549
Financial expenses	86,247	53,675	40,356	29,406	0	-19,485	18,277
Financial P/L	-81,299	-14,727	-40,356	-29,406	0	19,655	-14,728
P/L before tax	-1,058,520	-172,647	-253,256	-639,411	n.a.	-931,585	548,086
Taxation	172	1,256	12,782	6,937	0	25,215	20,476

P/L after tax	-1,058,691	-173,903	-266,038	-646,347	n.a.	-956,801	527,610
Extr. and other revenue	24,601	179,219	58,168	270,444	0	20,464	10,844
Extr. and other expenses	6	15,087	63,490	18,634	0	3,658	1,178
Extr. and other P/L	23,487	171,789	-5,323	251,810	n.a.	-3,007	8,920
P/L for period [=Net income]	-1,035,204	-2,114	-271,361	-394,538	-356,770	-959,807	536,530
Memo lines							
Export revenue	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Material costs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Costs of employees	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Depreciation & Amortization	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other operating items	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Interest paid	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Research & Development expenses	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cash flow	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Added value	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBITDA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Tab. 24 - Cosco Shipping Lines Company Financial Ratios

Local registry filing/Unconsolidated	31/12/2016 th USD	31/12/2015 th USD	31/12/2014 th USD	31/12/2013 th USD	31/12/2012 th USD	31/12/2011 th USD	31/12/2010 th USD
Exchange rate: CNY/USD	12 months Local GAAP 0.14389	12 months Local GAAP 0.15405	12 months Local GAAP 0.16343	12 months Local GAAP 0.16387	12 months Local GAAP 0.15899	12 months Local GAAP 0.15871	12 months Local GAAP 0.15099
Profitability ratios							
ROE using P/L before tax (%)	-701.13	-33.25	-45.79	-77.38	n.a.	-116.64	31.51
ROCE using P/L before tax (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using P/L before tax (%)	-18.97	-3.47	-4.20	-10.15	n.a.	-12.04	7.19
ROE using Net income (%)	-685.69	-0.41	-49.07	-47.75	-80.18	-120.17	30.84
ROCE using Net income (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ROA using Net income (%)	-18.55	-0.04	-4.51	-6.26	-4.31	-12.40	7.04
Profit margin (%)	-16.77	-3.57	-4.40	-12.14	n.a.	-16.17	8.81
Gross margin (%)	-9.01	2.47	2.27	-6.12	100.00	-10.44	14.29
EBITDA margin (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EBIT margin (%)	-15.48	-3.27	-3.70	-11.58	n.a.	-16.51	9.04
Cash flow / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Enterprise value / EBITDA (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Market cap / Cash flow from operations (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Operational ratios							
Net assets turnover (x)	3.10	2.32	1.97	1.76	0.83	1.51	1.07
Interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Stock turnover (x)	30.20	56.29	42.45	28.14	n.s.	23.76	38.05

Collection period (days)	25	13	15	22	0	25	25
Credit period (days)	84	49	5	4	0	89	61
Export revenue / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
R&D expenses / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Structure ratios							
Current ratio (x)	0.79	0.76	1.01	0.97	n.a.	0.88	1.94
Liquidity ratio (x)	0.73	0.73	0.96	0.91	n.a.	0.82	1.85
Shareholders liquidity ratio (x)	0.08	0.33	0.23	0.38	0.06	0.26	0.43
Solvency ratio (Asset based) (%)	2.71	10.44	9.18	13.12	5.38	10.32	22.83
Solvency ratio (Liability based) (%)	2.78	11.66	10.11	15.10	5.69	11.51	29.58
Gearing (%)	n.s.	331.32	446.17	311.46	n.s.	396.74	235.54
Per employee ratios							
Profit per employee (th)	n.s.	n.s.	n.s.	n.s.	n.a.	n.s.	1,116
Operating revenue per employee (th)	4,209	3,221	3,841	3,513	n.s.	n.s.	12,674
Costs of employees / Operating revenue (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average cost of employee (th)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Shareholders funds per employee (th)	101	346	369	551	9,888	n.s.	3,543
Working capital per employee (th)	n.s.	n.s.	199	298	0	n.s.	n.s.
Total assets per employee (th)	3,720	3,314	4,016	4,200	n.s.	n.s.	15,520

6. Conclusions

The “Zombie economy” phenomenon has serious implications in the Chinese economic environment not only because it poses great risks in the financial system, but also because it prevents healthier and more efficient firms to enter into the market.

In my research, I analysed the Chinese economy as well as the China growing debt which is the major concern for the future development of the nation. The rising debt level is associated with the spending of Chinese state-owned enterprises which because of their poor profitability and great amount of external financing, register the biggest percentage of zombie enterprises. The aim of my dissertation is to assess to which extent the government recent policies and economic trends after the 2008 financial crisis tackled the proliferation of zombie companies; moreover, after having ascertained that all the companies have been receiving subsidized credit, I determine whether the government support to those firms have resulted in capital accumulation. In order to do so, I analysed the financial statements of eight enterprises which are directly or indirectly controlled by the state and belong to four different key sectors metal, chemicals, energy and shipping industries.

To determine whether a company can be considered as zombie I applied five parameters which underlined a common pattern in the financial condition of the reported firms: negative net income, lower interest cost, a gearing ratio exceeding 50%, unbalanced relationship between EBIT and short-term liabilities and very low interest cover.

All the reported enterprises have negative net income at least in the last financial year. Another common feature for all the enterprises is the fact that they show interest payment, in the case of listed companies, or financial expenses, for those not quoted, lower than the market available one. As Caballero (2008) highlighted the lavishing of low interest credit is the first clue when determining whether a firm can be considered as zombie. Moreover, with the exception of “Dongfang Electric Corporation” and “PetroChina Lanzhou Petrochemical Company” all the other enterprises show growing gearing ratio. All the firms have short-term liabilities by far exceeding the earnings before interest and tax index. As long as the interest cover is concerned, apart from “Shanxi Coking Coal Group Company Limited” which registered a positive trend reaching 1 in 2016 all the other firms have negative or declining interest cover which is the first sign of financial distress for a business. In my research, not only the analysed companies received subsidized credit, but their balance sheet are dominated by liabilities and their working capital is in most of the cases negative.

In order to exclude that healthy firms which might enjoy lower interest rates because of their good economic performance fall into the “zombie company” category, I decide to analyse not only the interest rates on existing debt, but also some profitability criteria. First of all, I noticed that all the reported firms showed negative net income at least in the last reported financial year and, in most cases, this entry’s trend is declining. Other profitability indices, namely ROE, ROA before tax and gross profit, apart from “Cosco Shipping Lines Company” which in 2017 registered a better performance thanks to the merger of the COSCO group with the China Shipping group, showed a negative tendency.

Therefore, I believe those parameters are applicable also to different countries and legal entities. However, more research should be conducted on the start-up companies which because of their nature, retain initial high level of debt to finance R&D operations.

During my analysis, I identified two interesting point for reflection: the first one is whether the sales entry in the profit and loss account augmented across time. As a matter of fact, a growth in the sales line might indicate the government's preferential award of public supply or public service contracts to state-owned enterprises. In the analysed sample, half of the companies have increased significantly their sales in the last financial year. It should be noted that the "Shanxi Coking Coal Group Company Limited" which belongs to the coal sector has been diminishing its sales in line with the new environmental policies on the reduction of the use of coal for energetic purposes. The second is whether the financial statements of the reported firms highlight increasing COGS as the last policies on the cut of overcapacity entail the rise in the price of raw material and factory products in general. As for the rise in sales, half of the companies featured decreasing COGS price which might hinder government indirect subsidies.

All the analysed firms have increasing either non-current or current liabilities in the last reported years, five of them have growing long-term and short-term debt which clash with the new policies on the deleveraging of SOEs. Therefore, it can be argued that the CCP's policies were thoroughly implemented by state-owned firms.

My research focuses on the Chinese state-owned enterprises as, according to the IMF report, are the main responsible for the China's alarming and growing debt. The CCP representatives have repeatedly declared that Chinese SOEs should not be blamed for the outstanding liabilities they owe to state banks because they have also to fulfil the social goals of the party especially as long as the employment rate is concerned. In my study I observed that the majority of the analysed firms did not raise their employment rate in the recent years, on the contrary, they have been laying off thousands of people. As long as fixed assets are concerned – I preferred to use the fixed assets entry instead of the total assets one because intangible assets are not as easy to determine- all the firms with the exception of "Shanxi Coking Coal Group Company Limited" and "Dongfang Electric Corporation" reports decreasing figures. Therefore, the so-called social objectives of the Chinese SOEs may just consist on the complete obedience to the Party's policies and model of growth.

It can be concluded that, even though the Chinese government has been launching many reforms in the recent years especially trying to address SOEs' need for restructuring, fighting the corruption inside the SOEs' administrations, and promoting the reduction of external debt through financial measures such as debt-to-equity swaps, mergers of same sector SOEs to reduce competition, debt forgiveness, the spun off of liabilities into specially-created subsidiaries and the lavishing of credit to sectors and regions in economic difficulties, however the situation has not improved considerably leaving unchanged the great unbalances between the public and the private sectors. China should continue to follow the path of reforms especially in the state sector promoting mixed ownership formulas for SOEs which have already been introduced but are still reluctant to take off, allowing non-viable firms to exit the market, imposing budget constraints to non-profitable SOEs and further achieve the reduction of overcapacity by increasing the price of good sold and eliminate fierce competition. As China is switching to a consumption growth model from an investment led one, it is essential that the government succeeds in increasing the role of the market forces to better allocate resources, deleveraging the private sector and consolidating the fiscal system making it more progressive avoiding growing inequalities in the distribution of wealth and providing the citizens with more social and welfare benefits. As a matter of fact, China tax revenue is equal to 20% of GDP which is significantly lower than the OECD countries average which amount at 34% of GDP. China's "new normal" will entail a slower but more sustainable economic growth, a system more open to foreign and private sectors and a more service and consumption driven economy which is more careful to the environment protection.

Even though the debt is piling at slower rate compared to the years immediately following the global financial crisis, the credit growth remains strong with the SOEs owning the 50% of corporate debt and 40% of industrial assets but contributing to less than 20% of the industrial output. The moral hazard of SOEs' management which does not bear the consequences for making poor economic decisions, the riskier positions of shareholders of unprofitable firms whose investment has shrank considerably and political mercantilism have caused SOEs to further worsen their financial positions; however the recent Xi's campaign against corruption has put 14 SOEs' executives under investigation over graft allegations.

In my opinion, China should follow the outlined path continuing to reduce the state-owned enterprises' corporate debt and overcapacity in critical sector; however, in order to strengthen its financial position, the Chinese government should seriously tackle the shadow banking system which not having the same requirement and protection of the official one cannot offer the same guarantees to the Chinese people. Moreover, even though even though the Chinese government has already put great effort in the harmonisation of the Chinese accounting system with the international standards, however Beijing should give more emphasis to the transparency and accuracy of Chinese firms' financial data to inspire confidence among market operators and attract further investments. As a matter of fact, during my research I found it difficult to gather reliable data about Chinese SOEs financial documents especially for those one which are not traded in the Stock Exchanges. Further research can be conducted by enlarging the number of companies included in the sample.

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