

HOW HAS CHINA'S 'NATIONAL TEAM' OF ENTERPRISE GROUPS PERFORMED? AN EVALUATION USING AGGREGATE AND FIRM LEVEL DATA

Paul Guest

Lecturer

Judge Business School, University of Cambridge, Cambridge

Phone: 00 44 1223 338 185

Fax: 00 44 1223 338 076

E-mail: p.guest@jbs.cam.ac.uk

Dylan Sutherland

Lecturer

Dept of Economics, Trinity College, Dublin

Phone: 00 3531 608 1667

Fax: 353 (1) 677 2503

E-mail: sutherld@tcd.ie

ABSTRACT

Early in its reforms China embarked upon an ambitious industrial policy to develop large enterprise groups. The most important focus of this policy was the development of around 100 or so large and strategically important enterprise groups, now known as the 'national team'. The twin objectives of this policy were to simultaneously maintain control over important sectors of the economy and to create internationally competitive firms. Associated with the latter objective were expected improvements in growth, profitability, R&D, export performance, and where applicable, company valuation. In this paper we attempt to evaluate the success of this policy using two different data sources. Firstly, we consider as a whole the national team's performance by using official aggregate data on all of the groups. Analysis of this data between 1997 to 2003 shows that the groups have recorded fast growth, improved profitability, high growth in R&D expenditure rates, but no increase in exports relative to turnover. These results suggest that several key objectives have been achieved. However, this conclusion is tentative at best because of a number of potential problems with the data set which could bias the results. Secondly, we examine whether affiliation to a national team enterprise group improves firm-level performance of group members by examining the performance of the publicly listed subsidiaries of the national team groups over 1991-2005. Although we find that these subsidiaries are significantly larger and experience significantly faster growth than other listed firms, we find no evidence of better share performance and indeed find strong evidence that such firms are valued less highly than other firms. While Chinese state officials appear to evaluate the policy of building large enterprise groups positively, the stock market clearly remains less enthusiastic. Our key conclusion is that although the policy has resulted in larger firms, the evidence is mixed on whether these firms have actually become more competitive or not.

KEYWORDS

Industrial policy, China, performance evaluation, national team, enterprise groups

1. INTRODUCTION

China has made outstanding economic progress in the past two decades and more. If China's provinces were each considered individual nations, the twenty fastest growing nations in the world from 1978-95 would all have been Chinese (World Bank, 1997: 2). Various economic reforms have been carried out, many acquiring their own Chinese characteristics. Understanding the impact of China's different reforms, particularly the industrial policies used, remains an important issue. In this paper we attempt to evaluate one aspect of China's industrial policy, the formation and support of a 'national team' of large enterprise groups.

The development of large state-owned enterprise groups has played a key role in China's recent industrial development (Nolan, 2001). Not unlike Japan in the 1950s and 1960s, and South Korea in the 1970s and 1980s, policy makers and business leaders in China have made great efforts to nurture the 'saplings' of big business. By 2004 there were 2,692 officially recognised large enterprise groups (*da qiye jituan*), many of which remained based around a large state owned 'mother company'. The groups were large - they exported approximately 21% of China's exports, employed 26 million people and held assets of \$2,000 billion (SSB, 2004). Within these 2,692 groups, 113 enterprise groups were selected as key trial groups between 1991 and 1997 and were recipients of a variety of industrial policies (Sutherland, 2001). These 113 groups are collectively known as the 'national team' and are considered the 'generals' or 'key few' in the current 'large company and enterprise group strategy'. They are larger than most of the other enterprise groups and are directly controlled by China's State Council, China's highest decision making body (Sutherland, 2001). The key objective of this industrial policy has now become to transform the national team into globally competitive companies.

The policy has been controversial. For example, the World Bank has argued that China's rapid industrial development was primarily the result of the speedy proliferation of small enterprises (World Bank, 1997: 21). One of the slogans state enterprise reform in China adopted during the 1990s was 'grasp the large, let go of the small', and hence a simultaneous policy involved by the mid 1990s privatizing up to 70 per cent of small state-owned enterprises (SOEs) in pioneering provinces and about a half in many other provinces. This was referred to as a 'quiet revolution from below' (Cao et al., 1999: 105). However, some empirical evidence suggests LME productivity and financial performance bettered that of the small-scale sector (Lo, 1999), and hence suggests the role of the large-scale state sector has been of greater importance in China's reform than is sometimes recognized. Contrary to common belief, the number of large and medium enterprises (LMEs) and their share of industrial output actually increased significantly during the reforms. According to the Chinese Government, the national team industrial policy has been a success and continues to be implemented with vigour: 'by focusing on a few key industrial leaders, the government has accelerated market-oriented restructuring of SOEs. While numerous small and medium-sized SOEs were transformed via merger, re-organisation and being sold off to enterprises with diversified ownership, less than 200 giant state firms have been shaped into the main vehicles for state assets' (*China Daily*, 27th Sept 2005). Despite the ambitious nature of China's national team industrial policy, no study to date has attempted to evaluate the impact of this policy.

In this paper we attempt to fill this gap in the literature. Our primary objective and key original contribution is to embark upon a preliminary evaluation of the ambitious national team policy. In order to do this we firstly consider the Chinese government objectives associated with the policy. Secondly, we examine two sources of publicly available data and consider to what extent they are consistent with the policy objectives. The first source of data we consider is aggregate data on all national team groups. This is the primary data most frequently presented by the Chinese government in describing the progress of the policy. There are various shortcomings with the aggregate data, some of which are overcome by employing firm level analysis. Unfortunately, data on individual group performance is not available. However, firm level data is available for subsidiaries of national team groups that are publicly listed on China's stock markets, and we therefore examine stock market performance measures for 87 such listed firms in relation to their peers.

The paper proceeds as follows: in Section 2 we briefly describe the salient features of the national team policy and highlight its importance as a key area of Chinese industrial policy; in Section 3, we examine aggregate performance measures for the national team groups and firm level measures that are available for their publicly listed subsidiaries; Section 4 concludes.

2. WHAT IS CHINA'S 'NATIONAL TEAM' INDUSTRIAL POLICY AND WHAT ARE ITS OBJECTIVES?

China's national team industrial policy was officially initiated in 1991. A policy directive was issued by the State Council in December 1991 endorsing 55 enterprise groups to undergo influential trial reforms. In April 1997, a second policy directive endorsed a further 63 groups to undergo the reforms. Subsequently a variety of novel policies were introduced to the trial groups. Among these were the development of internal group finance companies, the systematic introduction of stock market listings, the promotion of preferential planning within the groups giving them greater autonomy in basic decision making, granting of import and export rights, the empowerment of the group's core with special rights to incorporate state assets into the group and the creation of research and technology centres. These measures were largely of an institutional nature, aimed at freeing the groups from the constraints of the formerly centrally planned economy and allowing trans-provincial, trans-departmental enterprise groups to emerge (Sutherland, 2001). To a great extent the development of the national team of business groups has adopted the traditional Chinese method of reform, using incremental steps, the 'groping for stones' approach as opposed to 'shock therapy'. It has followed an iterative process of experimentation and feedback.

The national team enterprise groups are found predominantly within a particular subset of capital intensive industries which have the potential to benefit from economies of scale and scope. Economic historians have identified these areas as bastions of big business (Chandler, 1990). For example, Sutherland (2001) identifies energy supply, electronics, iron and steel, autos, machinery, pharmaceuticals, aviation and aerospace, oil and petrochemicals as the most important. Chinese policy makers refer to these industries as the 'pillar', 'lifeblood' and 'backbone' industries of the national economy. Other industrial sectors, those in which large enterprises are now not so important, have not received the same level of support for the development of large enterprise groups. A minister responsible for light industry, for example, commented at the time of the second policy directive in 1997 that 'to develop state sectors is critical to the economy but not to light industry because light industry isn't influential enough to national security and the economy' (CDBW, 20-27 March 1997).

The trial groups were typically leaders in their sectors. During the mid 1990s, for example, the six trial groups in electricity generation and supply produced over half of China's electricity. The three civilian airlines controlled over 55 per cent of the domestic market (Sutherland, 2001). National team groups were based upon large-scale enterprises which have acted as the 'core members of the group' with the 'capability to act as investment centres' (CRES, ZJTGN, 1992: 160). These core members were invariably listed among the top 10 in their sectors, both in terms of assets and sales (Sutherland, 2001). In 1995, the earliest year for which aggregate statistics can be found, the 120 trial groups combined workforce stood at approximately 7 million, averaging about 60,000 workers per group and equalling 1.1 per cent of the national workforce and 6.2 per cent of the state sector workforce (CASS, ZGFB, 1998: 121; SSB, ZTN, 1998: 92-102). The workforce of large industrial enterprises stood at a peak of over 24 million in this year so the 120 enterprise groups total employment was approximately equal to a quarter that of the large-scale sector (Liu et al., 1999).

Since 1991 the National Team enterprise groups have also undertaken a variety of institutional reforms, which are discussed in detail elsewhere (Sutherland, 2001). The process of '*jituanhua*', the transformation of enterprises into extended groups of enterprises, has come to subsume much of the large-scale sector. State industry, under the aegis of the policy of 'grasp the large, let go of the small', has gradually become distilled in a small number of large enterprise groups of which the national team groups are particularly important. Following the national team example, over 2,300 provincially owned and managed groups have also emerged. The 'grasp the large' strategy has also been adopted at lower levels. While the national team groups were exclusively owned and controlled by the central government, with the State Council playing a particularly involved role (in 107 of the 113 groups the 'mother company' of the trial groups was controlled by the central government as the only shareholder). By contrast, of the 2,692 other large groups in 2003, approximately 2,300 were owned by local provincial governments or provincial state asset management committees (SSB, 2004: 32).

If we are to attempt to evaluate the success of the national team policy it is obviously imperative to consider the objectives of the Chinese government in carrying out the policy. This is complicated, however, as the initial objectives of the creation of these large enterprise groups were multifaceted. Firstly, the government wished to maintain control over certain important aspects of the economy, and creating large

enterprise groups was considered the best way to do so. For example, at the 15th Party Conference in 1997, President Jiang Zemin summarized how efforts were to be made to distil the state sector into key ‘pillar’ or ‘life blood’ industries of the national economy using strategic adjustments to create ‘highly competitive large enterprise groups’:

‘The state-owned sector must be in a dominant position in major industries and key areas that concern the life-blood of the national economy we shall effectuate a strategic reorganization of state-owned enterprises by managing well large enterprises while adopting a flexible policy toward small ones. By using capital as the bonds and relying on market forces, China will establish highly competitive large enterprise groups with trans-regional, inter-trade, cross-ownership and trans-national operations’ (New Star Press, 1997: 22)’

The interests of the major shareholder, the state, however, clearly also had competing needs, such as maintaining social stability via employment creation. Therefore the objectives extend beyond any particular impact on the enterprise groups themselves. Despite these non-profit oriented concerns, there were clear objectives in terms of the impact of the policy on the enterprise groups themselves. Arguably the most important objective of the national team today is that it should become internationally competitive and lead China’s integration in the world economy:

‘In reality, international economic confrontations show that if a country has a several large companies of groups it will be assured of maintaining a certain market share and position in the international economic order. America, for example, relies on General Motors, Boeing, Du Pont and a batch of other multinational companies. Japan relies on six large enterprise groups and South Korea relies on 10 large commercial groupings. In the same way now and in the next century our nation’s position in the international economic order will be to a large extent determined by the position of our nation’s large enterprises and groups’ (Wu Bangguo, Jingji Ribao, 1st August 1998).

By 1997 with the publication of the second State Council document, the national team enterprise group policy had become explicit about the intention to create internationally competitive groups: it is ‘imperative to develop a number of large enterprise groups to make up the backbone of the national economy and the country’s main force to participate in international competition’ (Jiang Qiangui, State Economic and Trade Commission, China Daily, 17 January 2000). Thus unlike many of the earlier incremental reform measures, those related to the trial business groups over time developed much clearer objectives, as well as implicitly accepted time horizons. With this in mind a number of areas related to enterprise performance are now often highlighted by state officials.

- i. *Profits.* State owned enterprises (SOEs) are renowned for losing money and draining the state coffers. The ‘making good of state enterprises’ (*gaohao guoyou qiye*) involved turning them into profitable organisations and putting them onto a long term sustainable growth path. Profits and profitability are thus seen as key indicators of enterprise group performance and a marker of long term viability
- ii. *Scale.* Size, in its own right, has been considered important. This is because it is argued that economies of scale and scope would be important to enhancing performance in China’s large enterprise groups. Size, in other words, would lead to efficiency gains. Policy makers eagerly eye their foreign competitors and frequently allude to the size disparity. Asset value and turnover are frequently used to gauge scale of the enterprise groups, as well as growth in these measures.
- iii. *Research and development.* China’s large groups are weak in the area of product development and more generally their technological level is low. The state planned economy split research and development facilities from manufacturing. Lack of competition also meant pressure to innovate was low. Research and development expenditures are now considered a vital indicator of the long term viability of the enterprise groups. Large groups have been encouraged to invest in research and development.
- iv. *Exports.* International competitiveness has also become a key benchmark of success. The ultimate goal for the National Team is that its members should enter the ranks of the Fortune 500 companies. Export volume is a reflection of the team members’ ability to compete in international markets.

- v. *Brands*. Developing recognized brand names is another talked of goal.
- vi. *Valuation*. Responsibility for overseeing management of the national team has since 2003, rested with the State-owned Assets Supervisory and Administration Commission (SASAC). One of the stated goals of SASAC is to improve the value of state assets.

3. AN EVALUATION OF THE ‘NATIONAL TEAM’ INDUSTRIAL POLICY USING AGGREGATE AND FIRM LEVEL DATA

There can be little doubt that the national team industrial policy that China has embarked upon is a hugely ambitious strategy of creating large-scale enterprise groups in key sectors, areas that it considers vital to its economic development. In what senses, however, can the policy said to be a success or failure? How exactly should we evaluate the policy? Clearly this is a complex issue, given the range of objectives described above. Nonetheless, it is interesting to examine just what progress has been made, whether the Chinese policy shows any sign of success and, if so, how far towards its objectives it has moved. In this paper we briefly consider two approaches to evaluation. The question of whether China’s large groups are catching-up with their international competitors has been considered in some detail elsewhere (Nolan, 2001). We therefore do not address this question in detail. Instead in Section 3.1 we firstly consider enterprise group performance with regard to certain aggregate benchmarks that Chinese policy makers currently consider important. Secondly, in Section 3.2 we examine the stock market performance of the publicly listed subsidiaries of national team members.

3.1 Aggregate performance analysis

Aggregate performance data on the national team is available in China’s Yearbook of Large Enterprise Groups. This annual official publication is available from 1997 onwards and provides a wealth of information on both large enterprise groups in general as well of those of the National Team. It provides information on aggregate asset size, turnover, number of employees, profits, exports, and research and development (R&D) expenditure. These measures are reported in Table 1 below. We report the measures for all enterprise groups (Panel A), the national team of enterprise groups (Panel B), and non-national team enterprise groups (Panel C). As well as reporting the raw measures, we report average measures by dividing the raw measures by the total number of groups. We also combine the raw measures to create performance ratios which provide additional information and help us to understand the raw measures further. These include profit/assets (profitability), exports/assets, exports/turnover, R&D/assets, and R&D/turnover. The total number of large enterprise groups in 1997 is 2,369 and this grows to 2,692 by 2003. In contrast, the number of national team groups is 119 and this declines to 113 by 2003, reflecting mergers amongst a small number of national team members.

One clear and robust pattern to emerge from the data is the extremely fast growth experienced by all enterprise groups, whether national team or otherwise. The average asset size of an enterprise group in 1997 is US\$256m, and this increases to US\$762m in 2003. If we consider average turnover instead of asset size, this increases from US\$143m in 1997 to US\$448m in 2003. The average annual growth rate in assets is 22.7 percent, whilst that for turnover is 23.6 percent, and in both cases is reasonably constant over the 7 year period. The average number of employees also increases significantly over the period, but to a much lesser extent than in the case of assets or turnover. The average annual growth rate in employees being 5.9 percent. Growth rates are similar between national team groups and other enterprise groups.

Table 1: Performance indicators of Large Enterprise Groups and National Team Groups

	1997	1998	1999	2000	2001	2002	2003	Annual growth (%)
Panel A: All large enterprise groups								
Number	2,369	2,472	2,757	2,655	2,710	2,627	2,692	
Assets (billion US\$)	606.6	807.2	1,052.1	1,289.0	1,542.7	1,717.3	2,050.2	22.7
Turnover (billion US\$)	339.8	422.6	527.3	641.7	790.6	929.2	1,206.0	23.6
Employees (million)	18.5	20.9	23.4	22.8	25.2	25.2	25.9	5.9
Profits (billion US\$)	14.7	13.1	20.8	35.0	38.7	50.3	66.9	31.6
Exports (billion US \$)	31.1	32.4	43.2	55.2	65.1	75.7	90.8	19.9
R&D (billion US\$)	40.9	50.9	63.5	77.3	95.3	111.9	145.3	23.6
Profits/assets (%)	2.4	1.6	2.0	2.7	2.5	2.9	3.3	7.8
Exports/assets (%)	5.1	4.0	4.1	4.3	4.2	4.4	4.4	-1.9
Exports/turnover (%)	9.2	7.7	8.2	8.6	8.2	8.1	7.5	-2.9
R&D/assets (%)	6.7	6.3	6.0	6.0	6.2	6.5	7.1	1.0
R&D/turnover (%)	12.0	12.0	12.0	12.0	12.1	12.0	12.0	0.0
Panel B: National team groups								
Number	119	121	126	119	119	116	113	
Assets (billion US\$)	278.2	408.1	547.4	544.0	581.0	635.4	715.3	18.2
Turnover (billion US\$)	135.1	193.8	262.7	275.6	306.3	358.2	444.3	22.7
Employees (million)	7.6	9.9	11.2	9.9	9.3	8.8	9.0	3.8
Profits (billion US\$)	5.3	4.2	8.9	17.2	17.5	24.4	32.3	43.0
Exports (billion US \$)	9.0	9.8	16.5	17.6	17.7	21.7	23.9	19.5
R&D (billion US\$)	13.4	20.1	30.2	35.4	37.8	49.4	62.0	30.1
Profits/assets (%)	1.9	1.0	1.6	3.2	3.0	3.8	4.5	24.5
Exports/assets (%)	3.2	2.4	3.0	3.2	3.0	3.4	3.3	1.9
Exports/turnover (%)	6.7	5.1	6.3	6.4	5.8	6.1	5.4	-2.3
R&D/assets (%)	4.8	4.9	5.5	6.5	6.5	7.8	8.7	10.5
R&D/turnover (%)	9.9	10.4	11.5	12.8	12.3	13.8	14.0	6.0
Panel C: Other enterprise groups								
Number	2,250	2,351	2,631	2,536	2,591	2,511	2,579	
Assets (billion US\$)	328.4	399.1	504.7	745.0	961.7	1,081.9	1,334.9	26.8
Turnover (billion US\$)	204.7	228.8	264.6	366.1	484.3	571.0	761.7	24.9
Employees (million)	10.9	11.0	12.2	12.9	15.9	16.4	16.9	7.8
Profits (billion US\$)	9.4	8.9	11.9	17.8	21.2	25.9	34.6	25.5
Exports (billion US \$)	22.1	22.6	26.7	37.6	47.4	54.0	66.9	20.9
R&D (billion US\$)	27.5	30.8	33.3	41.9	57.5	62.5	83.3	20.9
Profits/assets (%)	2.9	2.2	2.4	2.4	2.2	2.4	2.6	-1.0
Exports/assets (%)	6.7	5.7	5.3	5.0	4.9	5.0	5.0	-4.6
Exports/turnover (%)	10.8	9.9	10.1	10.3	9.8	9.5	8.8	-3.3
R&D/assets (%)	8.4	7.7	6.6	5.6	6.0	5.8	6.2	-4.4
R&D/turnover (%)	13.4	13.5	12.6	11.4	11.9	10.9	10.9	-3.3

Source: SSB (2004: 30/ 31)

Notes: Current values, assuming 8.3 RMB to 1 US\$.

How should we interpret these fast growth rates and increases in size? On one hand, they are certainly consistent with a primary objective of the national team policy, namely that enterprise groups retain a dominant position within their industries. Since size is highly correlated with power and dominance, the increase in size could be interpreted as indicating that the national team have become more powerful and this

is consistent with an original objective given by Jiang Zemin that the state owned sector, remains in a 'dominant position in major industries'. The national team groups remain disproportionately large, in 2003 accounting for some one third of assets, turnover and employees.

It is unclear whether this growth has been achieved by organic growth or by mergers and acquisitions. Unfortunately, such data is not made available in the annual report on enterprise groups. If the increase in size is being achieved by simply transferring many other SOEs into enterprise groups over the period, then the growth could be considered less impressive than if it were achieved organically. There is indeed much evidence to suggest that mergers have been an extremely important source of growth for enterprise groups (Sutherland, 2001; SSB, 2004). Many groups now have hundreds of member enterprises. The growth per se, of course, says little about the efficiency with which such assets are managed. It may simply reflect efforts to force growth, of which some observers remain concerned: 'To quickly enter the Fortune 500 we can't pull the saplings upward in the hope they will grow' (Ma and Ma, 1998). The second motive given for increased scale is to generate economies of scale and in turn higher profitability. We therefore examine profitability to observe whether the size increases are associated with improvements in profitability. We find no evidence of higher profitability for the enterprise groups which are not part of the national team. For these firms, return on assets is very low and constant over the period, ranging between 2 and 3 percent in every year. For the national team, return on assets is 1.91 percent in 1997, decreases to 1.03 percent in 1998 and 1.63 percent in 1999, and then increases to above 3 percent for 2000-2002 and then 4.52 percent in 2003. There is therefore some evidence of improvements in profitability over the period, although they are somewhat irregular. However, it should be noted that these higher profit rates are still very low indeed.

Furthermore, there are significant problems in the interpretation of these profitability figures. The first problem is that much of the growth in size may have been achieved through acquisitions. Any increase in profitability may simply reflect the acquisition of more profitable firms. This problem is well known in studies examining merger performance, which overcome the problem by comparing the post-merger performance of the acquirer with the pre-merger performance of both the acquirer *and* the acquired firm (see e.g. Cosh et al., 2006). That approach is not possible here because of the aggregate nature of the data, which makes the data very hard to interpret. A second important problem is creative accounting. One example of this is that mergers over this period in China were accounted for using merger accounting and therefore any expenditure on goodwill was not incorporated in the acquirers' accounts. This method means that the true cost of the acquisition was not included (see e.g. Cosh et al., 2006), and it is possible for mergers to show an increase in profitability despite being a net present value negative investment. Therefore, the improvement in profitability over the period may not reflect an underlying improvement in firm performance but rather the acquisition of firms with different profitability or the method of accounting for acquisition.

Next, we consider R&D expenditure. Between 1997 and 2004, the absolute level of R&D expenditure increased significantly in all large enterprise groups, going from US\$41bn to US\$145bn. The increase was particularly noticeable within the National Team players which saw a near eight fold increase, from US\$13bn to US\$62bn. The National Team's share of R&D expenditure rose from 33 percent to 43 percent of the total for all large enterprise groups in China, possibly illustrating the emphasis placed within these key groups on improving product development and their overall technological level. This increase could be interpreted as in keeping with the strategic plans to foster research and development capabilities, and indicative of steps towards the initial strategic goals of creating a batch of internationally competitive enterprise groups. However, in examining increases in R&D, one needs to take account of the larger size of these groups over the period. In particular, R&D expenditure is expected to increase as firms increase in size. For example, greater absolute R&D levels could simply reflect mergers with other SMEs with positive R&D levels, and not a commitment to greater R&D expenditure. Once we control for increases in group size, we still find evidence of a significant increase in R&D expenditure for the national team, for whom the R&D/assets measure grows by 11 percent over the period. However, growth in this measure is a negative 4 percent for other enterprise groups, and is zero for all enterprise groups together. Therefore, although we find strong evidence that the national team experiences a significant increase in R&D over the period, there is no evidence that enterprise groups as a whole do so. Finally, as with profitability, inferences are further limited because R&D levels will be affected by acquisitions, and any increase (decrease) in R&D may simply reflect the acquisition of high R&D (low R&D) oriented companies.

With regard to export performance, China's large groups also, on the face of it, appear to perform well over the period. Total exports increased from US\$31bn in 1997 to US\$91bn in 2003. In 2003 this figure accounted for 21 percent of the total value of all China's exports, an increase from 17 percent in 1997 (Table

1: SSB 2004). The National Team's exports increased from US\$9bn to US\$23.9bn. However, as with R&D it is important to control for size when considering export levels. Exports/turnover declines from 6.6 in 1997 to 5.4 in 2003, reflecting an annual average growth rate of -2.4 percent. Similarly, the growth rate for other enterprise groups is -3.3 percent. We therefore find no evidence that export levels increase in relation to size measures. The higher levels of turnover experienced in 2003 are associated with lower relative levels of exports. Although the national team exports as a share of all other large enterprise groups fell from 38.3 percent to 26.3 percent between 1999 and 2003, this is hard to interpret. Over 300 large enterprise groups with a greater export orientation joined the ranks of China's large groups during this period (SSB, 2004: 33), highlighting the problems of using aggregate data and not being able to maintain the same sample of enterprise groups over the period. As with profitability, inferences are further limited because export levels will be affected by acquisitions, and any growth (decrease) in exports may simply reflect the acquisition of export (non-export) oriented companies. Finally, little information on the type of exports is available. A major concern for developing countries today is whether they are able to export so-called 'market dynamic' and 'supply dynamic' products: those with high income elasticity of demand and also the potential for rapid productivity growth (UNCTAD, 2002). It is questionable whether exporting large volumes of low value added products qualifies as a successful measure of international competitiveness.

It is important to note that even if the higher profitability were not caused by the above problems, we still do not know whether the improved performance necessarily implies a better use of capital or a sustainable change. This is because the increase in profitability in these groups coincided with a vigorous campaign, led initially by Zhu Rongji, to turn around large state enterprises with large government intervention. During 1997 to 2000 it is reported the state directly injected RMB360bn into state enterprises, as well as writing-off debt of RMB150bn, carrying out debt-equity swaps of RMB112bn and reducing interest payments (Sun and Tong, 2003: 184). Increasing profitability, therefore, may represent nothing more than state transfers and the concern of some observers is that any direct support afforded to such enterprise groups in a bid to make them large modern corporations may have little impact on real changes in business practices and modernization (Ma and Ma, 1998). Unfortunately, it is not possible to address this issue with the data available.

Our analysis of these performance measures differs significantly from the interpretation provided by the Chinese government. Over this period, reports in official newspapers argued consistently that these figures reflected improved performance and increasing competitiveness of enterprise firms. We clearly draw a very different picture of national team performance. One indisputable conclusion that does emerge over this period is that the national team has grown extremely quickly, although no more so than other enterprise groups. Profit rates and R&D rates have both significantly increased in the national team, whilst export rates have not increased. These measures have remained constant for other enterprise groups. However, we have highlighted some significant problems with making clear inferences from this data. Most importantly, profit rates, R&D, and exports can be significantly affected by acquisitions of firms which differ across these characteristics, and the changes we observe may simply reflect the combination of assets in mergers and not reflect real changes. Secondly, profitability is subject to creative accounting. Thirdly, the sample has changed over time, meaning that there may be an aggregation bias in the data. We now turn to an alternative assessment method which overcomes some of these problems.

3.2 Firm level stock market performance analysis

The second approach that we adopt to examine the impact of the national industrial policy is to examine the performance of publicly listed subsidiaries of the national team groups. There are several reasons why such an analysis will shed further light on whether the policy has been a success or not.

Firstly, one of the objectives of the policy was clearly to benefit not just the parent company of the enterprise groups but also the subsidiaries. A fundamental question of the large group strategy concerns whether the group membership is beneficial for individual group company members. Do enterprises that participate in the National Team groups actually benefit? Did the institutional reforms introduced in the groups improve subsidiary firm level performance? Such an analysis will allow us to assess whether this has occurred or not, albeit for just a subsample of group subsidiaries.

Secondly, a market based perspective on the performance of the National Team groups overcomes the problems of using accounting measures of profitability that we described above with our aggregate analysis in Section 3.1, such as combining profits following merger and creative accounting. These problems can be

overcome by examining whether the share price has increased over the period. This is because an improvement in profitability will only be reflected in higher share valuations if it coincides with higher fundamental value, or an increase in real future cash flows of the firms. It should, in theory, remain unaffected by cosmetic changes brought about by merger or by creative accounting. Furthermore, a firm level analysis can better address the problem of changing samples over time and the problem of aggregation bias.

The data source we employ is the Datastream database. Datastream has 1,357 Chinese listed firms included on its database with share price data available for at least one year of analysis between 1991 and 2005. We identified among this list of 1,357 firms the companies that are subsidiaries of national team groups. As noted in Section 2, national team members, once included in the trials, were also given preferential stock market listings and hence a large number of national team members are listed on China's stock markets. There were 87 such firms. Our objective was to compare these 87 firms with the 1,270 remaining firms in terms of key stock market performance measures. We did this over the entire sample period 1991-2005. The annual data availability of the 1,357 firms and the 87 national champion subsidiary firms are reported in Table 2 below.

Table 2: Sample firms by year

Year	Number of total firms	Number of national team subsidiaries	National team listed subsidiaries, percentage of stock market
1991	10	1	10
1992	52	8	15
1993	171	13	8
1994	283	23	8
1995	308	24	8
1996	493	39	8
1997	695	50	7
1998	798	57	7
1999	894	63	7
2000	1,031	70	7
2001	1,108	76	7
2002	1,179	78	7
2003	1,244	83	7
2004	1,343	85	6
2005	1,357	87	6

Table 2 reports the number of sample firms by year. Column 2 reports the number of listed Chinese firms with share price data on the Datastream database for at least one year between 1991 and 2005. Column 3 reports the number of these firms that are subsidiaries of an enterprise group company that was selected as a national champion. We examine five performance measures for our sample firms, each of which is measured at each calendar year end. Share return is the percentage buy-and-hold share return between 1st January and 31st December. It takes account of both dividends and stock splits (Datastream variable RI). Market value (log) is the natural logarithm of the market value (Datastream variable MV). Market value (log) growth is the annual percentage growth in Market value (log) between 1st January and 31st December. Market-to-book-value is the market value divided by the net asset value (Datastream variable MTBV). Price-earnings ratio is the market value divided by earnings (Datastream variable PE). We calculate each of these variables for each year between 1991 and 2005.

In order to examine whether these variables differ between the 87 national champion firms and the remaining 1,270 firms, we carry out multiple regression analysis on a panel data set. In particular, we run a set of regressions in which each of the performance measures is the dependent variable. We include a dummy variable, National Team dummy, which is set equal to one for firms that are subsidiaries of an enterprise group company that was selected as a national team member, and zero if not. The coefficient for this dummy variable therefore measures any difference in the performance measure between the 87 firms and the 1,270 firms. The summary statistics for the variables included in the regression analysis are reported in Table 3 below. We carry out the regressions using robust regression analysis. We include dummy variables which

control for year of the observation and for the industry of the sample firm, in case the performance measures are either time or industry dependent.

Table 3: Summary statistics of regression variables

Variable	Number of observations	Mean	Median	Standard deviation	Minimum	Maximum
Share return	9,609	-1.38	12.07	39.80	-44.93	103.27
Market value (log)	10,966	7.34	7.40	0.93	4.70	8.88
Market value (log) growth	9,609	-0.01	-0.01	0.05	-0.31	0.30
Market-to-book-value	8,613	3.59	2.86	2.42	0.81	9.95
Price-earnings ratio	8,579	54.26	36.20	51.27	7.30	213.72
National team dummy	10,966	0.07	0.00	0.25	0.00	1.00

Notes: All continuous variables have been winsorized at the 5th and 95th percentiles to remove influential outliers.

The results of the regressions are reported in Table 4 below. The first column reports the regression in which annual share return is the dependent variable. The coefficient for the national champion dummy variable is positive but not statistically significant. This indicates that listed subsidiaries of national team groups experience insignificantly higher annual share returns than other listed companies. Column 2 reports the results of the regression in which market value is the dependent variable. In this case, the coefficient for the national team dummy variable is positive and statistically significant at the one percent level. This indicates that listed subsidiaries of national champion groups are significantly larger than other listed firms. This is consistent with the findings presented in Section 3.1 that the national team groups are unusually large in most measures of size.

Column 3 reports the results of the regression in which growth in market value is the dependent variable. Again, the coefficient for the national team dummy variable is positive and statistically significant at the one percent level. This indicates that listed subsidiaries of national team groups grow significantly faster in terms of market value than do other listed firms. Column 4 reports the results of the regression in which market-to-book value is the dependent variable. The coefficient for the national team dummy variable is negative and statistically significant at the one percent level. This indicates that listed subsidiaries of national champion groups are valued significantly lower than other listed firms. A similar result is found in terms of price earnings ratios in Column 5. In this case, the coefficient for the national team dummy variable is again negative and statistically significant at the one percent level.

Our results suggest that companies which are subsidiaries of national team enterprise groups are bigger than average and experience much faster growth in terms of total market value. This is consistent with our aggregate findings in Section 3.1. However, whilst in that section we found that national team groups experienced better performance in terms of greater profitability, we find no evidence that their publicly listed subsidiaries perform better than other firms. national team firms do not experience better performance in terms of their share returns. Furthermore, such firms are valued significantly lower than other firms, since market-to-book and price-earnings ratios are significantly lower. Therefore, national team subsidiaries actually perform worse than peer groups in terms of stock market valuation.

Table 4: Regression results

Independent variables	Dependent variables				
	Share return	Market value (log)	Market value (log) growth	Market-to-book-value	Price-earnings ratio
Intercept	0.000 (1.00)	0.000 (1.00)	0.000 (1.00)	0.000 (1.00)	0.000 (1.00)
National team dummy	0.009 (0.87)	0.420 ^a (15.88)	0.005 ^a (3.27)	-0.410 ^a (6.29)	-3.653 ^a (3.96)
Year dummies	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
Number of observations	9,609	10,966	9,609	8,613	8,579
F-statistic	153.20 ^a	69.73 ^a	75.90 ^a	78.91 ^a	23.91 ^a

Notes: Year dummies are dummy variables set equal to one for each separate year of the analysis, zero otherwise. Industry dummies are dummy variables set equal to one for each Datastream level 4 industry grouping, which is broadly equivalent to standard industrial classification level 2 in its level of detail. All continuous variables have been winsorized at the 5th and 95th percentiles to remove influential outliers. t-statistics are calculated using Huber-White robust standard errors and are reported in parentheses. ^{a, b} and ^c indicate statistical significance at the 1, 5 and 10 percent levels respectively.

What we observe therefore, is the objective of greater size being achieved with the subsidiary companies as with their parent groups. However, we find no evidence that this greater size results in better performance whether in terms of share price returns or stock market valuation ratios. The stock market judgement on this greater size is that it does not result in economies of scale or scope being achieved, or in greater competitiveness being achieved from other sources. If this were the case, then one would expect to observe higher share returns and higher stock market valuations for national team subsidiaries. Shareholders of national team subsidiaries do not appear to benefit at all, and in fact appear to be disadvantaged by the policy since they do not benefit from greater size unless it improves shareholder value.

Finally, we consider what implications these results have for our conclusions in Section 3.1. It is difficult to infer anything with confidence about group performance from subsidiary firm performance, despite the more reliable performance measures employed in this section. The publicly listed subsidiaries clearly only represent one part of the performance of an enterprise group, and an enterprise group as a whole may have different performance to that of its listed subsidiary. Furthermore, since a listed subsidiary is only partly owned by the national team enterprise group, the group may be less concerned about its performance than it is for wholly owned private subsidiaries. Indeed, the national team enterprise group may abuse its position as a majority shareholder to expropriate or ‘tunnel’ resources away from minority shareholders. However, the same holds true for other listed firms, the vast majority of which are majority owned by other (non-national team) enterprise groups. Therefore, we believe that it is reasonable to argue that the fact we do not find any evidence of stronger stock market performance, does lend some strength to the argument that the higher profitability reported in Section 3.1 is less credible than initially concluded.

4. CONCLUSION

In this paper we have attempted to evaluate aspects of China’s national team industrial policy, building upon earlier research undertaken on China’s large enterprise groups (Keister, 1998; Nolan, 2001; Sutherland, 2001). We have outlined the nature of the policy, its importance and its objectives. In attempting to evaluate this important policy, we have focused solely on the firms concerned. We do not consider wider issues such as the opportunity cost of focusing resources on enterprise groups as opposed to other sectors of the economy. Within this framework, we ask how the performance of the selected firms has compared with the policy objectives. In order to do this we have considered the performance of the national team using aggregate data and firm specific stock market data on national team listed subsidiaries.

The national team of large enterprise groups is a particularly important sample to analyse from the point of view of understanding and evaluating the current 'grasp the large' policy and China's industrial policy to create national champions. The significance of policies instituted in the national team lies not only in the impact on the 113 National Team groups, but also the great influence they have had and continue to exert as role models on the development of around 2,300 provincial and lower level enterprise groups. Most provincial as well as hundreds more city and lower level governments are now nurturing their own teams of preferred enterprise groups, taking the lead from the State Council trial groups. As a result it is probable that the scale and reach of central and local government industrial policy, if not necessarily its effectiveness, far exceeds that which nations such as South Korea or Japan exercised during their most impressive growth periods. As one of the few detailed investigations of China's large groups puts it: 'The formation of business groups has been one of the most profound components of China's efforts to engineer industrial growth' (Keister, 1998: 436). The National Team trials and large enterprise group strategy continues to receive widespread support.

The first analysis we carry out employs aggregate data on all national team enterprise groups. This analysis suggests that the national team of enterprise groups has grown extremely quickly over the period 1997-2003, with growth rates of greater than 20 percent in terms of both assets and turnover. Similar growth rates are experienced by other state owned enterprise groups, but given their larger initial size, the absolute growth is much higher for members of the national team. By 2003, the 113 national team groups accounted for 35 percent of total assets and 37 percent of total turnover of the 2,692 large enterprise groups in China. One of the primary objectives of the national team policy was to retain dominance over certain sectors of the economy, and the fast growth over this period would appear to have achieved this objective. However, it is unclear to what extent this growth is the result of organic growth and to what extent it is simply the result of other state owned assets being transferred to enterprise groups. Other objectives of the policy were to increase profitability, R&D expenditure, and export performance. Increasing profitability is observed for the national team, whilst this is not the case for other enterprise groups. Increased R&D expenditure rates are also observed, although not higher exports in relation to total turnover. Therefore, the data would appear to indicate that 3 of these 4 performance objectives have actually been met. However, we outline several problems with the data set which mean that this conclusion is at best a tentative one.

The second analysis we carry out on the publicly listed subsidiaries of the national team shows that these firms, like their parents, are also relatively large and have grown quickly over the period. However, we find that these subsidiaries do not have higher share returns and in fact have lower stock market valuations compared to peer firms. We therefore find no evidence that subsidiaries of the national team groups benefit from the policy. This finding appears to call into question the reliability of the higher aggregate profitability figures.

Our overall conclusion therefore on the success of the policy is mixed. The national team policy has without doubt resulted in fast growth for both enterprise groups and their subsidiaries. Although the nature of this growth is unknown, to the extent that the policy aimed to increase the size and dominance of these groups, the policy is clearly a success. However, the objective of improving the competitiveness of these groups can not be said to have been achieved on the basis of the data analysed here. The apparent improvements made in profitability and R&D at the group level are offset by the markets dismal judgement of the valuation of their publicly listed subsidiaries. The inconsistency in these findings, and the weaknesses with both data sources, necessitate that in terms of improving competitiveness an open verdict is recorded on the policy.

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