

**Long live China's state-owned enterprises:
deflating the myth of poor financial performance**

Carsten A. Holz

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Journal of Economic Literature classification: P31, P2, M4, L5, D2

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China's industrial state-owned enterprises (SOEs) are commonly perceived as performing poorly. This leads authors to conclude that SOE reform so far has been a failure, and to recommend all-out privatization. Industrial SOE profitability indeed declined drastically in the course of the reform period, and industrial SOEs are always less profitable than industrial non-SOEs. However, the gap between SOEs and non-SOEs can be explained by just two factors: SOEs face higher circulation tax rates than non-SOEs, and have a higher capital intensity. In as far as these are the result of government policies and historical factors discriminating against SOEs, privatization of SOEs may improve these enterprises' profitability levels, but privatization is not a necessary condition. The decline in SOE profitability over time furthermore is well explained by economic transition factors; non-SOE profitability declined following a similar time pattern, and non-SOEs are no better suited to withstand shocks such as the 1989/90 economic downturn.

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1. Introduction

China's state-owned enterprises (SOEs) are commonly perceived as performing poorly. Production function estimations show total factor productivity (TFP) growth in SOEs to be low and lagging behind that in enterprises in other ownership forms. Thus, for example, Jefferson, Rawski and Zheng (1996) find TFP growth in collective-owned industry to consistently outpace TFP growth in the state sector in 1980 through 1992. TFP growth in industrial SOEs by the mid-1990s may even have turned negative (Laurenceson and Chai, 2000; Jefferson, Rawski, Wang and Zheng, 2000).¹ Much discussion centers on data issues such as the proper price deflators for capital, material inputs, and output measures, or the exact share of fixed assets and labor in productive use. The conclusion on the poor performance of SOEs is uncontested.

Yet ultimately it is profitability that determines the economic viability of an enterprise, rather than efficiency. A second approach to evaluating the performance of SOEs—an approach also adopted in this paper—therefore focuses on profitability. Industrial SOE profitability declined drastically over the reform period. Losses increased twenty-fold between 1978 and 1997.

This leads authors to conclude that SOEs are in urgent need of radical reform. Thus Lardy (1998, p. 22) tentatively concluded that “reforms to date have failed in large portions of the state-owned sector and that their ultimate success will depend on the willingness of the Chinese Communist Party to embrace privatization.” Sachs (1998) argues: “Now China has reached the stage where it cannot delay the process [of state enterprise reform] any longer because there are too many problems. The losses are too great; the financial loss resulting from the money-losing state-sector is too serious.” (p. 13) In the long run, “China must go along the way of privatization” (p. 19).

This paper first questions the view that non-SOE profitability by far exceeds SOE profitability. Various industrial SOE profitability indicators indeed all declined over time, but so did profitability of non-SOEs. The dissimilarity between SOE and non-SOE profitability lies not in the time trend, but in an over time for most profitability indicators rather constant gap in favor of non-SOEs.

The relative inferiority of SOEs has been explained with historical and systemic arguments. Thus SOEs are burdened with excessive capital and labor, heavy pension and other social welfare obligations, and face distorted output prices; SOEs' governance structure leads to poor incentives for management and workers, and often comes with a soft budget constraint² But the data show that the gap in profitability (in the case of industrial enterprises) can be explained by just two factors, namely a higher rate of circulation taxes for SOEs, and higher SOE capital intensity. Both can be traced to historical and policy factors. While privatization is unlikely to change an enterprise's circulation tax burden, it might lower an enterprise's capital intensity. Yet a relative reduction in capital intensity does not require privatization.

Second, the decline in industrial SOE profitability itself is primarily the healthy outcome of economic transition. An administratively orchestrated economic downturn in 1989/1990 caused SOE profitability to plummet in the late 1980s. Severe after-effects prevented a recovery in the early 1990s; an increase in competition as prices were freed and entry barriers across many industrial sectors lowered did not help. Repeated changes to the definition of profit, and rising financial and administrative charges in the early and mid-1990s all had a negative impact on profit. Throughout the reform period, the time trend of non-SOE profitability matched that of SOEs, suggesting that privatization is not a cure for the long-term decline in SOE profitability. Many of the causes of the decline in industrial enterprise profitability appear transition phenomena, and as such may have largely run their course. Industrial SOE profitability today is low, but not at the point of entering terminal decline.

The following section explains the data and the profitability indicators used. The third section presents profitability time series data on industrial SOEs as well as on non-SOEs; for 1995 a further distinction among non-SOEs is possible. The fourth section explains the gap in profitability between industrial SOEs and non-SOEs. The fifth section explores the reasons for the deterioration in industrial SOE profitability measures over time. The last section concludes.

2. Data and Profitability Indicators

Due to a lack of financial data on all SOEs (let alone all non-SOEs), the focus in the following is on *industrial* SOEs (and industrial non-SOEs). Until 1997, industrial SOEs with independent accounting system constituted one ownership category within the larger group of “industrial enterprises with independent accounting system on township level and above,” with somewhat detailed balance sheet and profit and loss account data available for the years since the beginning of economic reforms in 1978.³ Subtracting the category SOEs from the total yields the group of non-SOEs. Due to the restriction on the level of jurisdiction in the published detailed statistics, the non-SOEs then exclude the collective-owned and private enterprises on village level as well as all self-employed (*getihu*); balance sheet and profit and loss account data on these industrial enterprises and units are not available.

Since 1998, detailed balance sheet and profit and loss account data are available for the category “SOEs and state-controlled enterprises,” rather than for SOEs only. Prior to 1998, besides SOEs, solely state-owned limited liability companies as well as state joint-operation enterprises (*lianying qiye*) were also included in the category “SOEs.” Since 1998, all shareholding companies (limited liability companies and stock companies) in which the state has a controlling share are fully included in the category “SOEs and state-controlled enterprises;” data on all other enterprises/ companies in which the state has a share are included in proportion to the state’s equity share. This group of “SOEs and state-controlled enterprises” (with independent accounting system) since 1998 is one ownership category within the larger group of all “industrial SOEs plus non-SOEs with annual sales revenue in excess of 5 million yuan” (and with independent accounting system). The self-employed are now categorically excluded.⁴ The 1998 through 2000 data are reported below along with the earlier data, without repeatedly making the re-categorization explicit. Due to the statistical break, comparisons of pre-1998 data with data since 1998 are impossible; but 1998 through 2000 data by themselves are again conclusive.⁵

Profit (*zong lirun*) reported in Chinese statistics is the sum of the positive profit of profitable enterprises and the negative profit (losses) of loss-making enterprises. Data on the losses of loss-making enterprises are separately available, which allows the calculation of the positive profit of profitable enterprises, in the following labeled “gross profit.” Profit is inclusive of income taxes. The separately reported measure “profit and taxes” (*lishui zong'e*) is the sum of profit plus “sales-related taxes” (circulation taxes), which in turn comprise “sales taxes and surcharges” (*xiaoshou shuijin ji fujia*) and the since 1994 separately listed value-added tax (*zengzhishui*).

The preferred profitability indicator in the following is the return on equity (profit per unit of equity). It is the return obtained by the owners of the firm in exchange for providing equity. Circulation taxes need to be included in the numerator for cross-ownership comparisons if circulation taxes differ across ownership forms. If the focus is on the return to owners as well as creditors, then the appropriate profitability indicator is ‘profit plus financial charges’ per unit of assets (equity plus liabilities).⁶ A “social” return on assets further includes circulation taxes in the numerator, to capture the return to owners, debt-holders, and the government.

Equity and asset data are available for the years since 1993, which means that these profitability indicators can be calculated for the years 1993-2000. For earlier years the assets in the indicator ‘return on assets’ or ‘social return on assets’ can be approximated using year-end net fixed assets plus average annual fixed-quota working capital (available until 1992); 1992 data suggest that in the late 1980s and early 1990s the approximated assets fall one quarter to one third short of actual assets.⁷ An alternative indicator for earlier years when equity and asset data are not available is losses of loss-making enterprises relative to profit of profitable enterprises, i.e., losses per unit of gross profit. Losses relative to gross profit splits aggregate profit into its two sub-categories and standardizes one by the other.

In order to explore the reasons for the decline in profitability over time, profit (or profit and circulation taxes) is also related to sales revenue. As the various items that are subtracted from sales revenue change in relative size, so does the residual measure profit. To avoid a statistical

break in sales revenue caused by a change in taxes reported as part of sales revenue, sales revenue in the following unless otherwise mentioned is always net of all circulation taxes.⁸

To summarize, the three types of profitability measures used in the following are:

- (i) Profitability per se: profit (or profit plus circulation taxes) per unit of equity; since equity data for the years prior to 1993 are not available, an alternative measure for these years is losses per unit of gross profit.
- (ii) Return on assets: ‘profit plus financial charges’ per unit of assets, with the denominator in the years prior to 1993 approximated by net fixed assets plus fixed-quota working capital. A “social” return on assets further includes circulation taxes in the numerator.
- (iii) Sales-based profitability: profit (or profit plus circulation taxes) relative to sales revenue.

3. Industrial Profitability Patterns

3.1 Time trends

At first sight, SOEs’ financial performance appears to be deteriorating fast. Losses in SOEs between 1978 and 1997 increased twenty-fold. But once losses are adjusted for inflation using the ex-factory price index of industrial products, losses of SOEs rose only six-fold between 1978 and 1997. Losses in non-SOEs in the same period rose seventy-fold, albeit from a much lower basis. (See Table 1 for SOEs and Table 2 for non-SOEs.) Profitability measures exhibit the following patterns in the years 1978 through 1997.

- (i) The return on equity between 1993 and 1997 declined by approximately six percentage points in the case of both SOEs and non-SOEs. If circulation taxes are included, non-SOE profitability in 1997 is one quarter higher than that of SOEs, and the gap is narrower than in the case of profit per unit of equity. The ratio of losses to gross profit in SOEs was stable throughout the 1980s, with even an improvement in the mid-1980s, but multiplied six times in just the two years from 1988 to 1990 (five times for non-SOEs), with a further deterioration between 1993 and 1996. The ratio of losses to gross profit is always higher in SOEs than in non-SOEs.

- (ii) The return on (approximated) assets in SOEs dropped drastically between 1988 and 1990. It declined only modestly between 1993 and 1997, with a rather constant 2.5 percentage point difference between SOEs and non-SOEs in favor of the latter. SOEs' social return on assets followed the same trend, and in the 1990s lagged behind non-SOEs' by just 1.5 percentage points.
- (iii) Profit per unit of sales revenue of both SOEs and non-SOEs declined gradually in the early 1980s, but then precipitously between 1985 and 1990. Between 1988 and 1990 SOE profitability declined from 9.95% to 3.66% and non-SOE profitability from 7.57% to 3.57%. Profitability recovered slightly in the following years before falling again, to 1.58% and 3.63%, respectively, in 1997. If circulation taxes are included, the overall decline is much smaller, SOEs consistently outperform non-SOEs, and the 1990s saw almost no decline.

Table 1 and Table 2 about here

Four overall patterns emerge. First, profitability measures indeed show a decline throughout the reform period. Second, the decline in profitability was not uniform over time. Profitability declined very gradually in the early 1980s, but then plummeted between 1988 and 1990. It remained rather stable in the early 1990s, and then declined slightly further between 1993 and 1997. Third, the time pattern is the same for both SOEs and non-SOEs. Fourth, SOEs fare significantly worse than non-SOEs in terms of profit per unit of equity. If an overall return on assets or a social return on assets is considered, the difference is minor, and it disappears once profit and taxes are related to sales revenue.

Between 1998 (the first year after the statistical break) and 2000 profitability of both SOEs (including state-controlled enterprises) and non-SOEs improved. The profitability gap narrowed in absolute percentage terms across almost all measures. In terms of profit (with or without circulation taxes) relative to sales revenue, SOEs by 2000 clearly outperformed non-SOEs.

3.2 Distinguishing among non-SOEs (1995)

The 1995 industrial census allows a concise distinction among non-SOEs. At first sight, SOEs again perform very poorly compared to other sectors of the economy. In 1995, 34% of

SOEs were running losses, while the average rate for all enterprises nationwide was only 25% (Table 3).

- (i) SOE's return on equity in 1995 at 4.10% is low compared to the nationwide average of 5.93%. If profit and circulation taxes together are related to equity, SOEs perform on the nationwide average. The performance of private enterprises in particular is always outstanding, with a return on equity of 24.58% and a ratio of profit and circulation taxes to equity of 37.24%.
- (ii) SOEs are close to the average in terms of return on assets and the social return on assets. Private enterprises clearly outperform SOEs.
- (iii) Profit per unit of sales revenue in SOEs is close to the average, and SOE's ratio of profit and circulation taxes to sales revenue above-average. The gap between SOEs and non-SOEs is markedly reduced in the case of profit relative to sales revenue, and disappears once circulation taxes are included in the numerator; this is also true for the direct comparison between SOEs and private enterprises.

Table 3 about here

Foreign-funded enterprises, including those with Hong Kong, Macao or Taiwanese participation, perform poorly across all profitability indicators, probably because these enterprises have unique transfer pricing opportunities that allow them to locate their profit abroad. Among all non-SOEs, only the group of private enterprises stands out. Yet the selection of these enterprises, accounting for only 0.26% of value-added (Table 3), is strongly biased. The self-employed in industry are by definition not included; the self-employed in industry turn into a "private industrial enterprise" as soon as they employ more than seven persons and thus reach a certain size-level. Private industrial enterprises until 1997 were included only if they were registered at the township level or above, i.e., were located in urban areas. Since 1997, private enterprises are included only if their sales revenue exceeds 5m yuan RMB per year (but all SOEs independent of their sales revenue are included). If it is the case that only those individual-owned units that are profitable tend to grow to a significant size—turn into private enterprises and meet the registration/ sales criterion—then the group of private enterprises included in the detailed

statistics reflects the top performers in the individual-owned sector. The comparison between SOEs and private enterprises thus loses some of its significance.

The comparison of SOEs and private enterprises is, in addition, further biased against SOEs for two reasons, namely the lack of exit of worst-performing SOEs, and the occasional exit of the potentially best-performing SOEs. Formal SOE bankruptcy procedures are limited to selected large and medium-sized SOEs included in a central bankruptcy plan with a tight limit on the number of SOEs allowed to formally go bankrupt every year. A higher degree of exit would imply a higher level of profitability for the group of surviving SOEs in the aggregate.⁹

At the other end of the spectrum, the best-performing large and medium-sized SOEs are increasingly being turned into limited liability companies or stock companies. Solely state-owned limited liability companies have always been included in the category “SOEs.” But all other state-controlled companies are only included in the new category “SOEs and state-controlled enterprises” since 1998, as are data on all other enterprises in which the state holds a stake (proportional to the ownership stake). The fact that SOE profitability levels did not immediately improve after the re-categorization in 1998 suggests that the drain on the SOE category prior to 1997 through the exit of the possibly best SOEs from this category may have been minor.¹⁰

4. Explaining the Profitability Gap Between Industrial SOEs and Non-SOEs

The data suggest that two issues may be able to explain the profitability gap between SOEs and non-SOEs. First, the gap is smaller once profit plus taxes are considered rather than profit by itself. With profit being by definition inclusive of income taxes, the smaller gap implies a higher rate of circulation taxes for SOEs than for non-SOEs. Second, the gap is smaller in the case of profit per unit of sales revenue than in the case of profit per unit of equity, suggesting that equity in the case of SOEs is relatively large, which in turn can be shown to reflect a relatively large volume of assets compared to sales revenue (high capital intensity).

4.1 Difference in the rate of circulation taxes

The narrowing of the gap between SOEs and non-SOEs when switching from a numerator consisting only of profit to one comprising profit and circulation taxes is striking, because one would expect circulation tax rates to be the same across all industrial enterprises. But in fact SOEs pay about twice as much sales-related taxes (circulation taxes) per unit of sales revenue than non-SOEs (Table 4). Since 1994 a break-down of sales-related taxes into “sales taxes and surcharges” and the in 1994 broadly adopted value-added tax is available. The proper measure to standardize sales taxes and surcharges is sales revenue, and the proper measure to standardize the value-added tax is value-added. Throughout the 1990s, sales taxes and surcharges relative to sales revenue are two to four times higher in SOEs than in non-SOEs; the value-added tax relative to value-added is about one and a half times higher in SOEs than in non-SOEs (Table 4).

Table 4 about here

Across the close to forty industrial sectors in China, the mean ratio of the value-added tax to value-added is significantly higher for SOEs than for non-SOEs at the 0.1% significance level (two-tailed t-test) throughout all years for which the data are available, 1994 through 1997, and 1999 and 2000. (See Table 5.) However, there is no significant difference in the mean ratio of sales taxes and surcharges relative to sales revenue across industrial sectors for SOEs vs. non-SOEs in any of these years (using the 10% significance level as cut-off point).

This implies that SOEs' higher aggregate rates of sales taxes and surcharges are solely due to the concentration of SOEs in sectors with high sales taxes and surcharges. Indeed, the higher the rate of sales taxes and surcharges SOEs on average face in a particular industrial sector, the larger the SOE market share in this industrial sector (where the market share is calculated based on sales revenue). On the other hand, the higher the rate of sales taxes and surcharges non-SOEs on average face in a particular industrial sector, the smaller the non-SOE market share in this industrial sector; furthermore, the smaller is the sales revenue of non-SOEs in this particular industrial sector relative to total non-SOE sales revenue. (See Table 5 for the significance levels

of the correlation coefficients over time, and the notes to the table on the range of correlation coefficients calculated.)

In other words, while SOEs have a large market share in industrial sectors in which they pay the highest sales taxes and surcharges, the reverse is true for non-SOEs. Moreover, non-SOE production activities are allocated primarily to those sectors in which they face the lowest sales taxes and surcharges, while the SOE allocation of industrial production activities across sectors does not depend on sales taxes and surcharges in any way. This suggests historical or government policy reasons for the high market share of SOEs in industrial sectors in which they pay high sales taxes and surcharges.

The most extreme example is the tobacco (processing) sector, in which SOEs face a rate of sales taxes and surcharges of more than 65%, vs. a rate of approximately 10-30% for non-SOEs. The SOE market share in the tobacco sector in 1993 was 98.17%, and in 2000 99.13%. The SOE rate of sales taxes and surcharges in the tobacco sector is more than six times higher than in the sector with the second-highest rate for SOEs, and the value of sales taxes and surcharges in the tobacco sector consistently accounts for almost half of total SOE sales taxes and surcharges. (Omitting the tobacco sector does not systematically change the results reported in Table 5.) Another example is the resource tax, which as a component of sales taxes and surcharges is levied on seven different resources, such as petroleum, natural gas and coal; state ownership dominates across these industries. (PRC FM Tax Office, 1996, pp. 59ff and 129ff)

The consistent correlation across industrial sectors of the SOE rate of sales taxes and surcharges with the market share suggests that the government may purposefully impose high tax rates on state monopoly sectors (such as the tobacco sector) or sectors in which a few, often centrally owned large SOEs dominate, perhaps because it is able to effectively collect taxes from these highly controlled enterprises, while it has difficulty to collect taxes from other enterprises such as locally owned, often small SOEs, or the non-SOEs. Whether a lowering of the rate of sales taxes and surcharges would increase profit and thereby predominantly benefit aggregate SOE profit depends on whether product prices are state-determined and fixed, in which case the

answer is positive, or on whether product prices are the result of market forces, in which case the answer depends on the elasticity of demand and supply. It would seem that in as far as prices in the sectors tobacco, petroleum (and natural gas) extraction, petroleum processing (and coking), production and supply of electric power (as well as steam and hot water), and coal mining (and dressing), the only five major sectors with a large SOE market share, are state-determined, a lowering of sales taxes and surcharges would immediately improve profit.¹¹

The case of the value-added tax is different. Across all industrial sectors, the mean ratio of the value-added tax to value-added is significantly higher for SOEs than for non-SOEs; furthermore, much of aggregate SOE sales revenue is created in sectors in which the value-added tax rate is high (Table 5). The difference of mean ratios is perhaps in part explained by three regulatory peculiarities. The general value-added tax rate in China is 17%, with several hundred products subject to a lower rate of 13%; SOEs thus may have a large market share in 17% value-added tax rate sectors. Second, “small” tax payers only face a value-added tax rate of 6%, where “small” in the case of production units is defined as having taxable sales revenue of 1m yuan or less. The consistently lower value-added tax rate paid by non-SOEs (Table 4) throughout the mid-1990s thus may in large part be due to the fact that many of these enterprises were quite small.¹² If an identical product offered by SOEs and non-SOEs sells for the same price in the market (a price which includes all sales-related taxes), then after paying sales-related taxes, SOEs end up with less residual profit for the identical product than non-SOEs solely due to the higher value-added tax rate they face. Third, a value-added tax rate of zero applies to exports, perhaps over-proportionally benefiting foreign-funded enterprises which may produce predominantly for export. Finally, anecdotal evidence suggests that non-SOEs are more adept at avoiding payment of the value-added tax than non-SOEs.

In as far as SOEs are predominantly located in high-tax industrial sectors for historical or policy reasons, any profitability comparison between SOEs and non-SOEs should take into account the de facto tax discrimination against SOEs. The comparison thus should be based on a

profitability measure that includes circulation taxes in the numerator. In 1997, SOE profit plus circulation taxes relative to equity stood at 14.20%, compared to non-SOEs' 17.53%.

4.2 Difference in capital intensity

The fact that the gap between SOEs and non-SOEs is smaller when profit relative to sales revenue is considered—rather than profit relative to equity—shows that equity in the case of SOEs is relatively large. Equity relative to sales revenue in 1993 was 1.36 times larger in SOEs than in non-SOEs, rising to a multiple of 1.64 times in 1997. With the liability asset-ratio approximately the same in both SOEs and non-SOEs over time, assets and liabilities in SOEs are also larger by a similar amount in SOEs than in non-SOEs. (See Table 6.) SOEs thus employ a correspondingly larger volume of assets to produce a given amount of sales revenue than non-SOEs, i.e., have a higher capital intensity.

SOEs are hurt twice by the higher ratio of equity (or assets or liabilities) to sales revenue. For a given amount of sales revenue, they incur higher financial charges (because they have more liabilities), as well as a larger volume of depreciation (with the larger volume of assets comes a larger volume of net fixed assets). Financial charges and depreciation are subtracted from sales revenue and thus lower the residual profit. Second, for a given amount of profit, the ratio of profit to equity is lower because the volume of equity is larger.

Considering only the second, the equity factor, had SOEs had the same ratio of equity to sales revenue as non-SOEs, SOEs' profit per unit of equity in 1993 would have been approximately 10.47% ($7.70\% * 1.36$), compared to non-SOEs' 14.33%. In 1997, SOEs' profit per unit of equity would have been 3.43% compared to non-SOEs' 7.89% (Table 1, Table 2, and Table 6). In terms of profit plus circulation taxes relative to equity, SOEs would have outperformed non-SOEs at 31.45% ($23.13% * 1.36$) vs. 26.81% in 1993, and at 23.29% vs. 17.53% in 1997.

Once financial charges and depreciation are also considered, the balance tilts clearly in favor of SOEs. Suppose SOEs had in 1993 had the same capital intensity (assets relative to sales

revenue) or the same ratio of equity to sales revenue as non-SOEs (due to the similar liability-asset ratio, the two assumptions are the same). This implies that SOEs had the same rates of financial charges and depreciation relative to sales revenue as non-SOEs. For simplicity, assume furthermore a similar ratio of net fixed assets to total assets in SOEs and non-SOEs. (See Table 6; the simplification works in favor of non-SOE profitability.) SOE profit relative to equity then would at 14.64% have slightly exceeded non-SOE profit relative to equity at 14.33%; SOEs clearly outperformed non-SOEs in terms of profit plus circulation taxes per unit of equity at 35.62% vs. 26.81%. For 1997 the data are even more striking at 13.09% vs. 7.89% (profit relative to equity) and 32.95% vs. 17.53% (profit plus taxes relative to equity).¹³

Table 6 about here

Similar calculations can be made in the comparison of SOEs to private enterprises in 1995. In 1995, profit per unit of equity in SOEs stood at 4.10%, compared to 24.58% in private enterprises (Table 3). Adjusting the equity of SOEs so that the ratio of equity to sales revenue in SOEs is the same as in private enterprises implies a return on equity of 7.72% in SOEs vs. 24.58% in private enterprises; the ratio of profit and circulation taxes relative to adjusted equity in SOEs in 1995 was 33.36% vs. 37.24% in private enterprises. If one considers all implications of imposing the same capital intensity on SOEs as private enterprises enjoy, i.e., if one also considers adjustments to financial charges and depreciation, adjusted SOE profit relative to equity in 1995 at 25.76% was equal to that of private enterprises (24.58%); SOE profit plus circulation taxes relative to equity in 1995 stood at 51.34% vs. private enterprises' 37.24%.¹⁴

Across the close to forty industrial sectors in China, the mean ratio of assets to sales revenue is significantly higher for SOEs than for non-SOEs at the 0.1% significance level throughout all years for which the data are available, 1993 through 1997, and 1999 and 2000. (See Table 5.) SOEs thus are more capital intensive than non-SOEs industry by industry. The same is true for the SOE vs. non-SOE mean ratios of current assets to sales revenue, and the mean ratios of net fixed assets to sales revenue.

The data show that a high ratio of SOE current assets to sales revenue in a particular industrial sector implies that the SOE market share in this industrial sector is small; it also implies that the contribution of SOE sales revenue in this industrial sector to aggregate SOE sales revenue is small (Table 5). SOEs thus are not “punished” twice by having an on average higher ratio of current assets to sales revenue than non-SOEs and then being predominantly located in the sectors with the highest ratios. This suggests market-oriented SOE behavior.

In terms of net fixed assets relative to sales revenue, however, the higher the SOE ratio of net fixed assets relative to sales revenue, the larger the SOE market share; the higher the non-SOE ratio, the smaller the non-SOE market share. Non-SOEs thus appear to stay clear of those industrial sectors in which a large volume of fixed assets is required relative to sales revenue, while SOEs dominate in those industrial sectors. This points to a historical interpretation in that the SOE market share may have become eroded by new entrants in those sectors where the fixed asset requirement is low. SOEs, predominantly a mature group of enterprises with no or very few new entrants, then continue to provide the bulk of industrial output in fixed asset intensive industrial sectors where non-SOEs do not wish to, are unable to, or are prohibited to tread.¹⁵

What causes the higher capital intensity in SOEs? If the larger volume of current assets relative to sales revenue in SOEs reflects a relatively large volume of financial investments, then these current assets may lead to non-business revenue (which would help explain the negative “other costs” in recent years). If the return on these financial assets is lower than the return on productive activities, SOEs’ overall return on equity is lowered. But current assets related to *productive* activities are also relatively high in SOEs. Thus in 1997 net accounts receivable in SOEs were equivalent to 20.61% of (unadjusted) sales revenue, compared to 16.37% in non-SOEs; in 2000 the two percentages were still different at 19.27% vs. 15.50% (ZGTJZY 1998, p. 112; 2001, pp. 24f). The higher net accounts receivable imply higher financial charges if they are financed through bank loans, thus reducing profit. It seems that customers of SOEs, perhaps primarily the state commercial system, suffer from particularly poor payment morality. Similarly, inventories relative to sales revenue are larger in SOEs than in non-SOEs.¹⁶

If the larger volume of net fixed assets relative to sales revenue simply reflects the prevalence of excessive fixed assets and thus a low degree of capacity utilization (perhaps due to mis-planning in earlier years), current limitations on the disposition of fixed assets may be too restrictive.¹⁷ On the other hand, management may have incentives to prefer the accumulation of fixed assets over the creation of profit. The larger volume of fixed assets could also reflect under-depreciated fixed assets and thus represent a historical burden that needs to be written off. A third consideration is that a relatively large share of SOEs' fixed assets are non-productive. In 1985, 34.57% of fixed asset investment by *all* state-owned units across the economy was in non-productive fixed assets, compared to 24.72% in collective-owned units; in 1992, the last year for which such data are available, the two percentages were 30.06% and 16.16%.¹⁸ Half of this non-productive fixed asset investment is in housing. In other words, some of industrial SOEs' fixed assets reflect employee welfare/ housing benefits for the use of which employees are unlikely to pay market prices (if they pay at all). If these assets were sold off at market prices and the corresponding amount of liabilities repaid, SOE profitability would immediately improve.

In as far as the higher capital intensity of SOEs is due to policy factors, the hypothetical adjustments to SOE profitability undertaken above are necessary to achieve a fair comparison of SOE and non-SOE profitability. Once SOE profit rates are adjusted for the higher capital intensity, SOE profitability exceeds that of non-SOEs. Similarly, in as far as non-SOEs out of their own choice do not venture into industrial sectors which have a particular high fixed asset requirement, SOEs may simply be operating in these sectors for historical reasons, with possibly government decisions on industrial structure and product pricing taking precedence over profitability-oriented production decisions by SOEs.¹⁹

5. Explaining the Decline in Industrial SOE Profitability Over Time

In accounting terms, profit is the residual of sales revenue once all costs have been subtracted (Table 7). In SOEs, profit relative to sales revenue declined gradually in the early 1980s, then rapidly in the late 1980s, recovered slightly in the early 1990s, and fell again in 1995 and 1996.

As seen above, this pattern of decline is similar across all profitability indicators, and also applies to non-SOEs (Table 1 and Table 2). Additional data from the profit and loss account are available to explore the causes of the decline in SOE profitability in more detail (Table 8). Since the profitability time pattern in the case of non-SOEs is exactly the same as for SOEs, and since data on non-SOEs are scarcer, the focus in the following is on SOEs; the available data on non-SOEs are reported in Table 8 along with the data on SOEs.

Table 7 and Table 8 about here

5.1 SOEs in the 1980s

Prior to 1993, profit was the residual of sales revenue after subtracting sales costs and other costs. SOE sales costs as a share of sales revenue began to rise in the mid-1980s and then exploded from 88.07% in 1988 to 98.37% in 1990. Profit fell accordingly (Table 8). Explaining the dramatic rise in sales costs in the late 1980s thus yields an explanation for the fall in profit.

The years 1989 and 1990 were marked by a severe economic downturn (Figure 1); following high inflationary pressures in 1988, the government placed administrative restrictions on investment and thus hampered economic growth. Real sales revenue of SOEs fell by 5.25% in 1989 and stagnated in 1990 (Table 8). As sales revenue stagnated or fell and some costs remained unchanged, the ratio of sales costs to sales revenue rose. The accounting system in place at the time required that the item sales costs cover production costs only to the extent that products were actually sold. The rise in the ratio of sales costs to sales revenue thus implies that unit production costs must have risen.

Material inputs, labor remuneration, and depreciation are consistently included in sales costs throughout the 1980s and 1990s (Table 7). The cost of material inputs in the mid- to late 1980s rose significantly faster than the sales prices of finished products. The annual increase in the purchasing price index for raw materials, energy and power (*yuancailliao, ranliao he dongli*) was several percentage points above that of the ex-factory price index of industrial goods (Figure 2).²⁰ Since most prices of industrial goods were state-determined throughout the 1980s, the

discrepancy in price rises for material inputs vs. finished products appears largely the result of government pricing policy. (See Figure 3 for the share of retail sales and producer goods sold at market prices vs. at state-determined or state-guidance prices.)

Figure 1, Figure 2, and Figure 3 about here

Labor remuneration and depreciation charges may not have made a significant contribution to the rise in sales costs; Table 8 shows that the wage bill and depreciation allowances rose only slightly. SOEs had incentives not to cut production, because any increase in inventories proportionally cut the share of the wage bill and depreciation charges as well as various other administrative charge imputed to sales costs, thereby boosting profit. Concise data on the inventories of SOEs are lacking. An estimated time series reported in Table 8 shows a clear rise in inventories; economy-wide data included in Figure 1 also do.²¹

While changes in inventories do not affect current-period sales costs, they still impact on current-period financial charges if the inventories need to be financed through debt, and if this new debt furthermore comes at a high price. A turnover ratio until 1992 calculated as sales revenue (net of sales-related taxes) divided by average annual fixed-quota working capital (*ding'e liudong zijin*) shows that by 1990 a quarter more fixed-quota working capital was required per unit of sales revenue than in 1988 (Table 8). Data are only available for government-determined fixed-quota working capital; the need for "excess" working capital (*chao'e liudong zijin*) may have risen even faster.

Financial charges paid by SOEs on working capital loans (loans of maximally one year maturity) were until 1992 included in sales costs and thus no separate data are available. Approximating these financial charges with the (average annual) 6-month working capital loan interest rate times total working capital loans (loans with a maturity of up to one year) of state banks to SOEs, a method which yields a very good match to the official net financial charges in 1993, shows an increase in the financial charges of SOEs in 1989 and 1990. (See data in parentheses in column "financial fees" in Table 8.²²)

The highly negative item “other costs” in 1989 and 1990 implies that net non-business revenue and investment returns were positive. Non-business revenue includes subsidies, and government subsidies to *all* loss-making enterprises in fact reached a volume equivalent to 5.95% of industrial SOE sales revenue in 1989 (Table 7).²³

Overall, the drastic fall in SOE profitability between 1988 and 1990 concurs with a severe, administratively imposed economic downturn. Profitability fell because sales costs relative to sales revenue rose; this rise appears to be due primarily to over-proportionally rising material input prices (relative to output prices) and higher financial charges as SOEs increased their liabilities to finance their inventory investment. The proportional allocation of production costs to inventories meant that profit did not fall by as much as it would otherwise have, but these rising inventories created a major problem for the future. The gradual decline in profit relative to sales revenue prior to 1988 has no singular explanation, and the early 1980s therefore were not further explored; rising material input prices, a rising wage bill, and rising financial fees are likely to gradually have eroded the profit of SOEs prior to 1998.

Table 9 about here

5.2 SOEs in the 1990s

The profit and loss account of SOEs in the 1990s naturally breaks into 3 sub-periods, namely (i) the period 1990 through 1992, (ii) the period 1993 through 1997, with a re-definition of profit and loss account items in 1993, and (iii) the period since 1998 (due to the change in enterprise coverage in 1998). First, sales costs as a percentage of sales revenue fell from their high of 98.37% in 1990 to 90.33% in 1992. This should have allowed profit to recover by up to 8 percentage points to pre-1988 levels, but profit remained low. Instead, “other costs,” in the published statistics implied as a residual, rose from -2.03% in 1990 to 6.17% in 1992. Why did profit in the aftermath of the 1989/90 economic downturn not return to pre-1988 levels, i.e., rise by eight to ten percentage points?

The years 1990 and 1991 were years of retrenchment and adjustment, with economic growth lagging behind at below 1980 levels. SOE inventories continued to accumulate. Material input prices still rose faster than the ex-factory price index of industrial products. Only labor remuneration and financial charges (as shares of sales revenue) fell back slightly.

The government initiated numerous measures to improve SOE profitability, with a focus on “cleaning up hidden losses” (*qiankui*). The problems ranged from inventories that could not be sold and should be written off to accounts receivable which would never be received, previous-year losses that had not entered the profit and loss account but had been hidden in various other accounts, and inventory values which exceeded current sales prices. All “hidden” losses of 1992 were to properly enter the cost accounts in 1992. “Hidden” losses from previous years were to be written off over the next three years (beginning in 1993). Corrections to the value of current assets, such as inventories, are non-business expenses; these are included in “other costs,” which thus were particularly high in 1992. (SC 28 April 1992, FM 5 June 1992, FM 28 Oct. 1992, SC 3 May 1993)

The period 1993 through 1997 began with major changes to the accounting system in form of a new set of accounting regulations issued on 1 July 1993. These created the new cost categories “sales fees,” (net) “financial charges,” and “administrative charges.”²⁴ Sales fees were previously fully included in sales costs, while financial and administrative charges were imputed to each good and then included in sales costs for only those goods that were sold. (For details on the accounting reform see Table 9.) Since 1993, financial and administrative charges are subtracted in total from sales revenue, i.e., are no longer imputed to inventories. Numerous other changes to accounting practices, the tax system, and depreciation rules are listed in Table 9. The changes have in common an unambiguous reduction in profit relative to sales revenue, either by raising costs exogenously (such as by raising the depreciation rate), or by shifting formerly profit items into the cost category (such as newly treating interest payments on fixed asset loans as a cost). Although these measures were taken in 1993 and 1994, implementation of some items could be

stretched over the following years, while for other items implementation simply did not happen immediately as envisaged.²⁵

With the introduction of the new profit and loss account items, sales costs fell from 90.33% of sales revenue in 1992 to 83.48% in 1993, and then remained remarkably stable throughout the mid-1990s. “Other” costs similarly fell in 1993, as some of these items, such as pensions, were now included in administrative charges. Financial charges and administrative charges rose rapidly between 1993 and 1995 by together almost seven percentage points, before falling back slightly. By 1992, profit as a share of sales revenue at 3.50% was at such a low level that the increases in financial and administrative charges despite a since 1993 slight reduction in sales costs and other costs drove profit to just 1.58% of sales revenue in 1997. Why did SOE profitability hover at such a precarious level between 1993 and 1997?

In the economic downturn of 1989/1990 SOEs had accumulated inventories equivalent to perhaps 8% of sales revenue in each year, with further inventory accumulation in 1991 and 1992. Inventories of finished products had been imputed financial and administrative charges, whereas according to the new 1993 accounting regulations financial and administrative charges were to enter the profit and loss account in full in the period in which they occurred; these imputed financial and administrative charges thus now had to be written off. Pre-1992 corrections were to be entered as administrative charges over three years beginning in 1993. The impact of these write-offs in the year 1993 cannot be determined as 1992 data are not available. Administrative charges rose in 1994 from their 1993 “base year” values and remained at their new, high level in 1995, before falling back slightly in 1996 and 1997.²⁶

Rising interest rates in the mid-1990s helped to keep financial charges high. Following Deng Xiaoping’s tour through South China in early 1992, real industrial investment soared (Figure 1) and material input prices again rose faster than the ex-factory price index (Figure 2). Inflation reached double-digit levels in 1993 through 1995 and loan interest rates rose to close to ten percent for six-month working capital loans and stayed high even once inflation abated (Figure 2).²⁷ Bank lending remained strong as a rapid rise in supplier credit led to a chain of triangular

debt with severe implications for production, and had to be resolved through new bank loans.²⁸ A turnover ratio since 1993 calculated as sales revenue (net of sales-related taxes) divided by year-end current assets—the change in the denominator between 1992 and 1993 being dictated solely by data availability—shows a decline of one fifth between 1993 and 1997, implying ever increasing current assets. With current assets mostly financed through borrowing, this leads to a larger volume of financial charges relative to sales revenue.

The sales outlook for SOEs never improved much again. By the mid-1990s, real sales revenue of SOEs entered several years of stagnation.²⁹ One explanation for the inability to raise output prices and the stagnation in sales revenue is an increase in competition in the mid-1990s. As Figure 3 shows, between 1990 and 1992 the share of all retail goods and all producer goods sold at market prices approximately doubled to about eighty percent. Price liberalization allows price competition, and may also proxy for the relaxation of administrative barriers to entry in some industries. The share of SOEs in total industrial sales revenue began to slip in 1991, fell rapidly until 1994, and declined further but more gradually in the following years. Many industrial SOEs, heavily battered by the 1989/90 economic downturn, thus never had a chance to recover as they began to defend their already low profitability levels against competition.³⁰

Beginning in 1999, industrial SOEs appear to have turned the corner. While the new coverage of SOEs did not change the SOE profitability level much in 1998, profitability improved both in 1999 and in 2000. The rise in profit relative to sales revenue from 1.61% in 1998 to 5.87% in 2000 was brought about by a reduction in sales costs, financial charges, and administrative charges. The reduction in sales costs could be due to the elimination of the gap between the input purchasing price index and the ex-factory price index (Figure 2). Financial charges may have fallen back largely because interest rates fell (Figure 2). The 3-year SOE reform program of 1998 through 2000 is likely to have further helped through the exit of some of the worst-performing SOEs and highly targeted, enterprise-specific efforts to improve technology levels.

6. Conclusions

Until the mid-1990s authors struck an optimistic note about SOE reform. Thus Jefferson and Rawski thought “we observe a consistent picture of improved results” (1994, 58). Naughton (1995, 316) was similarly optimistic: “Although much work remains to be done on Chinese enterprises, the preliminary evidence [...] thus far has provided strong and consistent evidence of changed behavior and improved productivity.” In recent years such voices have become rare. An exception are Nolan (1996) and Nolan and Wang (1999), documenting the importance of large SOEs for China’s economic growth and the transition of some of them into internationally competitive firms.

The findings of this paper should give rise to continued cautious optimism. While non-SOEs consistently achieve a larger profit per unit of equity than SOEs, the gap can be explained by just two factors. Most circulation taxes are de facto highly biased against SOEs due to historical factors if not policy reasons. SOEs use approximately twice as many assets to earn a given amount of sales revenue than non-SOEs, again probably in large part due to historical and policy reasons. The high capital intensity implies that a given amount of sales revenue needs to pay for twice as much borrowing and depreciation (reducing profit directly), and that the residual accounting profit constitutes the return on twice as much equity (reducing the ratio of profit per unit of equity).

SOE profitability declined throughout the reform period, but so did profitability of non-SOEs. Since non-SOEs exhibit the same profitability pattern over time as SOEs, they are equally poorly prepared to adjust to external shocks. The long-term decline in SOE profitability occurred for good reasons, including higher financial charges as interest rates are no longer held at artificially low levels, higher (more realistic) depreciation, higher wage and pension payments, and changes to the accounting system. Profit itself was repeatedly redefined, almost always implying a reduction in profit. Increasing competition exerted further pressure on profit. The long-term decline was temporarily accelerated by a severe economic downturn in 1989/1990, and the

immediate recovery offset primarily by accumulated hidden losses that had to be written off in the following years.

The long-term decline in SOE profitability appears to have been effectively reversed since 1998. The First Plenum of the 15th Chinese Communist Party Central Committee at its meeting on 19 September 1997 initiated a 3-year reform program for industrial SOEs with two major objectives: most large and medium-sized SOEs were to adopt the modern enterprise system, and most loss-making large and medium-sized SOEs were to “escape their difficulties” (*tuokun*). The data suggest that the measures taken to improve profitability have been successful. Temporary factors such as a currently rather low lending rate may have helped, but are unlikely to explain all of the improvement in SOE profitability since 1998, as non-SOE profitability did not improve by as much as SOE profitability. Price liberalization and the removal of barriers to entry are largely complete and will thus not put further pressure on SOE profitability. The ongoing social security reforms are likely to benefit primarily SOEs. Aggregate SOE performance also improves with the continued implementation of the annual bankruptcy plan and thus the exit of the poorest performing SOEs. On the other hand, WTO accession may yet increase competition.

Deducing the need for privatization from low SOE profitability appears dubious. The bias in circulation tax rates against SOEs, reflecting historical factors and possibly conscious government policy decisions, can raise no questions about the organizational arrangement “SOEs;” SOEs’ return on equity draws close to that of non-SOEs once this bias has been taken into account. Second, if much of SOEs’ higher capital intensity were due to non-organizational reasons, as is likely, then SOEs in terms of profitability outperform non-SOEs. Third, any comparison between SOEs and non-SOEs or private enterprises is consistently biased against SOEs due to a severe selection bias.

A reduction in capital intensity may possibly be encouraged by privatization, but privatization is not a necessary condition, if even a sufficient one. Privatization furthermore is a gamble. China’s industrial SOEs currently operate in a historically grown institutional and political framework. They constitute the core of China’s industrial sector. In 1995, the latest year

for which reliable data are available, China's private enterprises registered on township level and above (i.e., the relatively large urban individual-owned enterprises with average annual value-added per enterprise of 1.49m yuan) accounted for just 0.26% of the value-added of all industrial enterprises with independent accounting system on township tier and above, compared to the 53.78% of SOEs (Industrial Census 1995, p. 47). Across-the-board privatization would mean the creation of utterly new privately controlled and often large enterprises for which there is virtually no precedent in China today.

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Table 1. Profitability of Industrial SOEs, 1978-2000

	Losses in 1978 b yuan	Losses / gross profit (%)	Profit / equity (%)	Profit + taxes / equity (%)	Return on assets ^a (%)	Social return on assets ^b (%)	Profit / sales re- venue ^c (%)	Profit + taxes / sales re- venue ^c (%)
1978	4.21	7.64			16.09	24.70	18.21	28.30
1979	3.58	6.07			16.66	25.31	18.60	28.56
1980	3.36	5.53			16.57	25.35	17.81	27.59
1981	4.50	7.35			15.28	24.15	17.25	27.47
1982	4.66	7.37			14.86	23.89	16.35	26.59
1983	3.15	4.77			15.32	24.12	15.97	25.74
1984	2.58	3.63			16.05	25.44	15.94	26.01
1985	2.89	4.21			14.53	25.17	14.08	25.44
1986	4.67	7.32			12.35	22.38	11.59	22.53
1987	4.85	7.20			12.37	22.12	11.01	21.17
1988	5.66	8.41			12.37	22.64	9.95	19.80
1989	10.50	19.52			10.14	20.13	7.38	17.60
1990	19.53	47.33			5.96	15.19	3.66	14.18
1991	19.35	47.71			5.35	14.29	3.17	13.11
1992	18.23	40.83			5.82	14.57	3.50	12.72
1993	18.02	35.64	7.70	23.13	4.07	9.09	3.89	11.69
1994	16.08	36.79	6.72	23.30	4.85	10.17	3.88	13.47
1995	18.54	49.00	4.10	17.71	4.45	9.10	2.63	11.35
1996	22.28	65.71	2.24	14.87	3.52	7.92	1.57	10.41
1997	23.48	66.01	2.09	14.20	3.02	7.21	1.58	10.74
1998	33.91	68.66	1.96	12.60	2.72	6.52	1.61	10.35
1999	29.19	49.21	3.26	13.34	2.99	6.82	2.86	11.69
2000	20.69	22.63	7.36	17.97	4.33	8.46	5.87	14.32

a Return on assets denotes 'profit plus (net) financial charges, per unit of assets,' where assets prior to 1993 comprise only average annual fixed-quota working capital plus year-end net fixed assets. 1993 assets are the sum of liabilities and equity. Net financial charges prior to 1993 are approximated as average annual interest rate on short-term (i.e., working capital) loans of maximally 6 months duration times total short-term borrowing (i.e., borrowing of less than one year maturity) by industrial SOEs; in 1993, the approximated value exceeds the actual value by 4.36%.

b Social return on assets denotes 'profit plus tax plus (net) financial charges, per unit of assets.' On assets and financial charges see 'a.'

c Sales revenue is net of all sales-related taxes.

Sources:

Losses, profit, and 'profit and taxes:' ZGTJNJ 1998, p. 461; ZGGYJJTJNJ 2001, p. 24. Ex-factory price index of industrial products: ZGTJNJ 1994, p. 246; 2000, p. 305; 2001, p. 297.

Equity and assets: ZGTJNJ 1994, pp. 380f; 1995, pp. 384, 395; 1996, pp. 419, 421; 1997, pp. 429, 431; 1998, pp. 449, 451; 1999, pp. 433f; 2000, pp. 430, 432; 2001, pp. 411f.

Financial charges: ZGTJZY 1994, p. 86; 1995, p. 86; Industrial Census 1995, vol. 1, p. 51; ZGTJZY 1997, p. 106; 1998, p. 112; 1999, p. 108; 2000, p. 113; 2001, p. 125; ZGJRNJ various issues and pages.

Sales revenue, sales taxes and surcharges, and value-added tax: GGKF (1996), p. 146; ZGTJNJ 1992, p. 421; 1993, p. 427; 1994, p. 391; 1995, p. 395; 1996, p. 421; 1997, p. 431; 1998, p. 454; 1999, p. 435; 2000, p. 432; 2001, p. 413. (Sales-related taxes up through 1993 are obtained as the difference of 'profit and taxes' and profit.)

Average annual fixed-quota working capital: ZGTJNJ 1993, p. 430; net fixed assets: ZGTJNJ 1998, p. 461.

Table 2. Profitability of Industrial Non-SOEs, 1978-2000

	Losses in 1978 b yuan	Losses / gross profit (%)	Profit / equity (%)	Profit + taxes / equity (%)	Return on assets ^a (%)	Social return on assets ^b (%)	Profit / sales re- venue ^c (%)	Profit + taxes / sales re- venue ^c (%)
1978	0.30	3.25						
1979	0.38	4.01					14.46	20.50
1980	0.44	4.04					14.01	20.14
1981	0.74	6.84					11.62	17.84
1982	0.81	7.17					11.39	18.12
1983	0.54	4.02					11.84	18.34
1984	0.73	4.94					10.34	16.52
1985	0.72	3.77					10.64	17.05
1986	1.54	8.71					8.45	14.57
1987	1.88	9.79					7.65	13.31
1988	1.71	7.65					7.57	13.05
1989	3.14	17.32					5.72	11.16
1990	5.88	37.94					3.57	9.22
1991	5.72	31.08					3.80	9.04
1992	4.93	18.59					4.99	9.78
1993	7.41	19.17	14.33	26.81	6.65	10.81	5.32	9.95
1994	9.66	23.05	10.27	21.85	6.66	11.18	4.84	10.31
1995	16.21	36.58	8.61	19.34	6.47	10.27	3.65	8.19
1996	18.05	37.30	8.11	18.16	5.72	9.30	3.53	7.90
1997	21.36	37.21	7.89	17.53	5.34	8.85	3.63	8.07
1998	17.27	38.59	7.35	16.95	5.25	8.85	3.08	7.09
1999	15.00	27.80	9.18	18.66	5.53	9.18	3.83	7.79
2000	12.68	17.87	11.89	21.77	6.40	10.31	4.76	8.72

a Return on assets denotes 'profit plus (net) financial charges, per unit of assets.' 1993 assets are the sum of liabilities and equity.

b Social return on assets denotes 'profit plus taxes plus (net) financial charges, per unit of assets.'

c Sales revenue is net of all sales-related taxes.

Sources for industrial enterprises (industrial non-SOEs = industrial enterprises - industrial SOEs; for industrial SOEs see Table 1):

Losses, profit, and 'profit and taxes:' ZGGYJTTJNJ 1998, p. 51; ZGGYJTTJNJ 2001, p. 23. Ex-factory price index of industrial products: see Table 1.

Equity and assets: ZGTJNJ 1994, pp. 378, 381; 1995, pp. 384, 386; 1996, pp. 410, 412; 1997, pp. 425f; 1998, pp. 445f; 1999, pp. 433f; 2000, pp. 420f; 2001, pp. 411f.

Financial charges: ZGTJZY 1994, p. 85; 1995, p. 85; Industrial Census 1995, vol. 1, p. 51; ZGTJZY 1997, p. 106; 1998, p. 112; 1999, p. 108; 2000, p. 112; 2001, p. 124.

Sales revenue, sales taxes and surcharges, and value-added tax: GGKF (1996), p. 146; ZGTJNJ 1992, p. 411; 1993, p. 417; 1994, p. 381; 1995, p. 387; 1996, p. 413; 1997, p. 423; 1998, p. 443; 1999, p. 435; 2000, p. 422; 2001, p. 413. (Sales-related taxes up through 1993 are obtained as the difference of 'profit and taxes' and profit.)

Table 3. Financial Performance of Enterprises with Independent Accounting System on Township Tier and Above (in %), 1995

	Loss-making enterprises / all enterprises	Share of value-added	Losses / gross profit	Profit / equity	Profit + taxes / equity	Return on assets ^a	Social return on assets ^b	Profit / sales revenue ^c	Profit + taxes / sales revenue ^c
<i>Nationwide total</i>	25.06	100.00	42.30	5.95	18.38	5.26	9.57	3.15	9.73
State-owned enterprises	33.75	53.78	49.00	4.10	17.71	4.45	9.10	2.63	11.35
Collective-owned enterprises	21.12	25.03	41.56	9.23	25.54	6.97	11.59	2.66	7.36
Private enterprises	16.69	0.26	10.55	24.58	37.24	13.74	18.98	8.20	12.42
Joint enterprises	28.80	1.01	47.93	5.96	17.81	5.30	9.52	2.53	7.56
Share-holding enterprises	21.66	5.02	9.43	10.27	18.57	7.13	10.86	7.60	13.74
Non-Chinese foreign-funded enterpr.	39.34	7.73	36.50	8.54	16.19	6.17	9.55	4.98	9.43
Hong Kong, Macao and Taiwanese ent.	41.59	7.04	47.41	6.19	12.46	5.15	7.45	3.12	6.28
Other enterprises	24.87	0.12	19.04	7.63	13.49	6.20	8.55	4.30	7.61

a Return on assets denotes 'profit plus (net) financial charges, per unit of assets.'

b Social return on assets denotes 'profit plus tax plus (net) financial charges, per unit of assets.'

c Sales revenue is net of all sales-related taxes.

Source: Industrial Census 1995, vol. 1, pp. 46-53.

Table 4. Sales-related Taxes

	Industrial SOEs			Industrial non-SOEs		
	Sales-related taxes	Sales taxes and surcharges	Value-added tax	Sales-related taxes	Sales taxes and surcharges	Value-added tax
<i>In % of sales revenue</i>						
1980	9.79			6.13		
1985	11.36			6.41		
1990	10.52			5.64		
1993	7.80			4.63		
1994	9.59	3.44	6.14	5.46	1.66	3.80
1995	8.72	3.10	5.62	4.54	1.02	3.42
1996	8.84	3.28	5.56	4.37	1.04	3.33
1997	9.16	3.34	5.81	4.44	0.99	3.45
1998	8.74	3.05	5.69	4.01	0.80	3.21
1999	8.83	3.04	5.79	3.96	0.73	3.23
2000	8.45	2.80	5.65	3.83	0.66	3.17
<i>In % of value-added^a</i>						
1980	22.04			12.84		
1985	26.56			16.03		
1990	30.11			17.14		
1993	22.49			12.29		
1994	25.90	9.31	16.60	16.05	4.88	11.17
1995	26.58	9.46	17.12	16.91	3.80	12.73
1996	26.59	9.88	16.71	14.36	3.41	10.95
1997	26.97	9.84	17.13	14.64	3.26	11.37
1998	25.69	8.97	16.72	14.59	2.92	11.68
1999	25.40	8.76	16.64	14.13	2.60	11.52
2000	25.19	8.35	16.84	14.19	2.44	11.75

a Industrial SOE (and non-SOE) value-added data are only available since 1992. For the years prior to 1992 industrial SOE value-added is calculated by multiplying industrial SOE net material product with the annual ratio of economy-wide industrial value-added (industry's contribution to GDP) divided by economy-wide industrial net material product. In 1992, the only year in which a comparison is possible, the actual value is 2.20% higher than the calculated value. The same procedure is used to obtain value-added of the group of industrial enterprises on which detailed balance sheet and profit and loss account data are available for the years until 1991; subtraction of the SOE values then yields the non-SOE values.

Sources:

Sales revenue, sales taxes and surcharges, and value-added tax: see Table 1 and Table 2.

Value-added: ZGTJNJ 1993, p. 426; 1994, p. 388; 1995, p. 393; 1996, p. 418; 1997, p. 428; 1998, p. 448; 1999, p. 432; 2000, p. 414; 2001, p. 410. Net material product: ZGTJNJ 1984, pp. 216, 218; 1986, p. 278; ZGGYJJTJZL, 1987, p. 21; ZGTJNJ 1987, p. 263; 1988, 320; 1989, p. 292; 1990, p. 419; 1991, p. 399; 1992, p. 411; 1993, p. 426.

Table 5. Relationships Across Industrial Sectors and Their Significance Levels (in %)

	93	94	95	96	97	99	00
Correlation coefficients: <i>the higher the ratio of ...</i>							
sales taxes and surcharges to sales revenue for SOEs, the larger the SOE market share	n.a.	5	5	5	5	5	5
value-added tax to value-added for SOEs, the larger this sector's contribution to total SOE sales revenue				1	1	10	5
sales taxes and surcharges to sales revenue for non-SOEs, the smaller the non-SOE market share	n.a.	5	1	0.1	0.1	1	1
sales taxes and surcharges to sales rev. for non-SOEs, the smaller this sector's contribution to total non-SOE sales rev.	n.a.		5	5	5	5	5
value-added tax to value-added for non-SOEs, the larger this sector's contribution to total SOE sales revenue	n.a.	5		1	5	1	
current assets to sales revenue for SOEs, the smaller the SOE market share	10	5		10	5		10
current assets to sales revenue for SOEs, the smaller this sector's contribution to total SOE sales revenue	5	1	5	1	1	1	0.1
net fixed assets to sales revenue for SOEs, the larger the SOE market share	1	1	1	5	10	1	5
net fixed assets to sales revenue for SOEs, the smaller this sector's contribution to total non-SOE sales revenue	5	1	5	5	5	1	1
net fixed assets to sales revenue for non-SOEs, the smaller the non-SOE market share	5	5	5	5	1	0.1	1
net fixed assets to sales revenue for non-SOEs, the larger this sector's contribution to total SOE sales revenue		5	10	5	1	1	5
T-tests: <i>comparing SOEs to non-SOEs, the mean ratio of...</i>							
sales-related taxes to sales revenue is higher in SOEs than in non-SOEs	n.a.						
sales taxes and surcharges to sales revenue is higher in SOEs than in non-SOEs	n.a.						
value-added tax to value-added is higher in SOEs than in non-SOEs	n.a.	0.1	0.1	0.1	0.1	0.1	0.1
total assets to sales revenue is higher in SOEs than in non-SOEs	0.1	0.1	0.1	0.1	0.1	0.1	0.1
current assets to sales revenue is higher in SOEs than in non-SOEs	0.1	0.1	0.1	0.1	0.1	0.1	0.1
net fixed assets to sales revenue is higher in SOEs than in non-SOEs	1	1	1	0.1	0.1	0.1	0.1

An empty field implies the correlation coefficient or t-value is not significant at the 10% level. Sales revenue is net of all sales-related taxes.

Correlation coefficient results were calculated between on the one hand: (i) sales taxes and surcharges relative to sales revenue, (ii) value-added tax relative to value-added, (iii) current assets relative to sales revenue, and (iv) net fixed assets relative to sales revenue, all four for (A) SOEs and (B) non-SOEs, with, on the other hand, (i) the market share of SOEs (the correlation coefficient for the market share of non-SOEs is identical but with the opposite sign), (ii) SOE sales revenue in a particular sector relative to total SOE sales revenue, and (iii) non-SOE sales revenue in a particular sector relative to total non-SOE sales revenue; this yields 24 correlation coefficients per year. Correlation coefficients which are insignificant across all years are omitted from the table. The following significant correlation coefficients are not included in the table because they are only significant in one or two years: (i) the higher the ratio of value-added tax to value-added for SOEs, the smaller the SOE market share (10% significance level in 1995); (ii) the higher the ratio of value-added tax to value-added for non-SOEs, the smaller the non-SOE market share (5% level in 1994 and 1999); (iii) the higher the ratio of current assets to sales revenue for non-SOEs, the smaller the non-SOE market share (1% level in 1999, and 10% level in 2000); (iv) the higher the ratio of net fixed assets to sales revenue for non-SOEs, the smaller this sector's contribution to total non-SOE sales revenue (10% level in 1999). The signs of significant correlation coefficients were always the same across all years.

Data limitations: The industrial sector "gas production and supply" was omitted in the years 1993 through 1997 as the values for value-added were of highly dubious quality. 1993 through 1997 correlation coefficients then are based on 38 industrial sectors; 1999 and 2000 correlation coefficients are based on 37 industrial sectors (data on two small sectors "others" are no longer published). SOE data by industrial sector for 1998 are not available.

Sources: Numerous pages of the industry section of ZGTJNJ 1994 through ZGTJNJ 2001.

Table 6. Capital Intensity

	SOE ratio / non-SOE ratio				Liabilities / assets		Net fixed assets / assets	
	Equity / sales rev.	Assets / sales rev.	Current assets / sales rev.	Net fixed assets / sales rev.	SOEs	Non-SOEs	SOEs	Non-SOEs
1980				1.94				
1985				2.15				
1990				1.79				
1993	1.36	1.39	1.08	1.82	0.67	0.67	0.41	0.31
1994	1.23	1.49	1.23	1.84	0.68	0.65	0.41	0.33
1995	1.51	1.57	1.22	2.05	0.66	0.64	0.45	0.34
1996	1.61	1.64	1.27	2.10	0.65	0.64	0.45	0.35
1997	1.64	1.73	1.35	2.11	0.65	0.63	0.44	0.36
1998	1.96	2.06	1.62	2.20	0.64	0.62	0.43	0.40
1999	2.10	2.13	1.61	2.39	0.62	0.61	0.42	0.38
2000	1.99	2.02	1.53	2.51	0.60	0.60	0.44	0.35

Sources:

Equity: ZGTJNJ 1994, p. 381; 1995, p. 391; 1996, p. 416; 1997, p. 426; 1998, p. 446; 1999, p. 434; 2000, p. 416; 2001, p. 412.

Sales revenue (net of sales-related taxes): see Table 1 and Table 2.

Assets: ZGTJNJ 1994, pp. 380f; 1995, p. 384; 1996, p. 415; 1997, p. 425; 1998, p. 445; 1999, p. 433; 2000, p. 415; 2001, p. 411. 1993 data are the sum of liabilities and equity.

Current assets: ZGTJNJ 1994, p. 379; 1995, p. 389; 1996, p. 415; 1997, p. 425; 1998, p. 445; 1999, p. 433; 2000, p. 415; 2001, p. 411.

Net fixed assets: ZGGYJJTJNJ 1998, p. 51; ZGTJNJ 1998, p. 461; 1999, p. 433; 2000, p. 415; 2001, p. 44. Data since 1998 are average annual net fixed assets, all other data are year-end data.

Liabilities: ZGTJNJ 1994, pp. 380f; 1995, pp. 390f; 1996, p. 416; 1997, p. 426; 1998, p. 446; 1999, p. 434; 2000, p. 416; 2001, p. 412.

Table 7. Profit and Loss Account

Since 1993:

Sales revenue (since 1994 net of value-added tax)

[in industrial SOEs with independent accounting system in 1995, as share of sales revenue (below likewise): 1.0000]

- sales costs (costs incurred in the production of those products actually sold) [0.7902]:
 - * materials
 - * transportation, mailing, repair, storage, insurance
 - * wages and other labor expenses (for employees engaged in actual production)
 - * depreciation
- sales fees (including wages and other labor expenses on sales employees) [0.0228]
- sales taxes and surcharges (since 1994 net of value-added tax) [0.0301]
- others [implicitly: 0.0024]
- = **sales profit** [0.1544]
 - administrative charges (including wages and other labor expenses for administrative personnel) [0.0964]
 - financial charges [0.0553]
 - + other net business profit (other business income - other business expenses) [implicitly: 0.0127]
- = **business profit** [0.0153]
 - + investment returns [0.0042]
 - + net non-business revenue (non-business revenue - non-business expenses) [implicitly: 0.0059]
- = **profit** [0.0255]
 - in case of an individual enterprise: positive (profit) or negative (loss)
 - across all enterprises = **gross profit** (profit of profitable enterprises) [0.0500]
 - + **losses** (negative profit of loss-making enterprises) [-0.0245]
 - income tax (on positive profit only) [0.0111]
- = **net profit, or post-tax profit** [0.0138]
 - special funds contribution: profit adjustment tax, and energy and communication key construction fund tax (both terminated in 1994)
 - + undistributed profit from previous year and adjustments to previous year's profit
 - adjustments to previous year's income taxes
- = **profit for distribution**
 - + reduction in profit reserves to compensate for current-year losses
 - additions to profit reserves (general profit reserve, and "public" profit reserve with employee bonus and welfare funds)
 - profit for distribution
- = **undistributed profit**

Reference: "profit and taxes" (a separate data point) [0.1101]

Prior to 1993:

Sales revenue - sales taxes - sales production costs (- sales fees) - technology transfer fee

= **product sales profit** + other sales profit + net non-business revenue - resource tax - usage fee on fixed funds and working funds (until 1989)

= **profit** - approximately twenty items (including profit to be submitted to government or superordinate department, since 1984 largely in form of income tax and adjustment tax)

= **retained profit** to be allocated to the (i) new product trial fund, (ii) production development fund, (iii) reserves, (iv) employee welfare fund, and (v) employee bonus fund

Sources: Industrial Census 1995, vol. 1, pp. 51-53; FM 5 Jan. 1985, FM 21 April 1989, FM 31 Dec. 1992.

Table 8. Composition of Sales Revenue

	As % of sales revenue (net of all sales-related taxes)													Real sales growth (%)	Turn-over ratio
	Profit and loss account data								Reference data						
	Sales-related taxes	Sales costs	Sales fees	Sales profit	Fin. fees	Adm. fees	Other costs	Profit	Subsid. to loss-m. ent.	Wages	Depreciation	Additions to inventories (est.)	Pensions		
<i>Industrial SOEs</i>															
1978	10.09	79.04			(0.63)		2.75	18.21		7.50	4.90	3.44	0.23		2.67
1979	9.97	81.94			(0.60)		-0.54	18.60		7.81	4.84	6.48		6.71	2.73
1980	9.79	81.56			(0.66)		0.63	17.81		8.38	4.73	4.65	0.55	8.08	2.89
1981	10.22	82.44			(0.36)		0.32	17.25		8.54	4.96	4.61		2.05	2.89
1982	10.24	82.61			(0.50)		1.04	16.35		8.29	4.91	2.79		9.00	2.97
1983	9.77	82.27			(1.02)		1.76	15.97		7.81	4.85	3.25		9.86	3.11
1984	10.08	83.89			(1.28)		0.17	15.94		8.69	4.72	2.08		8.90	3.26
1985	11.36	87.43			(1.45)		-1.51	14.08	9.67	8.77	4.68	5.24	1.00	8.87	3.23
1986	10.94	88.04		12.44	(1.89)		0.37	11.59	5.45	9.35	4.76	2.57	1.20	9.39	3.05
1987	10.17	87.36			(1.89)		1.64	11.01	5.26	8.90	4.53	1.66	1.26	11.30	3.23
1988	9.85	88.07			(1.93)		1.98	9.95	4.98	8.84	4.23	1.12	1.25	8.99	3.50
1989	10.23	96.13			(3.01)		-3.51	7.38	5.95	9.08	4.32	7.65	1.34	-5.25	3.07
1990	10.52	98.37			(3.14)		-2.03	3.66	5.46	9.72	4.55	8.03	1.53	1.14	2.65
1991	9.93	91.97			(2.76)		4.86	3.17	4.03	9.08	4.56	3.46	1.51	12.55	2.78
1992	9.22	90.33			(2.63)		6.17	3.50	2.91	8.74	4.42	2.61	1.56	12.91	2.99
1993	7.80	83.48	3.96	(12.56)	2.44	6.32	-0.09	3.89	1.96	7.73	3.90	-2.64	1.38	10.84	1.40
1994	9.59	80.56	2.03	(17.41)	4.86	9.95	-1.28	3.88	1.71	9.43	4.52		1.83	-14.93	1.26
1995	8.72	81.73	2.35	(15.92)	5.71	9.94	-2.36	2.63	1.29	9.56	5.19	-0.84	1.94	3.18	1.33
1996	8.84	82.27	2.63	(15.09)	5.48	9.39	-1.35	1.57	1.28	9.87	5.58	0.48	2.20	0.95	1.27
1997	9.16	82.76	2.75	(14.49)	5.01	9.14	-1.24	1.58	1.36	9.56	5.88	-0.47	2.33	3.28	1.18
1998	8.74	83.18	3.59	(13.23)	4.64	8.63	-1.65	1.61	1.02		6.03	0.17		(25.42)	1.10
1999	8.83	82.89	4.33	(12.78)	4.03	8.28	-2.40	2.86	0.83		5.99	-1.09		9.74	1.12
2000	8.45	81.54	3.21	(15.26)	3.00	7.80	-1.40	5.87	0.68		5.53	-4.02		14.46	1.26
<i>Industrial non-SOEs</i>															
1991	5.24	90.02					6.18	3.80			3.43			24.14	2.85
1992	4.78	88.63					6.38	4.99			2.95			29.46	
1993	4.63	84.12	4.42	11.46	2.08	4.08	-0.02	5.32			2.71			35.93	1.51
1994	5.46	82.48	4.11	13.41	3.19	5.78	-0.41	4.84			3.00			13.28	1.56
1995	4.54	83.46	3.40	13.13	4.08	6.64	-1.24	3.65			3.09			15.72	1.61
1996	4.37	83.40	4.67	11.93	3.46	5.56	-0.62	3.53			3.22			11.55	1.62
1997	4.44	83.21	4.95	11.85	3.10	5.49	-0.38	3.63			3.34			15.53	1.59
1998	4.01	84.72	4.79	10.49	2.80	5.40	-0.78	3.08			3.16			(-9.91)	1.78
1999	3.96	84.44	5.05	10.51	2.16	5.06	-0.55	3.83			3.09			13.66	1.81
2000	3.83	81.63	8.00	10.37	1.66	4.56	-0.45	4.61			2.68			24.57	1.99

For industrial non-SOEs, the following additional values for the years prior to 1991 are available. Depreciation 1979 through 1990: 4.36, 4.15, 4.07, 4.32, 4.08, 3.64, 3.07, 3.56, 3.30, 3.07, 3.29, 3.64; Real sales (revenue) growth 1980 through 1990: 20.01, 15.60, 5.99, 18.61, 25.83, 25.92, 10.58 18.95, 20.16, -3.68, 2.53; Turnover ratio 1986 through 1990: 2.84, 3.07, 3.38, 2.97, 2.65.

Sources (industrial non-SOEs = industrial enterprises - industrial SOEs):
Sales revenue, sales costs, and sales profit: GGKF (1996), p. 146; ZGTJNJ 1987, p. 317; 1992, p. 411; 1993, p. 417; 1994, p. 381; 1995, p. 391; 1996, p. 417; 1997, p. 427; 1998, p. 447; 1999, p. 435; 2000, p. 417; 2001, p. 413. Real sales growth is based on sales revenue (net of sales-related taxes) deflated by the ex-factory price index.

Sales-related taxes (calculated either as 'profit plus taxes' minus 'profit,' or equivalently as the sum of 'sales taxes and surcharges' and value-added tax): ZGGYJTTJNJ 1998, p. 51; ZGTJNJ 1994, p. 381; 1995, p. 391; 1996, p. 417; 1997, p. 427; 1998, pp. 451, 461; 1999, p. 435; 2000, p. 417; 2001, p. 413.

Sales fees are obtained as residual (sales revenue net of sales-related taxes, minus sales costs and sales profit). Sales fee data available for 1995 in the Industrial Census 1995, vol. 1, p. 51, perfectly match the value obtained as residual.

Financial and administrative fees (charges): ZGTJZY 1994, p. 86; 1995, p. 86; Industrial Census 1995, vol. 1, p. 51; ZGTJZY 1997, p. 106; 1998, p. 112; 1999, p. 108; 2000, p. 113; 2001, pp. 124f. Except for 1995, data are preliminary data first published in March of the following year. The revised data on financial and administrative charges are not published. Financial fee data in parentheses are calculated as total working capital loans of state banks to industrial state-owned enterprises (see ZGJRTJ) times average annual interest rate on working capital loans of 6 months maturity or less (calculated from various issues of ZGJRNJ).

Other costs equal 100% minus the columns sales costs, sales fees, financial fees, administrative fees, and profit.

Profit: ZGGYJTTJNJ 1998, p. 51; ZGTJNJ 1998, p. 461; 1999, p. 435; 2000, p. 417; 2001, p. 413.

Subsidies to loss-making enterprises: ZGTJNJ 2000, p. 257; 2001, p. 247.

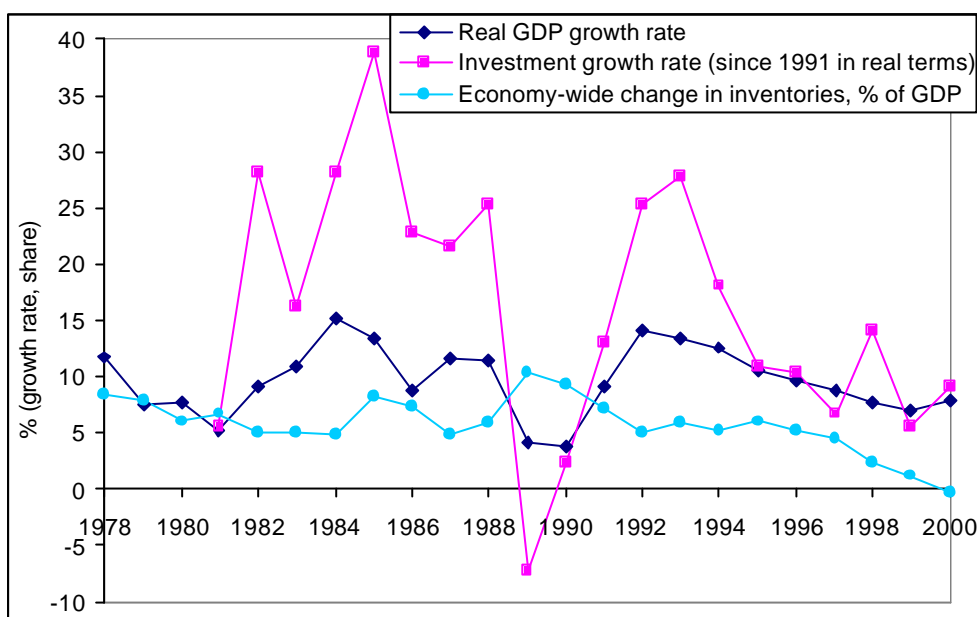
Wages: ZGGYJTTJNJ 1998, p. 20; ZGTJNJ 2000, pp. 126, 148.

Depreciation: ZGGYJTTJZL, 1997, p. 21; ZGTJNJ 1987, p. 310; 1988, p. 373; 1989, p. 320; 1990, p. 421; 1991, p. 401; 1992, p. 413.
Depreciation data are only available for 1985 through 1991. For all other years depreciation of industrial SOEs (non-SOEs) was estimated as 0.0615 (0.0662) times net value of fixed assets. The value 0.0615 (0.0662) is the mean value calculated from the ratio of depreciation to year-end net fixed assets for the years 1985 through 1991; the range is 0.0597 to 0.0623 (0.0649 to 0.0674). Since 1998 no year-end net fixed asset data are available; average annual net fixed assets are used instead. Net fixed assets: ZGGYJTTJNJ 1988, p. 51; ZGTJNJ 1998, p. 461; 1999, p. 433; 2000, p. 421; 2001, p. 411. (Since 1998 only year-average, rather than year-end data, are available.)

Additions to inventories is the difference of gross output value (GGKF (1996), p. 146; ZGTJNJ 1985, p. 376; 1988, p. 318; 1989, p. 275; 1990, p. 419; 1991, p. 399; 1992, p. 415; 1993, p. 421; 1994, p. 388; 1995, p. 392; 1996, p. 418; 1997, p. 428; 1998, p. 448; 1999, p. 432; 2000, p. 414; 2001, p. 410) and sales revenue, with 1994 changes in inventories not computable because 1994 gross output value includes an unknown volume of value-added tax, while sales revenue is net of value-added tax.

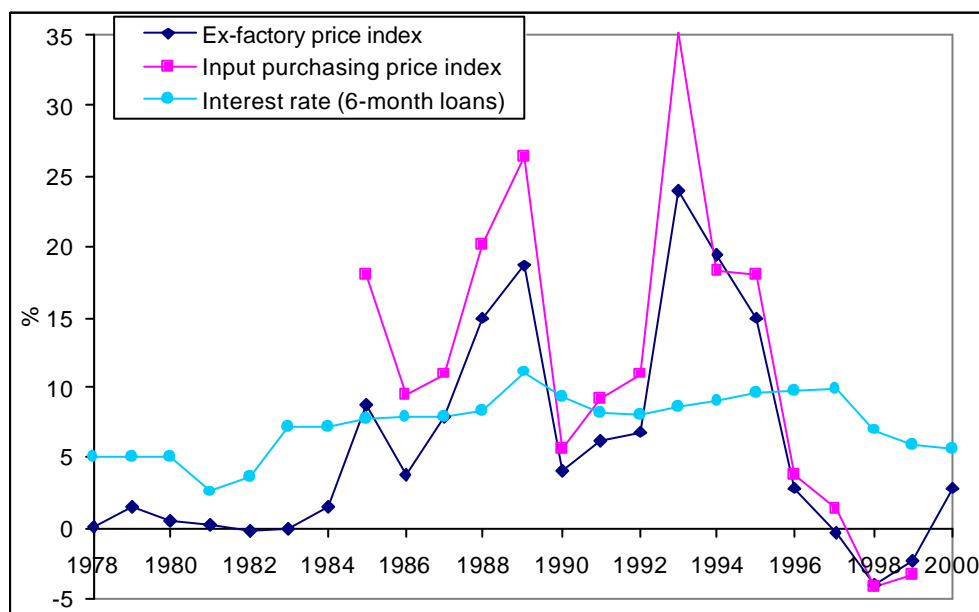
Pensions (including pensions as well as all other payments to retired staff and workers): Data are available on the social insurance and welfare funds paid by all state-owned units (ZGTJNJ 1999, p. 763) to current and retired employees, by all state-owned units to their retired former employees (ZGTJNJ 1998, p. 797; 1999, p. 765; no data are available for 1979, and 1981 through 1984), and by all industrial state-owned units to their current employees (ZGTJNJ 1987, p. 60; 1988, p. 204; 1989, p. 151; 1990, p. 815; 1991, p. 788; 1992, p. 806; 1993, p. 815; 1994, p. 662; 1995, p. 686; 1996, p. 734; 1997, p. 747; 1998, 796; no data are available for the years prior to 1986). Pensions (i.e., social insurance and welfare payments to retired former employees) paid by industrial SOEs are calculated as a share of the total pension payments of all state-owned units by using as share the ratio of industrial state-owned units' social insurance and welfare fund for current employees divided by all state-owned units' such funds. To obtain the few pre-1986 values, the 1986 ratio is used.

Turnover ratio equals sales revenue (net of sales-related taxes) divided by annual average fixed-quota working capital until 1992 (industrial SOEs: ZGTJNJ 1992, p. 427; 1993, p. 430; industrial non-SOEs: ZGTJNJ 1987, p. 310; 1988, p. 373; 1989, p. 320; 1990, p. 421; 1991, p. 401; 1992, p. 413), and divided by year-end current assets since 1993 (ZGTJNJ 1994, p. 379; 1995, p. 389; 1996, p. 415; 1997, p. 425; 1998, p. 445; 1999, p. 433; 2000, p. 415; 2001, p. 411).



Sources: Real GDP growth rate: ZGTJNJ 2001, p. 51; investment in current prices: ZGTJNJ 2000, p. 168; 2001, p. 157; fixed asset investment price index to deflate investment data since 1991: ZGTJNJ 1993, p. 269; 1994, p. 243; 1996, p. 272; 1998, p. 318; 2000, p. 306; 2001, p. 298; economy -wide inventories and nominal GDP: ZGTJNJ 2001, pp. 49, 62.

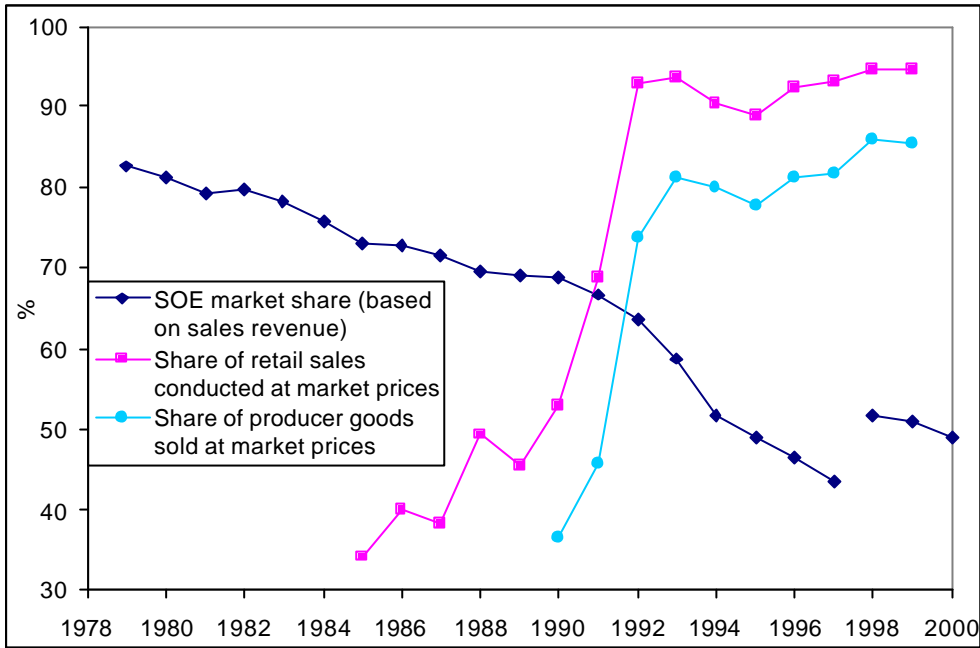
Figure 1. Economic Cycles



The time pattern of the GDP deflator, retail price index, and the fixed asset price index (available since 1991) are extremely close to that of the ex-factory price index of industrial goods.

Sources: Ex-factory price index of industrial goods: ZGTJNJ 2001, p. 297; ZGSCTJNJ 1995, p. 588; purchasing price index of raw materials, energy and power: ZGWJNJ 1992, p. 538; ZGSCTJNJ, 1996, p. 587; ZGWJNJ 1996, p. 331; 1997, p. 423; 1998, p. 348; 1999, p. 357; 2000, p. 368; see notes to Table 1 for the average annual interest rate on working capital loans of up to six months duration.

Figure 2. Price Indices and Interest Rates



Sources: Industrial SOE market share is the sales revenue of industrial SOEs with independent accounting system divided by the sales revenue of all industrial enterprises with independent accounting system on township tier and above (since 1998 the revenue of all industrial SOEs divided by the sales revenue of all industrial SOEs plus of non-SOEs with annual sales revenue in excess of 5m yuan; all enterprises with independent accounting system), for sources see Table 8; share of retail sales and producer goods sold at market prices: ZGWJNJ 1991, p. 466; 1999, p. 574-7; 2000, pp. 495-7.

Figure 3. Competition in Industry

Table 9. Impact of Changes in Accounting Procedures, Tax System and Depreciation Rules on Profit

Measure	Impact on profit
1983 (<u>tax</u>): energy and communication key construction fund tax of 10% (in 1989 revised to 25%) levied on enterprise retained profit, enterprise depreciation fund, and other sources (SC 15 Dec. 1982)	pos.?
1984/85 (<u>tax, first revision of 1980 accounting regulations</u>): prior to 1984, enterprises handed over to government sales-related taxes and virtually all profit; beginning in 1984 most enterprises pay income tax (as well as sales-related taxes) plus an adjustment tax (depending on 1983 profit); profit that is “used” to repay loans is exempt from income tax for some enterprises; the retained profit is allocated to five funds: new product trial fund, production development fund, reserve fund, employee welfare fund, and employee bonus fund; beginning of subsidies to loss-making enterprises as formalized tax system requires re-transfer (SC 18 Sept. 1984, Li Bo 1989, FM 5 Jan. 1985, SC 5 March 1984, FM 26 April 1984)	pos.?
1985 (<u>depreciation</u>): for 433 asset categories a fixed number of years for linear depreciation is provided; this revises a 1979 regulation that required State Planning Commission, State Economic Commission, and the “relevant” departments to determine depreciation rates (years) for each sector; all depreciation funds are to be retained in the enterprise, in contrast to the 1979 regulation requiring 30% of depreciation funds to be handed up to the superordinate department; a 30% shortened depreciation time applies to key backbone enterprises in the machinery industry (SC 13 July 1979, SC 26 April 1985, FM 19 May 1986, FM 7 March 1987, FM 19 Jan. 1990)	?
1986 (<u>tax</u>): the newly established real estate tax and vehicle and boat use tax enter costs (but not as sales taxes and surcharges) (PRC FM Tax Office 1996, FM 31 Dec. 1992)	neg.
1987 (<u>depreciation</u>): if the depreciation rate according to asset categories falls below the previously comprehensive depreciation rate determined by the Finance Ministry, the higher comprehensive depreciation rate may be applied until 1990 (then revised to be effective until new depreciation rates are issued, which happened in 1993); (FM 7 March 1987, FM 19 Jan. 1990)	neg.?
1988 (<u>tax</u>): the newly established land use tax and stamp tax enter costs (but not as sales taxes and surcharges) (PRC FM Tax Office 1996 and FM 31 Dec. 1992)	neg.
1989 (<u>second revision of 1980 accounting regulations</u>): boni payments are to be gradually included as costs (rather than paid out of retained profit); “fixed capital” and “working capital” usage fee (<i>guding zijin zhanyongfei, liudong zijin zhanyongfei</i>) are no longer included as costs but paid out of profit; profit now includes a number of new items which presumably were not regulated previously (FM 5 Jan. 1985, FM 21 April 1989)	?
1993 (<u>new accounting regulations</u>): switch from “total cost method” (<i>wanquan chengbenfa</i>) to “production cost method” (<i>zhizao chengbenfa</i>) with drastic reduction in items to be charged against profit:	
(i) interest payments on fixed asset loans newly included as cost (previously paid out of profit; penalty interest continues to be paid out of profit); together with interest on	neg.

working capital loans listed in a new cost account ‘financial charges’	
(ii) pensions now enter costs in the new cost category “administrative charges” rather than as non-business expenses (no impact on profit)	
(iii) technological development fees now fully enter costs (previously in part covered by production development fund, within profit)	neg.
(iv) all boni payments are to be included in costs (can be implemented gradually)	neg.
(v) changed scope of welfare costs to be included in costs vs. in profit (all current expenses are to enter the cost accounts at up to 14% of wages and salaries, all welfare-related fixed asset purchases are to be paid out of profit)	neg.?
(vi) travel fees and entertainment fees newly enter costs	neg.
(vii) depreciation time shortened by up to one half (on average by 20-30%); enterprise can choose from a range of years	neg.
(viii) previously, financial and administrative charges were imputed to inventories; new method requires financial and administrative charges to be fully entered as costs in the interval in which they accrue, this implies that existing inventories need to be re-evaluated and the reduction in value be budgeted as once-off cost	neg.
(SC 26 April 1985, FM 21 April 1989, FM 30 Dec. 1992, FM 31 Dec. 1992, FM 17 May 1993, FM 30 May 1993, FM 10 June 1993, Li and Zhang 1995)	
1993 (depreciation): chemical industry can choose depreciation periods that are up to 30% shorter than the stipulated ones (FM 6 Sept. 1993)	neg.
1994 (<u>tax</u>): reduction in the maximum corporate income tax rate from 55% to 33%, introduction of new taxes and expansion of the value-added tax; a re-allocation of taxes from local governments to the center may induce an increase in locally levied fees; end of the energy and communication key construction fund tax, the adjustment tax, and the possibility to “use” profit before income tax to repay loans (the latter to be implemented gradually); enterprises supposedly no longer hand up part of their profit to government departments, yet the relevant accounting category still exists (FM 27 Aug. 1994)	?
Ongoing (<u>accounting</u>): several of the above measures are implemented gradually across enterprises: transfer of bonus payments from profit into costs; the pension burden (administrative charges) rises as the relative number of retired staff and workers increases; range of possible depreciation rates allows enterprises to switch to faster depreciation ^a	neg.
Ongoing (<u>subsidies</u>): price subsidies to enterprises are included in non-business revenue (FM 21 April 1989), and subsidies for policy losses are listed as a separate item between investment returns and non-business revenue (FM 10 June 1993); any change in subsidies thus affects profit	neg.

a Zhang (1999) reports that in 1996 and 1997 an examination of 840,000 units (enterprises and other work units) found 16% of the units to not have established proper accounts, and the accounts of another 16.2% of the units to be severely flawed. In industry the percentage is likely to be lower, but implementation of the new accounting system was probably not completed in 1993; for example, enterprises under the enterprise responsibility system were to adopt the new accounting system in full only once their responsibility contract had expired.

Notes

¹ Woo et al. (1994) show zero TFP growth in SOEs but impressive TFP growth in township and village enterprises. Wu (1995) confirms that rural industries have overtaken SOEs in TFP growth in the late 1980s. For a detailed review of different TFP estimates see Huang and Duncan (1997a) or Huang, Woo, and Duncan (1999).

² Lin, Cai, and Li (1998 and 1999) elaborate on the historical disadvantages of SOEs, while Huang and Duncan (1997a and 1997b) explore a large number of (partly historical) enterprise-specific variables and find several of them of significant importance in explaining profitability. The issue of governance structure and softness of the budget constraint are raised, for example, by Qian (1996), Steinfeld (1998), Zhu (1999), Tam (1999) or also Lin, Cai, and Li (1998 and 1999).

³ In 1978, industrial SOEs with *independent* accounting system produced 96.44% of the gross output value of *all* industrial state-owned units, in 1997, 95.97%; this share was constant at 96% to 97% in the two decades in between. (Calculated from GGKF, 1996, p. 146; ZGTJNJ 1998, pp. 435 and 454; ZGTJNJ 1997, p. 413.) Industrial SOEs with independent accounting system produced 81.88% of the gross output value of all industrial enterprises with independent accounting system on township tier and above in 1979, the first year for which data are available. In 1997, this share was 40.76%. All industrial enterprises with independent accounting system accounted for 91.94% of the gross output value of total industry in 1979; this share dropped continuously to 59.79% in 1995, and rose again slightly to 60.10% in 1997. (Calculated from GGKF, 1996, p. 146; ZGTJNJ 1992, p. 406; and ZGTJNJ 1998, pp. 433 and 444.) The limitation to industrial enterprises with independent accounting system, imposed by a lack of detailed data for other enterprises, is common practice in the literature. See, for example, Jefferson and Rawski (1994), Lardy (1998), or Jefferson, Rawski, Wang, and Zheng (2000).

⁴ For details on the 1998 statistical break see Holz and Lin (2001a). For comparison, the number of industrial SOEs in 1997 was 74,388, while the number of SOEs and state-controlled enterprises in 1998 was 64,737; the average industrial SOE created value-added worth 12.35m yuan in 1997 (17.11m yuan for the revised SOE category in 1998), collected sales revenue of 37.62m yuan (51.85m yuan), and had average annual net fixed assets worth 32.95m yuan (49.26m yuan). The number of industrial enterprises with independent accounting system on township level and above in 1997 was 468,506 (vs. 165,080 SOEs plus non-SOEs with annual sales revenue in excess of 5m yuan and with independent accounting system in 1998); the average industrial enterprise created value-added worth 4.23m yuan in 1997 (11.77m yuan in 1998), collected sales revenue of 13.54m yuan (38.86m yuan), and had average annual net fixed assets worth 8.49m yuan (26.74m yuan). The 1998 deflator for value-added of all industrial activities in China was negative 5.29%. (ZGTJNJ 1998, pp. 432f, 435; 1999, pp. 55, 57, 432f, 435)

⁵ The fact that private enterprises (individual-owned units with more than seven employees) in the countryside (up through 1997) or below a certain size (since 1998) and all self-employed (individual-owned units with less than eight employees) are not included in the group of non-SOEs appears acceptable since these units are invariably very small and thus across many SOE production activities unlikely to pose an alternative to SOEs.

⁶ Financial charges comprise all expenses paid on funds obtained by the enterprise. Such expenses include net interest payments (i.e., interest payments minus interest income), net exchange losses, foreign exchange adjustment fees, handling fees of financial institutions, and other financial fees paid in the process of borrowing money (FM 30 Dec. 1992, Art. 50). Since interest income already contributes to profit, a measure of gross financial charges would have been preferable; such a measure, however, is not available. The published (net) financial charges may not be too different from gross financial charges. Bank loans to all enterprises tend to be three times larger than enterprises deposits at banks (see, for example, ZGJRNJ 2000, p. 401), and interest rates on enterprise deposits are well below those on loans to enterprises. Data on interest payments that are occasionally available tend to fall 5-10% *short* of the (net) financial charges; this implies that the "other fees" on liabilities must be quite high.

⁷ In 1992, total working capital was about twice the volume of fixed-quota working capital, and approximately equal to net fixed assets (ZGTJNJ 1993, pp. 419 and 430); these data still ignore long-term investments and a residual group of intangible assets, deferred assets, other long-term assets and deferred taxes.

⁸ Up through 1993, sales revenue included, among others, the value-added tax, business tax, and product tax. Since 1994 sales revenue excludes the value-added tax, business tax, and product tax, but newly includes the

consumption tax. Value-added tax is now reported as a separate item. This implies a statistical break in sales revenue between 1993 and 1994 with an approximately 4 percentage point reduction unless sales revenue net of all sales-related taxes (circulation taxes) is used (Holz and Lin, 2001b).

⁹ Losses are highly concentrated in a relatively small number of SOEs across all sectors. Well targeted bankruptcies thus could drastically improve aggregate profitability of the remaining SOEs (Holz, 2001). Small SOEs are historically the on average worst performing enterprises among all SOEs. Many of these SOEs owned by local governments have in recent years been privatized or were closed, thus possibly reducing the bias against SOE profitability over time. (No detailed data on the privatization of small SOEs are available.) Small SOEs in 1997, the last year for which the data are available, accounted for 15% of SOE value-added. On SOE bankruptcies and recent SOE reforms also see Holz and Zhu (2002).

¹⁰ However, one can never know whether SOE profitability would not have fallen drastically in 1998 had the SOE category not been re-defined. A belated comparison is possible for 1999. The 3.26% return on equity of “SOEs and state-controlled enterprises” (Table 1) compares to a 1.98% return on equity for “SOEs” (presumably defined as prior to 1998). (ZGGYJJTJNJ 2001, p. 52f) The profitability level of the SOE category prior to 1998 thus may indeed be a downward biased measure of the profitability level achieved with all state-controlled assets.

¹¹ A high market share does not translate into high levels of profitability. In 2000, SOE return on equity in the ten industrial sectors in which SOEs had a market share above 60% (compared to the economy-wide average SOE market share based on tax-adjusted sales revenue of 49.63%) was above the economy-wide SOE average return on equity of 7.36% in only two sectors (petroleum extraction and tobacco at 45.85% and 13.54%).

¹² In 1993, *average* sales revenue per SOE was 26.07m yuan, compared to 4.00m yuan for non-SOEs. In 2000 the difference (for the new categories) was only 76.75m yuan vs. 38.09m yuan, with the group of non-SOEs now limited to those enterprises with annual sales revenue in excess of 5m yuan. On the regulation see Wang and Yang (1997), pp. 8 and 19f. (For the list of products subject to a 13% value-added tax rate see pp. 21-27; the list is too long and broad to try to reach a conclusion as to whether these products are predominantly produced by SOEs or non-SOEs.)

¹³ The data on SOEs are derived as follows. If SOE financial charges and depreciation as a percentage of sales revenue had been the same as in non-SOEs, SOE profit per unit of sales revenue would rise by the difference between the SOE and non-SOE rates of financial charges and depreciation (relative to sales revenue). In 1993, SOE profit per unit of sales revenue would have been 5.44% = 3.89% original profit + (2.44-2.08)% difference in financial charges + (3.90-2.71)% difference in depreciation. The similarly adjusted 1997 profit per unit of sales revenue is 6.03%. (The data on financial charges and depreciation are introduced below in Table 8.)

Profit per unit of sales revenue is linked to profit per unit of equity as $(\text{profit} / \text{sales revenue}) * (\text{sales revenue} / \text{equity}) = (\text{profit} / \text{equity})$. SOE sales revenue relative to equity in 1993 was 1.9794, and in 1997 1.3231 (ZGTJNJ 1994, p. 381; ZGTJNJ 1998, pp. 446f). Thus adjusted profit per (unadjusted) equity can be derived in 1993 with $5.44\% * 1.9794 = 10.77\%$. Equity finally needs to be adjusted as done above in section 4.2; multiply SOE ‘adjusted profit’ per unit of equity by 1.36 in 1993, and by 1.64 in 1997, which in 1993 yields $10.77\% * 1.36 = 14.64\%$. Payment of circulation taxes can be calculated from Table 1 as the difference between profit plus circulation taxes relative to equity, and profit relative to equity; the equity of this difference still needs to be adjusted as in the case of profit. For all profitability data on industrial non-SOEs see Table 2.

¹⁴ The calculation procedure is exactly the same as previously for non-SOEs. The ratio of SOEs’ vs. private enterprises’ equity relative to sales revenue in 1995 was 1.88. The liability-asset ratios were assumed to be equal (SOE’s actual ratio was 0.6581, that of private enterprises 0.5861). The calculations are based on published sales revenue data (not net of sales-related taxes) as the issue of a statistical break in sales revenue is not relevant. If the calculations were based on sales revenue net of sales-related taxes, SOE profitability would be slightly higher. For the data see Industrial Census 1995, vol. 1, pp. 46-53. Lacking actual depreciation rates, a rate of 5% was used.

¹⁵ The correlation coefficients for relationships involving SOEs’ total assets are far more ambiguous in terms of significance levels and years in which the correlation coefficients are significant, presumably due to the different patterns of relationships of current vs. net fixed assets (both relative to sales revenue) with the market share or the contribution to aggregate SOE sales revenue. Since nothing is gained by in addition presenting these correlation coefficients, they are not reported in Table 5.

¹⁶ In 1997, inventories of materials, semi-finished goods and finished products as a share of (unadjusted) sales revenue were 27.37% in SOEs vs. 22.51% in non-SOEs; inventories of finished products stood at 10.19% vs. 9.66%

(ZGTJZY 1998, p. 112). In 2000, inventories of finished products were roughly equal at 8.16% vs. 8.25% (ZGTJZY 2001, pp. 124f; data on all inventories are not available).

¹⁷ Data on capacity utilization in SOEs vs. non-SOEs are not available, and it is thus impossible to determine whether capacity utilization is consistently lower in SOEs than in non-SOEs. SOEs' and non-SOEs' capacity utilization clearly moves in step. The ratio of net fixed assets to sales revenue for both groups rose in 1989/1990, fell in the early 1990s, and rose again in the mid-1990s.

¹⁸ See ZGTJNJ 1993, pp. 150, 200. Apart from data on fixed asset investment by state-owned and collective-owned units, only data on all society are available. Percentages for all society are slightly above those of state-owned units, but appear inappropriate for comparison since they include the real estate sector and housing investment by farmers.

¹⁹ The SOE ratio of net fixed assets to sales revenue is not significantly correlated across the 37 industrial sectors with the SOE return on equity (in 2000, at the 10% significance level), nor is the market share (omitting the sector petroleum extraction due to its extremely high return on equity). If low SOE profitability in capital-intensive sectors with a high SOE market share were not due to government policy decisions, such as on product pricing, fierce competition among SOEs could be driving prices and thereby profitability down. Non-SOEs may not wish to enter these excess capacity sectors, while SOEs are limited in their possibility to exit the sector and may find no market to sell their "excessive" assets.

²⁰ The rise in input prices is presumably due to the rapid growth in investment throughout the mid-1980s (Figure 1). While industrial SOEs which produce raw materials, energy and power gain from higher prices, some (or all) of the extra return may be appropriated by the state (through surcharges) or by commercial intermediaries. It is unlikely that the overall gain to industrial SOEs providing raw materials, energy and power is larger than the overall loss to industrial SOEs caused by smaller increases in the ex-factory price index. The discrepancy between input and output prices may even be larger than the official data suggest. The second half of the 1980s is also the period of the two-tier price system, with (low) state plan prices and (high) market prices for the same good. It is unlikely that the official price indices properly capture the price rises for industrial inputs that were originally sold at plan prices to intermediaries, who then passed them on at significantly higher prices.

²¹ In the absence of inventory data, additions to inventories of industrial SOEs are calculated as the gross industrial output value minus sales revenue. This difference also includes additions to semi-finished products and self-produced fixed assets in the particular year.

²² Actual financial charges paid are likely to be much higher than these calculations suggest. Following the rapid price rises in 1988, interest rates on all household deposits of three years or longer maturity were inflation-indexed (10 Sept. 1988 through 1 Dec. 1991). Lending rates were not inflation-indexed and therefore fell below the inflation-indexed deposit rates. Banks then are likely to have charged various extra fees on their loans; SOEs may also have had to resort to additional sources of financing outside the formal financial sector, where lending rates can only have been higher.

²³ Prior to 1993, non-business expenses also include all pensions. These increased modestly in 1989 and 1990 and thus rendered the item "others" less negative than it would otherwise have been. Changes in the definition of profit (or costs) also directly affect the size of profit. A number of changes in accounting practices in the late 1980s could have led to a reduction in profit (Table 9), but the data show no significant impact. For example, changes in depreciation rules in 1985 and 1987 by increasing depreciation as a sales cost item should also have exerted downward pressure on profit; yet depreciation relative to sales revenue did not increase following these changes. Fixed assets are linearly depreciated based on their original purchasing price. Any increase in the average depreciation rate is likely to have been swamped by the rise in the ex-factory prices of industrial goods (Table 2), which underlie sales revenue, and thus the denominator of depreciation per unit of sales revenue.

²⁴ Sales fees comprise transportation fees, loading fees, handling fees, packaging fees, insurance fees, travel fees, exhibition fees, security fees, examination fees, intermediaries' fees, labor service fees, advertisement fees, product damage, import-export handling fees, and salaries and welfare benefits of employees in sales. Administrative charges comprise all expenses paid by the administrative departments in organizing production, including expenses for company management, labor unions, staff and workers' education, labor insurance, insurance for those unemployed and waiting for jobs, the board of directors, consulting, audits, the courts, sewage, tree planting, [some very minor] taxes, land use, land damage, technology transfer, technological development, losses to intangible assets, the general office, accommodation, losses to accounts receivable, losses to inventories including value corrections as well as damage and scrap. (FM 30 Dec. 1992, Art. 49, 51.)

²⁵ By 1993, SOEs were also facing the problem of insufficient depreciation funds. With fixed assets being depreciated based on their original prices, the accumulated depreciation fund was by far too small to replace old machinery as prices had risen significantly in the meantime. In 1993 the government asked SOEs to re-evaluate at market prices all their fixed assets purchased before 1991, and to raise their depreciation funds correspondingly, thus increasing costs beginning in 1993 (SC 3 May 1993). Depreciation funds constitute part of sales costs. The SOE depreciation data reported in Table 8 since 1992 are estimates based on net fixed assets and a fixed depreciation rate, and thus do not capture one-off additions to depreciation funds.

²⁶ Administrative charges may also have remained high because enterprises which linked the total wage bill to their “economic efficiency” now included any increase in wages as administrative charges (FM 10 June 1993), rather than paying such additional wages out of retained profit as before. Furthermore, pension payments, newly included in administrative charges in 1993, rose by one percentage point (of sales revenue) between 1993 and 1997.

²⁷ Interest rates on household deposits of 3 years maturity or longer were again inflation-indexed from 11 July 1993 until May 1997, thus exceeding loan credit interest rates. Enterprises that were unable to secure loans at these low real lending rates had no choice but to incur high-interest borrowing outside the state banks.

²⁸ The central government started a first campaign to clean up the triangular debt problem in March 1990 (SC 26 March 1990). It repeatedly intervened with directed credit injections to resolve triangular debt chains in 1991 and 1992, before prime minister Zhu Rongji in mid-1993 ordered a clamp-down on the banking system that had been channeling funds into speculative and high-interest uses. A summary report issued in February 1993 provides an overview of the administrative efforts to resolve the triangular debt problem (SC 9 Feb. 1993). Industrial SOEs incurred not only ever higher liabilities to suppliers. Sales-related taxes have to be paid even if the payment on the goods has not yet been received by the enterprise itself, leading to an additional need for borrowing. Some enterprises also responded by falling behind in their tax payments to the government. The issue of paying outstanding taxes first received separate attention, but was soon merged with the triangular debt issue. On the banking system’s efforts to resolve the triangular debt problem also see ZGJRNJ 1992, pp. 31, 52, 80, 457, 503f.

²⁹ In 1994, real sales fell by almost 15%. There is no obvious explanation for this sharp fall; it could in part be an accounting artifice due to the introduction of the new accounting system in 1993 and the tax reforms in 1994.

³⁰ Competition from abroad also increased when import tariffs in 1995 fell from an average of 36% to 23%; another reduction to 17% occurred in 1997 (Chen, 1998, p. 8). Naughton (1992), Jefferson and Rawski (1994), Rawski (1994) explain the decline in profitability with increasing competition. Fan and Woo (1996), Sachs and Woo (1997), and Huang and Duncan (1999) argue against the competition hypothesis; the first two favor increasingly excessive labor remuneration as explanation. Jefferson (1998) makes a theoretical argument for “overconsumption” (i.e., excessive labor remuneration). Holz (2002) shows that the two explanations for the decline in profitability, competition vs. labor remuneration, are not mutually exclusive and according to the data both valid.