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## Costing Methodologies and Cost Management Practices in the Peoples' Republic of China





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# Costing Methodologies and Cost Management Practices in the People's Republic of China

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## I. Executive Summary

This report is the result of a study undertaken by the Institute of Management Accountants (IMA®) with the assistance of the Ministry of Commerce of the Peoples' Republic of China (PRC) to examine cost management practices and costing methodologies in the PRC.

### CONCLUSIONS

- The adoption of the 2006 Accounting System for Business Enterprises (ASBEs) by the PRC brings around substantial convergence of Chinese accounting standards with International Financial Reporting Standards (IFRSs).
- With regard to internal reporting, costing issues can arise from (1) differences between Chinese and Western companies in the types of costs treated as product costs, and (2) differences in allocating these costs to products in an appropriate manner.
- There are a number of cost items that have been inappropriately treated in the past per Chinese accounting regulations; changes made by the 2006 ASBEs have begun to address these.
- Most Chinese companies follow traditional methods for allocating costs to products, although the use of more accurate costing techniques is emerging. This state of costing practice is similar to that encountered in the West. Improvement in practice should be based on a cost/benefit analysis performed on an individual company basis.
- While differences exist between the costing practices of Chinese companies and those used by Western companies, a convergence of practice is in process.
- Product cost is the most important factor in determining product pricing. Other factors, especially competitor pricing, are also very important.
- It cannot be concluded that differences in costing practices lead to product dumping.

## II. Study Background

### A. OBJECTIVES

This report is the result of a study undertaken by the Institute of Management Accountants with the assistance of the Ministry of Commerce (MOC) of the Peoples' Republic of China. The objectives of the study included the following:

1. A comparison of international and Chinese accounting policies, procedures, and methods;
2. An examination of both the regulations companies follow as well as the actual practices they undertake; and
3. An evaluation of the extent to which Chinese cost management systems are influenced by open market economy practices versus more planned economy practices.

One motivation for this study was to determine whether Chinese costing practices contribute to product dumping by Chinese companies. In order for this to be the case, several conditions would need to exist. These include the following:

- Product costs are a major factor in the determination of product selling prices by Chinese companies;
- The costing practices used by Chinese companies are such that product costs are not accurately determined (we note that the term "accuracy" is relative; it can be determined relative to Chinese regulations, prevalent Western practices, or basic cost accounting principles); and
- The means by which pricing decisions are reached is such that distortion of product costs will result in the determination of selling prices that are materially different than those that would have been determined had "accurate" costs been used.

Proving the existence (or lack thereof) of all of these conditions is not an easy task. In this study, therefore, we:

- Explore the importance of product costs in Chinese firms' pricing decisions;
- Examine the costing practices currently employed by Chinese companies and compare these to the various standards indicated above;

- Discuss the evolution of Chinese accounting regulations and their impact on costing practices; and
- Reach, to the extent possible, a conclusion regarding the impact of Chinese costing practices on product costing.

In order to accomplish these objectives, the IMA conducted a research study in two phases. In the first phase, an IMA research team visited a variety of Chinese enterprises. This team consisted of:

- Dr. Raef Lawson, IMA Director of Research and Professor-in-Residence;
- Professor Jiliang Yang, Hong Kong University of Science and Technology (retired);
- Mr. Pinzhun Ding, IMA Senior China Advisor, formerly of the PRC Ministry of Finance and Secretary-General of the Chinese Institute of Certified Public Accountants (CICPAs); and
- Professor Gary Biddle, formerly Chair Professor, Hong Kong University of Science and Technology; now Dean, Faculty of Business and Economics, University of Hong Kong.

The assistance of the MOC was instrumental in obtaining access for the study team to a number of companies. The firms visited included:

- State-owned and privately-owned enterprises,
- Large and middle-sized enterprises, and
- Enterprises from a diverse set of industries, including those subject to dumping disputes.

The firm visits provided a wealth of information regarding the cost management practices used by the firms visited, and additionally provided the basis for the development and refinement of a mail survey instrument examining costing practices utilized by a much larger sample of Chinese companies.



## B. PRC ACCOUNTING PRACTICES

Following the establishment of the PRC in 1949, the Chinese government developed several management systems necessary under a planned economy. The three most important tasks in this regard were: developing the economic accountability system, which defined the economic relationship between the state and the enterprise; implementing a comprehensive annual planning system, including the cost planning/budgeting system; and establishing the norm management system for realizing the techno-economic targets of an enterprise. Part of this infrastructure involved the requirement that companies follow a uniform accounting system that was designed by the Accounting Regulatory (or Affairs) Department of the Ministry of Finance (MOF).

Because of the difference between planned and market economies, Chinese accounting standards employed under the planned economy were largely unsuitable for managing companies in the evolving market environment. As a result, the PRC adopted the Accounting Law and the Accounting Law for Joint Ventures in 1985. (The Accounting Law 1985 was amended in 1993 and 1999.)

The MOF promulgated its first accounting standard, the Basic Accounting Standard, in 1992, effective July 1993. This standard, based on International Accounting Standards, provided a conceptual framework and set out accounting principles. This was followed by additional standards. The Basic Accounting Standard changed the valuation of inventory in a variety of ways. Some administrative expenses (such as interest expense related to the financing of fixed assets, gains or losses from foreign currency transactions/translations, and inventory carrying costs) that were previously capitalized as inventory costs were now required to be expensed (Hilmy, 1999, pp. 501-2). Other changes in the distinction between period and product costs are described below.

The ASBEs were applicable to joint stock limited enterprises effective 1 January 2001 and Foreign Investment Enterprises effective 1 January 2002. On 16 February 2006, the Ministry of Finance (MOF) announced that it had adopted a new Basic Standard and 38 new Chinese Accounting Standards (CASs) that were substantially in line with International Financial Reporting Standards (IFRS). The MOF required all listed companies to start using the new CASs in the preparation of their 2007 annual financial statements. Additionally, use of the new CASs will be expanded to all state-owned enterprises controlled by the Chinese central government starting in 2008, and then to all large and medium-sized companies in China starting

in 2009. Adoption of the new Standards makes financial reporting by PRC companies more in line with international standards, although differences will remain, based on local needs. (For example, for pure state-controlled enterprises there will be no disclosure requirement for related-party transactions.)

The PRC's former accounting practices still affect practice to this day. For example, Chinese enterprises traditionally put all the production and service workshops at the second layer of the company, rather than grouping them under the Manufacturing Department. At the second layer, parallel to factories/workshops, were all the functional departments, both production-related and non-production related<sup>1</sup>. Since transitioning to a market economy in 1979, marketing has become an increasingly important functional department, but the organizational structure of almost all Chinese enterprises remains the same: all functional departments are at the second layer, parallel to factories/workshops.

Before China started adapting its accounting systems to international/Western accounting conventions in 1992, all overhead incurred by factories/workshops was included in Workshop Expenses. Expenses incurred by all functional departments (including those engaged in purchase, engineering, quality control, product designing, accounting, personnel, and sales activities) were all grouped under Administrative Expenses. Both workshop and administrative expenses were considered as "costs" and allocated to products.

In China's 1992 Accounting Reforms, Chinese policy-makers changed the traditional term of Workshop Expenses to the Western term Manufacturing Expenses, and treated Administrative Expenses as "Period Expenses," to be excluded from Product Costs. Under Western costing conventions, Manufacturing Overhead includes expenses incurred by the production-related functional departments, whereas Workshop Expenses (now known as Manufacturing Overhead) did not include these expenses. The difference in definition between Workshop Expenses in China and Manufacturing Expenses in the West can lead to a discrepancy in the measurement of product costs. This difference

<sup>1</sup> Under the planned economy, all enterprises were almost solely production-oriented. The sales department was not an important department. Most enterprises, including large ones, affiliated the sales function with their Procurement Department. The Resource Distribution Ministry and its branch offices took care of the sales function for major industries nationwide. Most functional departments were production-oriented, yet at the second layer of an enterprise there were also departments under the leadership of its Party Committee.

## D. DEVELOPMENT OF MANAGEMENT ACCOUNTING IN CHINA

China's long accounting history, extending back more than three thousand years, reflects its position as one of the world's oldest civilizations. This history includes the development of various forms of bookkeeping systems, including the "increase-decrease" method that was in prevalent use from the 1960s to the 1980s. The development of these systems played a significant part in the evolution of Chinese accounting (Lin 2003).

The evolution of accounting continued during the period of the socialist economy. During this period Chinese companies faced similar problems of industrial organization and control (Vucinich 1950, Walder 1979) as companies in market-oriented economies and developed their own unique management accounting techniques, including "mass line accounting" (Yang 1981).

The practice of management accounting in China has continued to evolve since the beginning of the transition to a socialist market economy. This includes the adoption of Western-style techniques (Skousen and Yang 1988, Bromwich and Wang 1991, Lin and Yu 2002, Wang, et al. 2005). As may be expected, this adoption of Western techniques is influenced by the extent of companies' interactions with foreign partners (Firth 1996).

Despite the adoption of these techniques by some firms, questions remain regarding the applicability of these techniques, or the need to modify them, in a non-Western setting due to cultural (Hofstede 1991) and institutional differences, which result in differences in decision-making in a team-based work setting (Awasthi, et al. 1998), managerial styles (Morris et al. 1998), and organizational structure (Abdallah 1992, Hall, et al. 1993), among other things.

It has been argued that Chinese firms are unlikely to find an entirely satisfactory management accounting framework in the West (Scapens, R. and Meng Y. 1993). Modifying these techniques may help: Tang and Li (2007) describe implementation of a scorecard system at a large Chinese state-owned enterprise, using a set of perspectives different from those in Kaplan and Norton's balanced scorecard.

While prior studies have contributed to our understanding of Chinese management accounting practices, they may be limited in that the business environment of the PRC is undergoing a period of rapid evolution and these studies may not reflect current practice (Warner 1996). Besides providing a broader view of management accounting than most of the above-cited studies, the current study thus also contributes to the accounting literature by providing

illustrates one of the challenges in determining the costs of products manufactured by Chinese companies. Other issues are explored below.

## C. ISSUES WITH RESPECT TO DUMPING

One of the purposes of this study is to compare international and Chinese accounting policies, procedures, and methods in light of the current antidumping environment.

Legislation in both the EU and U.S. prohibit the dumping of foreign goods in the domestic market. For example the U.S.'s 1921 Antidumping Act authorizes compensating duties when imports are sold at less than normal value and are a cause of (or threaten) material injury to the U.S. industry producing products like those that are imported. The dumping duty is based on the difference between the "normal value" of the product and the price charged for it in the United States. Normal value is based on prices in the home market, or, if there are insufficient sales of comparable merchandise in that market, the foreign producer's price on sales to third countries. If all home market (or third country) sales are below cost, normal value is based on the cost of production plus profit.

In order to prevent dumping, and to defend against charges of dumping, it is important that organizations have costing systems that accurately determine the cost of their products, thus ensuring appropriate pricing of their products. There are many issues that must be considered in this regard, including what costs are appropriate to include in product cost and whether these costs are properly allocated.

In evaluating organizations' costing systems we note that they need to be appropriate to the environment in which the companies operate, and that they need to reflect their strategies and organizational maturity. Therefore, a relatively "primitive" costing system may not be conclusive evidence of product miscosting.

Having said that, it is clear that many Chinese companies are experiencing rising raw material and labor costs, and that they will find it increasingly hard to compete internationally on the basis of low price. In order to stay competitive, these organizations have two options. First, they can choose to compete on some other basis, such as product differentiation and brand building. Alternatively, they can continue to compete on the basis of cost leadership. Companies competing on this basis will need to have appropriate and possibly increasingly sophisticated cost management systems (CMS) in place in order to better understand and manage their costs. This will require management accountants who are trained to design and implement these systems.

an updated view of management accounting in the PRC today. As Scapens, R. and Meng Y. (1993) note, “so long as the government continues the policies of economic reform and openness, there is no doubt that management accounting will play an increasingly important role in the management of Chinese enterprises.” By providing an unprecedented view of management accounting in contemporary China, and by identifying its strengths and weaknesses, this study should help facilitate its future development and growth.

### III. Case Studies of Chinese Companies' Costing Practices

The initial phase of this study included two field study trips to study the costing practices of Chinese companies. The companies visited are described in Table 1. They included:

- State-owned, publicly-traded, and privately-held enterprises;
- Large and middle-sized enterprises;
- Enterprises in a variety of industries, including some that have been subject to dumping disputes; and
- Companies from widely diverse geographic locations.

The field studies had as their objective the preliminary investigation of Chinese cost accounting and cost management methods, which would serve to refine the subsequent mail survey instrument.

All of the companies visited were mid- to large-sized. Several of them are noted for their innovations in cost management techniques, either currently or in the past. In addition, many of these companies were in the “pillar” industries of China, which historically have received a disproportionate share of resources, including human capital. Given this, it is not unreasonable to conclude that the practices employed by these companies would be on the leading edge of Chinese cost management today.

In keeping with the multiplicity of study objectives, we examined both the specific cost accounting techniques used by the study companies as well as the broader issue of the state of cost management in these organizations.

#### COST ACCOUNTING

A primary objective of the study is to determine whether the costing practices of Chinese companies are consistent with those followed by other companies internationally. We examine each of the traditional components of product cost in turn. Our observations are based on Table 2 (which summarizes the practices of the study companies), the case studies in the appendices, and other information collected during the field study visits.

#### Direct Materials

For all the field study companies (for which there is data), direct material cost included the actual (versus the standard or planned) cost of raw materials. This is consistent with current Chinese accounting regulations. Most companies directly allocated the actual cost of materials to products. However, one company used standard costs and adjusted the allocated costs to actual at the end of each period.

The inclusion of the cost of transporting raw materials to the companies' facilities in direct material cost was also a prevalent (and appropriate) practice.

In nearly all cases, the cost of direct materials is directly traced to products. In a few instances, costs are allocated to products based on what is deemed to be an appropriate driver, such as production specifications or product volume.

#### Direct Labor and Fringe Benefits

A large portion of the companies visited—generally those that employ batch production techniques—pay their factory employees on a piece rate basis, with the result that they have no variances associated with labor cost. Companies with continuous production processes had salaried workers, with the cost of direct labor allocated to products based on direct labor hours or machine hours consumed. These practices are consistent with what would be considered traditional Western costing practices.

Fringe benefits include a wide variety of items and add considerably to the cost of labor. For example, Tsingtao Brewery incurs the following costs for fringe benefits:

Item	% of Labor Cost
Welfare (medical insurance, other)	14.0
Pension	20.0
Health care	8.0
Housing	13.0
Unemployment insurance	2.0
Health insurance	1.0
Birth insurance	0.9
<b>Total</b>	<b>58.9</b>

Table 1. Summary of Field Study Visits

Company	Location	Listing Status / Ownership	Annual Revenue		Employees	Description
			First Trip			
Luthai Textile Co., Ltd.	Zibo City, Shandong Province	Listed company, also nontrading shares outstanding	2.233 B RMB	11,260	One of the largest producers of high-grade fabrics; also a major shirt manufacturer, including Arrow shirts.	
Shandong Xinhua Pharmaceutical Co., Ltd	Zibo City, Shandong Province	Listed company, 46.89% state-owned	1.71B RMB	4,765	A large pharmaceutical maker with four manufacturing sites.	
Shandong Huijin Stock Co.	Laiwu City, Shandong Province	Limited stock company	800 M RMB	2,000	A leading exporter of cast fittings; also auto fittings for companies such as GM, Ford, and Volvo.	
TBEA Co., Ltd.	Wulumuqi, Xinjiang Province	Listed company, 8% state-owned	4 B RMB	8,600	The largest transformer company in China.	
Xinjiang Bayi Iron & Steel Co., Ltd.	Urumchi, Xinjiang Uygur Autonomous Region	State-owned	9.5B RMB	16,000	A large manufacturer of iron and steel.	
Jiangxi Copper Corporation	Guixi City, Jiangxi Province	Listed company, 46% state-owned	16.4B RMB	13,040	One of the biggest copper refining companies in China.	
<b>Second Trip</b>						
Anshan Steel	Anshan City, Liaoning Province	State-owned; listed subsidiary	n/a	130,960	China's second largest steelmaker.	
FAW Auto Group	Changchun, Jilin Province	State-owned	1.4 B RMB	n/a	China's first motor vehicle company; now produces one million vehicles annually.	
Haier	Qingdao, Shandong Province	Collective corporate enterprise, with listed subsidiaries	103.9 B RMB	50,000	The world's fourth largest white goods manufacturer and one of China's Top 100 electronics and IT companies.	
Tsingtao Brewery	Qingdao, Shandong Province	Listed company, 32.56% state-owned	10 B RMB	n/a	China's largest domestic beer company and also its largest exporter.	
Hongdou Group	Wuxi, Jiangsu Province	Privately-owned company with listed subsidiaries	1.23 B RMB	4,915	China's largest producer of clothing (underwear, layer style clothing, and other garments) for the domestic market. Also produces motorcycles, tires, and clothing for the export market.	
TCL King Electrical Appliances (Huizhou) Co., Ltd.	Huizhou, Guangdong Province	Foreign-investment enterprise	1.46 B RMB	6,000	The biggest TV production base of TCL – Thomson Electronics, Ltd., the world's largest TV producer.	

Note: M=millions, B= billions

Table 2. Summary of Field Study Companies' Cost Accounting and Cost Management Practices

Company	Direct Materials (D/M)	Direct Labor (D/L) & Fringe Benefits	Manufacturing Overhead (MO/H)	Planning & Control	Performance Evaluation & Employee Compensation
Luthai Textile Co., Ltd.	n/a	n/a	Allocated to products based on a single driver/factory.	Annual budget planning process; typically 3 iterations; starts top-down.	Performance evaluation basic on various financial and nonfinancial performance metrics (ex., production volume, quality, cost, safety). Employee compensation typically includes base salary (or piece rate), bonus based on performance, and profit-sharing based on company income.
Shandong Xinhua Pharmaceutical Co, Ltd	Includes invoice price, transportation charges, reasonable quantity variance. Actual cost traced to products using original records.	D/L includes salary of prod'n workers; traced to products. Welfare & housing cost included in O/H; other fringes in Admin. Exp.	Directly traced to products if possible, otherwise allocated based on output ratio.	Strategic planning process (5-year planning horizon). Annual operational planning process, tied into budget. Linkage of operating plans and managers' goals.	Linkage of performance and employees' compensation. Use of monetary and nonmonetary performance evaluation methods. Performance evaluation linked to market at second level.
Shandong Huijin Stock Co.	Raw materials (R/M) recorded at actual cost; includes some Purchasing Dept expenses; no planned price for materials; no variances computed.	D/L based on piece rate. Cost of Factory Managers and Workshop Supervisors included in Admin. Expense. D/L included in MO/H but separately allocated.	Monthly allocation of actual costs. D/L directly traced to products; other costs allocated based on D/L or R/M cost. Admin. exp. Includes some Mfg O/H expenses (ex. Quality, Prod'n, Maint. Supervision; Land Use Rights).	Unique "cost target control" management system; Comparison of unit vs. planned (quota) cost. Adopted Handan Steel's "Backwards Cost Analysis (or Pressure)" approach. R/M consumption closely monitored.	Bonuses based on a variety of performance metrics.
TBEA Co., Ltd.	Includes actual cost of R/M.	Labor cost based on piece rate. Cost of fringe benefits follows labor cost.	Aggregated at workshop level. Actual cost allocated based on cost of R/M or DLH. Cost of ancillary depts. allocated to production depts.	Annual budget process. Plan includes targets for key economic performance metrics. Uses Backward Cost Analysis approach. Monthly evaluation of performance against the budget.	Bonus system (20% compensation) based on a variety of performance metrics.
Xinjiang Bayi Iron & Steel Co., Ltd.	Includes R/M and transportation cost. Actual cost allocated to production based on product specifications.	Actual cost of labor allocated based on output of each piece of equipment. Funding of the aged and housing common funds included in Admin. Exp.	Managers' salary included in Admin. Exp. Allocated based on output.	Uses a production-techno-financial planning process. Monthly cost/profit plan based on the annual monthly production schedule. Periodic cost analysis conference. Comprehensive set of production management targets.	

Note: n/a = not available



Table 2. Summary of Field Study Companies' Cost Accounting and Cost Management Practices (Continued)

Company	Direct Materials (D/M)	Direct Labor (D/L) & Fringe Benefits	Manufacturing Overhead (MO/H)	Planning & Control	Performance Evaluation & Employee Compensation
Jiangxi Copper Corporation	Includes cost of R/M, purchasing exp., transportation exp., reasonable waste and taxes (at standard, adjusted to actual cost). Product initially allocated standard material cost, later adjusted to actual.	Includes all factory costs. Welfare cost (14% of salary) included in Admin Exp.	Actual manufacturing overhead incurred is allocated to products based on predetermined percentages of the costs incurred. Admin. Exp. includes cost of housing and other production related expenses.	Annual budgeting and economic responsibility evaluation system. Monthly evaluation of performance against budget and technical economic indicators.	Linkage between performance evaluation system and compensation now strongly emphasized.
Anshan Steel	Standard cost, adjusted to actual.	n/a	n/a	Comprehensive budgeting process.	Comprehensive performance evaluation system, which is linked to the compensation system. Budget is used in evaluating performance.
FAW Auto Group	Actual cost.	n/a	n/a	Comprehensive budget system used to control operations. Monthly economic activity analysis. Material usage standards developed and responsibility for material consumption traced to individual. Use of target costing.	Bonuses based on fulfillment of production targets and other performance metrics.
Haier	Actual cost of raw materials allocated to products.	Actual cost of labor and fringes allocated to products based on direct labor hours. Some fringe benefits included in Admin. Exp.	Actual cost allocated based on direct labor hours or machine hours.	Annual budget system. Variance analysis is used to find unfavorable material usage	Employees' performance is assessed according to Haier's "market chain salary system". Performance metrics are linked to the overall organizational objectives.
Tsingtao Brewery	D/M includes cost of R/M, transportation, and Purchasing Department costs. Actual cost traced to products.	Salary, 14% fringe benefit, pension and health insurance allocated to products.	Allocate O/H costs from 2nd and 3rd tiers to products on a per unit basis.	Master budget system; also employs flexible budgeting. Budget management system has three levels: the company, the subsidiary companies, and the factory level. Budgets based on both production volume and also annual cost reduction target.	Use of scorecards which include a variety of performance metrics such as efficiency, yield, cleanliness, and innovation. Bonuses based on cost savings below standard cost and other metrics.

Table 2. Summary of Field Study Companies' Cost Accounting and Cost Management Practices (Continued)

Company	Direct Materials (D/M)	Direct Labor (D/L) & Fringe Benefits	Manufacturing Overhead (MO/H)	Planning & Control	Performance Evaluation & Employee Compensation
Hongdou Group	Includes the purchase price of raw materials; this is allocated to products by volume.	n/a	Overhead is accumulated and allocated at the workshop level. The allocation is based on the quantity of goods produced (ex., number of suits) and is based on actual costs incurred.	Management and control is based on the budget and operational statistics. Budget adjusted after first quarter.	Performance metrics ensure alignment of the parent's targets to those for the subsidiary companies, of each department, of each division, and of each staff member. Hongdou employs a benefit contracting system, which entails contracts between higher level and lower level managers.
TCL King Electrical Appliances (Huizhou) Co., Ltd.	Includes the actual cost of the raw materials and transportation costs.	Direct labor cost and the cost of welfare allocated to products based on actual labor hours or machine hours consumed. Treatment of other fringes unknown.	Overhead is aggregated at the factory, workshop, and production-line levels. Direct labor hours and machine hours are used to allocate overhead. It is allocated based on standard cost initially, and then adjusted at the end of each month to actual.	Use fixed budgets, but may make adjustments mid-year. A monthly and quarterly analysis of variance to the budget is performed for each department as a means of evaluating performance and for controlling costs. Daily performance tracked using a Daily Operating Performance report.	Monthly performance evaluation for line workers based on a variety of metrics (efficiency, quality, neatness, etc.). Performance tied to bonus (typically 30-40%).



There is variation among companies in the treatment of these costs. The 14% Welfare Cost mandated by the government is typically treated as part of Manufacturing Overhead (and allocated to production), although one company indicated that it included this cost in Administrative Expense.

The cost of the other fringe benefits is usually included in Administrative Expense, although one company (TBEA) indicated that the cost of all fringe benefits was included in manufacturing overhead.

The inclusion of the cost of these other benefits in Administrative Expense, although required under the 2001 Chinese accounting regulation, would not generally be considered appropriate treatment of these costs in the West. The 2006 accounting standards (which went into effect subsequent to the field visits) changed the required treatment of these costs. It is now mandated that fringe benefit costs follow the related labor cost, which is an improvement in costing practice.

#### Manufacturing Overhead

Traditionally, Chinese companies did not use predetermined (standard) rates for the allocation of overhead. Rather, they allocated overhead on a monthly basis using actual rates. This method was believed to be preferable to the use of standard rates in that it prevented companies from over-absorbing overhead in order to look more profitable. This history is reflected in the costing practices exhibited today by the case study companies. As seen in Table 2, nearly all of the companies allocated overhead based on actual costs. Two companies used standard costs which were then adjusted to actual cost at the end of each month.

The case study companies all employed what would be considered traditional costing methodologies, using a single, traditional base for allocating overhead from a single cost pool (for a given area). The allocation bases employed include output-related, labor-related (direct labor hours and direct labor cost), and other (cost of raw materials, machine hours, predetermined percentages) bases. There were no indications of use of more sophisticated costing techniques, such as activity based costing (ABC), in product costing (although Hongdou uses a similar technique for pricing its products). Since most companies in the West still use standard costing, it was expected that the rate of usage of advanced costing techniques among the firms visited would be low. The total lack of the use of more advanced costing techniques, however, was surprising given the size and history of the companies

visited, as described previously, and prior studies (Nanjing 2001, Chow et al. 2007) which have found use of ABC by Chinese companies.

Of greater concern are the cost elements included in manufacturing overhead in the first place. There is considerable variability among the firms with regard to the items of cost included in overhead. Additional, some cost elements, while treated uniformly, are not included when they “should” be, based on standards prevalent in the West.

Previously mentioned was the treatment of the cost of many fringe benefits as Administrative Expense, although directly related to production activities. The recent change in accounting regulations helps address this issue.

The amortization of land use rights is usually treated as an Administrative Expense. Preferably, the portion of this expense attributable to production facilities (which would be expected to be the majority of this cost) would be included in Manufacturing Overhead and allocated to product cost.

The cost of ancillary (service) departments was treated appropriately by all of the companies, with the cost of these departments being allocated to the production departments on bases that reflect consumption of the various departments’ output.

Another practice common in the past was the treatment of indirect production-related costs as Administrative Expenses, rather than as Production Expenses, which would be preferable. This practice is still evident among some of the field study companies today. Examples of these cost items include the cost of supervision of maintenance workers (Shangdon Huijin), intangible assets amortization (Jiangxi Copper, TCL), labor insurance (FAW), inventory variance (Tsingtao), insurance (Tsingtao), and management level personnel from factory departments (Hongdou). Each of these cost elements was treated by the indicated company as an Administrative Expense, although treatment as part of Manufacturing Overhead would seem to be more appropriate.

## COST MANAGEMENT

### Planning and Control

In the early 1950s, several management systems necessary under the planned economy were developed. The three most important of these were: the economic accountability system, which defined the economic relationship between the state and the enterprise; the annual planning system, including the cost planning/budgeting system (the output of which was called the “production-technology-finance plan”); and the norm management system for establishing the techno-economic targets of an enterprise. These systems were implemented and refined over the next 30 to 40 years.

While the transition to a socialist market economy has changed the economic and social environment in which companies now operate and the tools they need to operate in such an environment, evidence of these systems remains very strong. All companies visited as part of the field study employed a budgeting system as a primary means of operational planning and control. In many instances, and especially at the state-owned enterprises, these budgeting systems were very similar to the cost planning/budgeting system previously employed under the planned economy. The department formerly responsible for preparation of this plan, the Planning Department, remains in a few companies, but this function has largely been transferred to new Finance and Accounting departments.

Several of the companies have implemented innovative budgeting techniques. These include Hongdou Group and Shangdon Huijin Stock Company. Hongdou Group employs a unique methodology under which it tries to optimize its performance in March and then reestablishes its budget for the rest of the year based on this performance. Shangdon Huijin has developed a “cost target control” management system that divides all costs based on key links (processes) and cost elements and then bases cost control on these relationships.

The use of production-techno-economic targets also remains strong, especially with regard to raw material usage. Most companies track raw material usage and compare it to pre-established quotas on a frequent basis.

Two of the companies visited use the “Backward Cost Analysis” method developed by Handan Steel. This methodology, similar to target costing, is a relatively sophisticated technique for establishing cost standards and is an indication of the progress made in developing new cost management techniques.

### Performance Management and Employee Compensation

During the 1950s Chinese firms extended the economic accountability system (EAS) to the layers of an enterprise below the factory level (i.e., they developed an *intra-company* EAS). Given the focus on maximizing production (or at least achieving production quotas) under the planned economy, it is not surprising that a diverse set of performance metrics was employed (including measures of production, efficiency, quality, cost, and safety, among others), rather than just profitability.

The use of this diverse set of performance metrics by Chinese companies carries on to this day. Understandably, with the transition to a socialist market economy, the emphasis on the various performance metrics has changed. (Costs and profit, often disregarded or of little importance in the past, are now key measures.) However, the use of a diverse set of performance metrics on workers’ scorecards persists to this day: each of the companies visited evaluated workers’ performance using this type of diverse scorecard.

This is interesting in that this relatively old practice is similar to a new Western approach—the Balanced Scorecard. This latter technique emphasizes the use of a diverse set of performance metrics in order to obtain a “balanced” view of organizational performance. While most of the field study companies did not explicitly tie their scorecards to organizational strategy, as is advocated when using balanced scorecards, it can be argued in most cases that there is an implicit linkage of the two. We thus see an area that would be considered “leading edge” in the West in which Chinese companies have amassed great experience. The challenge to Chinese companies now is finding the right balance of metrics to reflect their new operating environment.

All of the companies visited indicated that they employed a comprehensive performance evaluation system, with appropriate measures employed at each level of their organization. Most of the companies indicated that they employed a bonus system which linked employee compensation to performance. There was a great diversity in the bonus schemes utilized, reflecting the varied history, unique circumstances, and differing management philosophies of these organizations.

## IV. Survey of Chinese Companies' Costing Practices

### A. SURVEY BACKGROUND

As a follow-up to the field visits, a survey instrument, which incorporated the findings from the field studies, was designed and administered. This phase of the study provided a broader view of the costing methodologies and techniques used by Chinese companies.

#### Distribution of Surveys

Four Chambers of Commerce participated in distribution of the surveys. These Chambers were organizations that could reach companies representative of those that might be subject to "antidumping" investigations. The Chambers included:

- The China Chamber of Commerce of Light Industrial Products and Art-Crafts,
- The China Chamber of Commerce for the Import and Export of Textiles,
- The China Chamber of Commerce for Import and Export of Machinery and Electronic Products (website at <http://www.ccla.net/english/index.asp>), and
- The China Chamber of Commerce of Metals Minerals and Chemicals Importers and Exporters (website at <http://www.ccmc.org.cn/EnglishWeb/EngDefault.aspx>).

The Accounting Society for Foreign Relations and Trade of China also took part in the distribution of the surveys. Finally, the Commerce Departments of the City of QingTao and Jiangsu Province also helped distribute the surveys.

The associations and organizations distributed 400 questionnaires. The surveys were handed out to the companies and collected directly from them by the distributing organizations. Companies were asked to have the questionnaires filled out by the finance and related business departments. In total, 209 completed surveys were received, for a 52.3% response rate.

### Survey Development

The survey contained questions pertaining to companies' cost accounting and cost management practices, their management practices, and demographic information. The survey instrument was first developed in English and then converted into (Simplified) Chinese. The translation-back translation method was used to verify the accuracy of the translation. In addition, based on the input from a member of the study team who is a Chinese management accounting educator, the survey instrument was modified to clarify terms that are not in prevalent use in the current PRC business environment.

### Respondent Demographics

The composition of the survey respondents by form of ownership was as follows:

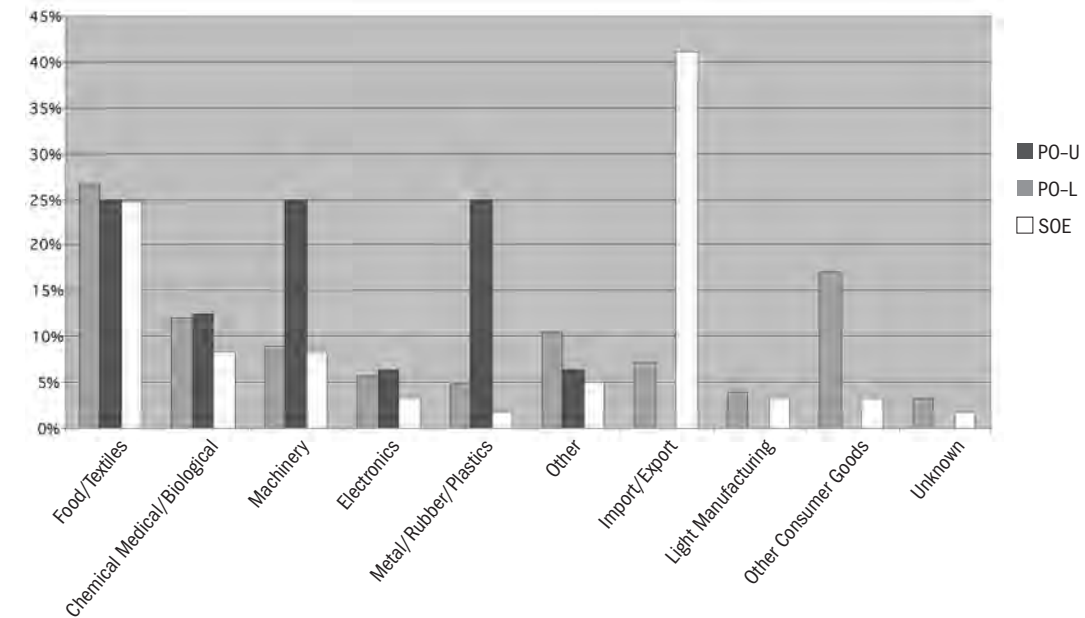
**Table 3. Form of Ownership of Survey Respondents**

Item	No. of Firms	Percent
State-owned enterprise (SOE)	61	30.3
Privately-owned listed company (PO-L)	16	8.0
Privately-owned unlisted company (PO-U)	124	61.7
<b>Total</b>	<b>201</b>	<b>100.0</b>

(Note that the total number of responses in this and subsequent tables may be less than the total number of completed surveys received due to the lack of response by individual companies to a given item.)

The distribution of companies' primary line of business reflects the focus of the organizations responsible for distributing the survey. The food/textile, machinery, wood/rubber/plastic, and import/export industries were all well represented. Respondents' primary industries varied by form of ownership, as indicated in Figure 1.

**Figure 1. Industry Classification by Company Ownership**



There are significant differences in the industrial classification of the enterprises when categorized by form of ownership. Specifically, state-owned enterprises (SOEs) were much more likely to identify themselves as being in the import/export business (41% vs. 7% for publicly-owned unlisted companies and none for publicly-owned listed companies), privately owned unlisted (PO-U) companies were more likely to be in other consumer goods industries, and privately owned listed companies (PO-L) were more likely to be in the machinery and metals/rubber/plastics industries.

Most (55%) of the survey respondents consisted of a single operating unit (see Table 4). This is significant in that for companies with this relatively simple form of organization, planning and control of operations tends to be simpler, and elaborate measurement and control systems are not as necessary as for companies that have more complex organization. The next most prevalent organizational form for survey respondents was that of a parent company with independent subsidiaries. Measuring performance at the second (subsidiary) level of these organizations would tend to be a relatively straightforward matter (especially when the subsidiaries are relatively independent), again reducing the need for complex performance measurement systems.

**Table 4. Organizational Structure of Survey Respondents**

Item	No. of Firms	Percent
A single operating unit	112	55.4
A single company with multiple factories	17	8.4
A parent company with separate operating divisions	9	4.5
A parent company with independent subsidiaries	58	28.7
Other	6	3.0
<b>Total</b>	<b>202</b>	<b>100.0</b>

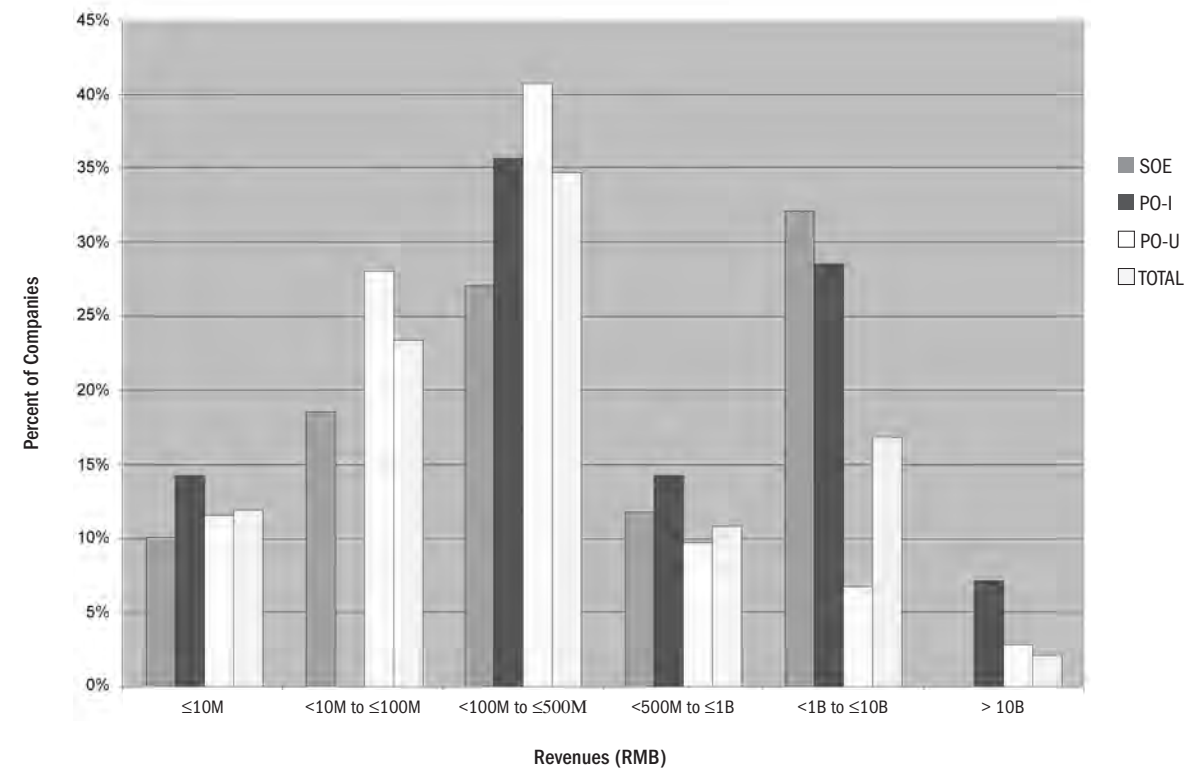
Survey respondents tended to be mid-sized enterprises, although smaller companies were also well represented (see Table 5 and Figure 2). Firms of the various forms of ownership were fairly equally distributed over the range of revenues, although there tended to be fewer small publicly listed companies and no very large SOE respondents to the survey. We note this is in contrast to the field study companies, which included several very large SOEs.

**Table 5. Firm Revenues by Type of Ownership**

Revenues (RMB)	SOE		PO-L		PO-U		Total	
	No. of Firms	Percent	No. of Firms	Percent	No. of Firms	Percent	No. of Firms	Percent
≤10M	6	10	2	14	12	12%	22	12
<10M to ≤100M	11	19	0	0	29	28	43	23
<100M to ≤500M	16	27	5	36	42	41	64	35
<500M to ≤1B	7	12	2	14	10	10	20	11
<1B to ≤10B	19	32	4	29	7	7	31	17
> 10B	0	0	1	7	3	3	4	2
<b>Total</b>	<b>59</b>		<b>14</b>		<b>103</b>		<b>184</b>	
Median	377.42M		504.99M		190.64M		250.00M	
Mean	1026.61M		2224.66M		1538.40M		1391.00M	

Note: M=million; B=billion. Total number of firms itemized by ownership classification may not equal number in total column due to nonresponses.

**Figure 2. Company Ownership by Firm Size**



As expected, given the associations selected to distribute the survey, the respondents were heavily export-oriented. Nearly two-thirds of the companies exported at least half of the goods they produced. (See Table 6.)

**Table 6. Export Sales as a Percent of Total Sales**

% Export Sales	No. of Companies	% of Companies
≤ 10%	11	6.0
11% - 25%	8	4.4
26% - 50%	32	17.6
51% - 75%	23	12.6
76% - 90%	36	19.8
≥ 90%	72	39.6
<b>Total</b>	<b>182</b>	<b>100.0</b>

The companies tend to be lightly capitalized, with many having debt-to-equity (D/E) ratios that would be considered quite high in the West. (See Table 7.) SOEs, especially, operate under a heavy debt load (50% have a D/E ratio > 3.00; 59% have a D/E ratio > 2.00). It is noted, however, that the distinction between debt and equity for this group of companies is less important than for privately owned companies since the government is often the ultimate holder of both types of financing instruments for these

companies, and the distinction is a reflection of prevalent Chinese public policy.

Figure 3 depicts the percentage of companies in each D/E ratio group, by ownership category. Privately owned, unlisted companies tend to be best capitalized (lowest D/E ratios), state-owned enterprises the worst capitalized (highest D/E ratios), with privately owned, listed companies falling in between these two other groups of companies.

The analysis of companies by total revenue indicated that there is a large representation of small and medium companies in the sample, along with some larger-sized enterprises. An analysis of companies by number of employees provides a similar picture (see Table 8). Most respondent firms employ less than 200 employees, and only 3.4% of them employ more than 5,000 employees.

While the listed companies had the largest average number of employees, they also had the smallest median number of employees, indicating the presence of some large listed companies in the sample. The SOEs had both a relatively small mean and median number of employees, indicating that most of these were small enterprises.

**Figure 3. D/E by Ownership Category**

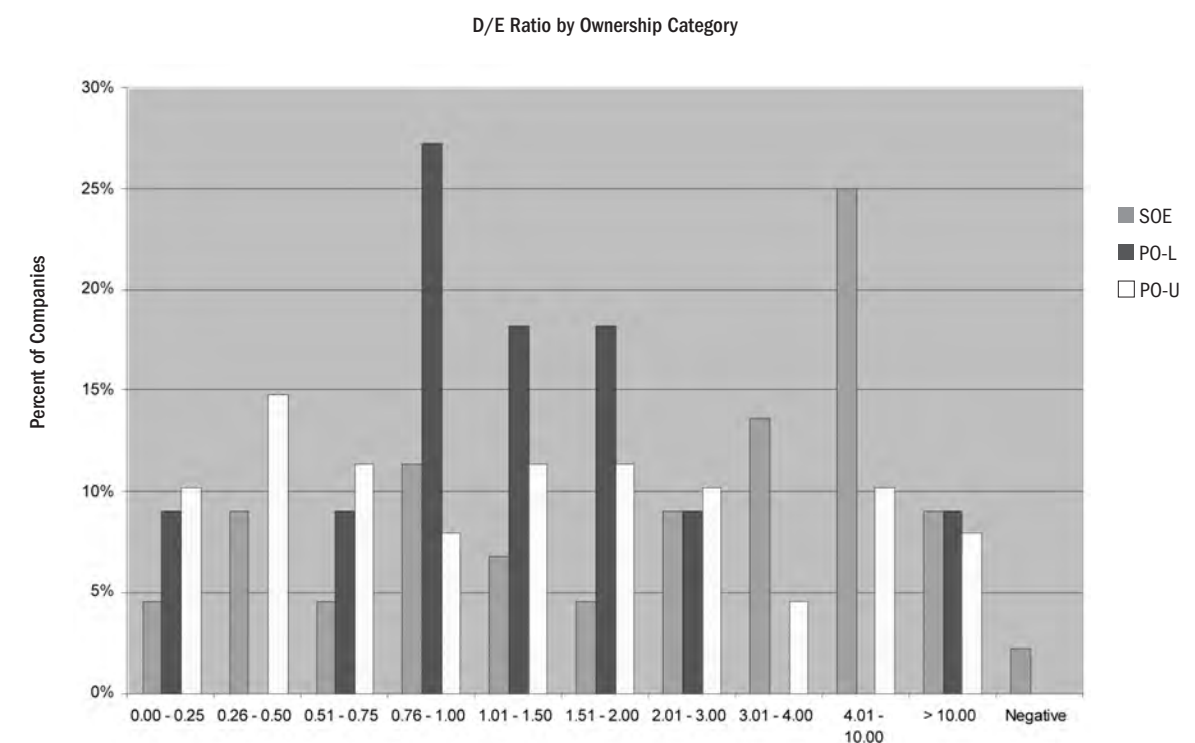


Table 7. Debt-to-Equity Ratio by Ownership

Debt-to-equity ratio	All Companies <sup>2</sup>		SOE		PO-L		PO-U	
	No.	%	No.	%	No.	%	No.	%
≤0.25	13	8.7	2	4.4	1	9.1	9	10.2
0.26 - 0.50	19	12.7	4	8.9	0	0.0	13	14.8
0.51 - 0.75	13	8.7	2	4.4	1	9.1	10	11.4
0.76 - 1.00	17	11.3	5	11.1	3	27.3	7	8.0
1.01 - 1.50	15	10.0	3	6.7	2	18.2	10	11.4
1.51 - 2.00	14	9.3	2	4.4	2	18.2	10	11.4
2.01 - 3.00	14	9.3	4	8.9	1	9.1	9	10.2
3.01 - 4.00	10	6.7	6	13.3	0	0.0	4	4.5
4.01 - 10.00	20	13.3	11	24.4	0	0.0	9	10.2
>10.00	13	8.7	4	8.9	1	0.0	7	8.0
Negative	2	1.2	2	4.4	0	0.0	0	0.0
Subtotal	150	100.0	45	100.0	11	100.0	88	100.0
No response	59		16		5		36	
<b>Total</b>	<b>209</b>		<b>61</b>		<b>16</b>		<b>124</b>	
Median	1.35		3.07		1.30		1.34	
Mean	2.47		-5.61		7.39		5.65	

<sup>2</sup> Includes eight companies which did not identify their form of ownership.

Table 8. Number of Employees

Number of Employees (FTEs)	No. of Companies	Percent
0 - 50	34	18.8
51 -100	28	15.5
101 - 500	57	31.5
501- 1,000	18	9.9
1,001 - 5,000	37	20.4
5,001 - 10,000	5	2.8
> 10,000	2	0.6
<b>Total</b>	<b>181</b>	<b>100.0</b>

Number of Employees (FTEs)	All Companies	SOE	PO-L	PO-U
Median	197	130	90	320
Mean	1 090	814	2 968	962

## B. ANALYSIS OF SURVEY RESPONSES

### Current Business Environment

As might be expected, China's transition to a socialist market economy has had a significant impact on business operations. Among the items listed in Table 9, the greatest impact has been the effect of the change on competition: nearly 80% of respondents agree to some extent "the market for our products has become more competitive." More than half also agree that their costs are trending upward, indicating an increasingly challenging business environment.

Chinese firms have responded to this change, with nearly half of the surveyed companies indicating that the change to a market economy has affected how their business is managed (and only about one-fifth indicating that the change has not affected their operations). Agreement with this statement was strongest among the SOEs, next strongest among the PO-L firms, and least among the PO-U companies. This result reflects the changing nature of the economic relationship between SOEs and the state, and the relatively recent formation of the privately owned entities.

Table 9. Economic Environment of Respondent Companies

	Extremely agree (7)	(6)	(5)	Neutral (4)	(3)	(2)	Extremely disagree (1)	Subtotal	Don't know	Not applicable	Total
The change to a market economy has significantly affected how we manage our business	30.2% (52)	10.5% (18)	5.8% (10)	34.3% (59)	1.2% (2)	5.8% (10)	12.2% (21)	100.0% (172)	(10)	(13)	(195)
The change to a market economy has significantly affected our cost management and performance evaluation systems	32.4% (56)	8.7% (15)	8.7% (15)	33.5% (58)	2.9% (5)	4.0% (7)	9.8% (17)	100.0% (173)	(12)	(15)	(200)
The trend in our costs is upward	45.6% (88)	6.7% (13)	6.7% (13)	31.1% (60)	1.0% (2)	3.6% (7)	5.2% (10)	100.0% (193)	(5)	(3)	(201)
The market for our products has become more competitive	63.3% (124)	9.7% (19)	5.1% (10)	15.8% (31)	1.5% (3)	0.0% (0)	4.6% (9)	100.0% (196)	(2)	(3)	(201)

Numbers in parentheses indicate number of respondents.



**Table 10. Ranking of Strategic Priorities**

Item	Priority (1=most important; 10= least important)										No. of Firms
	1	2	3	4	5	6	7	8	9	10	
Increase domestic market share	15%	7%	8%	4%	6%	3%	6%	5%	10%	36%	175
Increase foreign market share	41%	11%	6%	8%	4%	5%	5%	4%	10%	8%	177
Provide fast and reliable service	7%	8%	10%	11%	13%	15%	13%	9%	8%	5%	165
Provide unique features of product or service	6%	5%	7%	9%	10%	10%	11%	18%	14%	10%	163
Launch new products/services quickly	7%	8%	11%	10%	8%	13%	13%	10%	8%	12%	169
Build superior brand	30%	13%	11%	10%	12%	8%	3%	6%	3%	3%	173
Lower operating costs	14%	22%	16%	18%	9%	5%	9%	3%	2%	2%	170
Provide superior post-sale service and support	6%	2%	6%	7%	6%	13%	13%	21%	18%	9%	163
Provide products or services that match customers' needs	6%	4%	4%	8%	14%	10%	12%	9%	12%	22%	171
Provide high quality products or services	21%	16%	13%	12%	11%	10%	5%	7%	5%	1%	168

In order to support the management changes necessitated by a more competitive business environment and increasing costs, it would be expected that new cost management and performance evaluation systems would be needed. The second item in Table 9 indicates that this is the case. Approximately half of the respondents indicate that the changing economic environment has affected these systems in their organizations.

**Organizational Strategy/Vision/Mission**

Respondents were asked to rank in importance ten possible strategic priorities. The rankings (by percentage) of each item are given in Table 10.

As might be expected from a group of companies that is so heavily export-oriented, the most important strategic goal for the greatest number of firms is to increase foreign market share. Building a superior brand (possibly a way to increase foreign market share) is the next highest ranked

goal. Lowering operating costs is a relatively lower priority. We would expect the priorities indicated here to be reflected in the use of cost information by these companies as well as the importance attached to development of sophisticated costing systems, and will examine whether this is the case later.

Clearly, many of the strategic priorities listed in Table 10 overlap. In order to identify the unique overall strategies that these priorities encompass, a factor analysis was performed using varimax rotation. Two unique factors were identified at an acceptable level of significance (chi-square = 56.19, 26 d.f., p=0.0005). The factor loadings were as follows:

**Table 11. Factor Loadings of Strategic Priorities**

Strategic Priority		Factor 1	Factor 2
1	Increase domestic market share	-0.201	
2	Increase foreign market share	-0.389	-0.187
3	Provide fast and reliable service	0.196	0.126
4	Provide unique features of product or service		0.516
5	Launch new products/services quickly		0.598
6	Build superior brand	0.203	
7	Lower operating costs		
8	Provide superior post-sale service and support	0.558	0.224
9	Provide products or services that match customers' needs	0.449	
10	Provide high quality products or services	0.550	-0.239

It can be seen that the two factors identified reflect very different organizational strategies. The first factor, with high loadings on the eighth, ninth, and tenth priorities, and negative loadings on the first two, might be interpreted as a quality-oriented strategy that focuses on meeting customer needs. The second factor, with its high loadings on the fourth and fifth priorities, and negative loadings on the second and tenth priorities, might be interpreted as involving a "first to market" strategy, with the development of new products (or services) being of utmost importance, regardless of their quality.

Descriptions of organizational strategy in the West commonly use the build, hold, harvest, and divest characterizations, and these have been extensively tested in the

**Table 12. Organizational Culture**

	SA	A	SWA	N	SWD	D	SD	No.
Maximizing long-term profit is an extremely important goal	6.0% (12)	3.0% (6)	1.0% (2)	19.5% (39)	3.0% (6)	11.0% (22)	56.5% (113)	(178)
Current period profit is the only goal	16.3% (33)	5.9% (12)	3.0% (6)	48.5% (98)	3.5% (7)	5.4% (11)	17.3% (35)	(202)
My firm faces immense pressure to reduce costs	6.2% (12)	4.7% (9)	4.7% (9)	31.6% (61)	7.8% (15)	7.3% (14)	37.8% (73)	(200)
My firm faces immense pressure to increase employee headcounts	26.3% (44)	6.6% (11)	6.6% (11)	40.1% (67)	5.4% (9)	5.4% (9)	9.6% (16)	(193)
Ensuring the longevity of the company's existence is our major concern	4.7% (9)	1.0% (2)	2.1% (4)	20.2% (39)	2.6% (5)	10.4% (20)	59.1% (114)	(167)

Numbers in parentheses indicate number of firms. SA=strongly agree, A=agree, SWA=somewhat agree, N=neither agree nor disagree, SWD=somewhat disagree, D=disagree, and SD=strongly disagree.

literature (Govindarajan 1986; Govindarajan and Shank 1992). However, the above results indicate that this view of strategy may not be sufficient to study PRC organizations. This is significant for this study in that prior studies have found systematic relationships between organizational strategy and management accounting systems (Langfield-Smith 1997).

**Organizational Culture**

An organization's cost and performance management systems should reflect its culture and strategic priorities. In order to determine what these are for the sample companies, survey respondents were asked to indicate their level of agreement with a series of statements related to their company's culture (see Table 12).

In keeping with the generally long-term orientation of Chinese culture, it might be thought that maximizing long-term profits would be an extremely important goal for most of the companies responding to the survey. This is definitely not the case—only 10% of them agree to any extent that this was an important goal, and 57% *strongly* disagreed with the idea. Maximizing short-term profitability was also not a priority: only 25% of the organizations agreed to any extent "current period profit is the only goal."

One of the case study companies (Luthai Textile Co., Ltd.) indicated that one of its goals was to be a "long-lived company." How important is this goal to the surveyed companies? Not very. In response to the statement, "Ensuring the longevity of the company's existence is our major concern," 59% strongly disagreed with the statement, and only 8% agreed to any extent with it.

More commonly acknowledged as a priority was the requirement of hiring more employees: 40% of the respondents agreed with the statement, “My firm faces immense pressure to increase employee headcounts.”

We thus see that the surveyed companies are operating in a complex environment, where the traditional Western goal of profit-maximization is of lesser importance to most enterprises.

A factor analysis of the statements contained in Table 12 was performed to gain additional insight. The factor analysis was performed using varimax rotation. Two unique factors were identified at an acceptable level of significance (chi-square = 7.06, 1 d.f., p=0.0071). The factor loadings were as follows:

**Table 13. Factor Loadings of Organizational Culture Attributes**

No.	Statement	Factor 1	Factor 2
1	Current period profit is the only goal	0.267	
2	Maximizing long-term profits is a very important goal	0.991	0.133
3	My firm faces immense pressure to reduce costs	0.347	0.284
4	My firm faces immense pressure to increase employee headcounts		0.998
5	Ensuring the longevity of the company's existence is our major concern	0.460	

The first factor, with its heavy loading on maximizing long-term profit, reducing costs, and ensuring a company's longevity, reflects an organization with a market-orientation. The second factor, with its heavy loading on increasing headcounts and reducing costs, reflects a more traditional planned-economy outlook.

**Company Performance**

The returns that the companies earn on their assets vary widely (see Table 14 and Figure 4). They reflect the various economic forces at work in China today as well as its recent history. A substantial percentage of the listed companies had a negative return on assets (ROA) for the most recent fiscal year. Surprisingly, none of the SOEs reported a negative ROA, but most are earning a minimal return. (The majority of SOEs earn a low [ $<5\%$ ] return on assets.) This is understandable, given that these companies were traditionally more oriented towards maximizing production than controlling costs and maximizing profits. They also bear the legacy of being state-owned, and typically support a greater share of the social infrastructure than privately owned companies. Restructuring this segment of the economy will take time.

On the other hand, China is undergoing rapid economic development and offers great economic opportunities. This can be seen by the outstanding return achieved by many privately owned unlisted companies. Table 14, which describes the return on assets being achieved by respondents, reflects this diversity of circumstances.

**Table 14. Return on Assets by Type of Ownership**

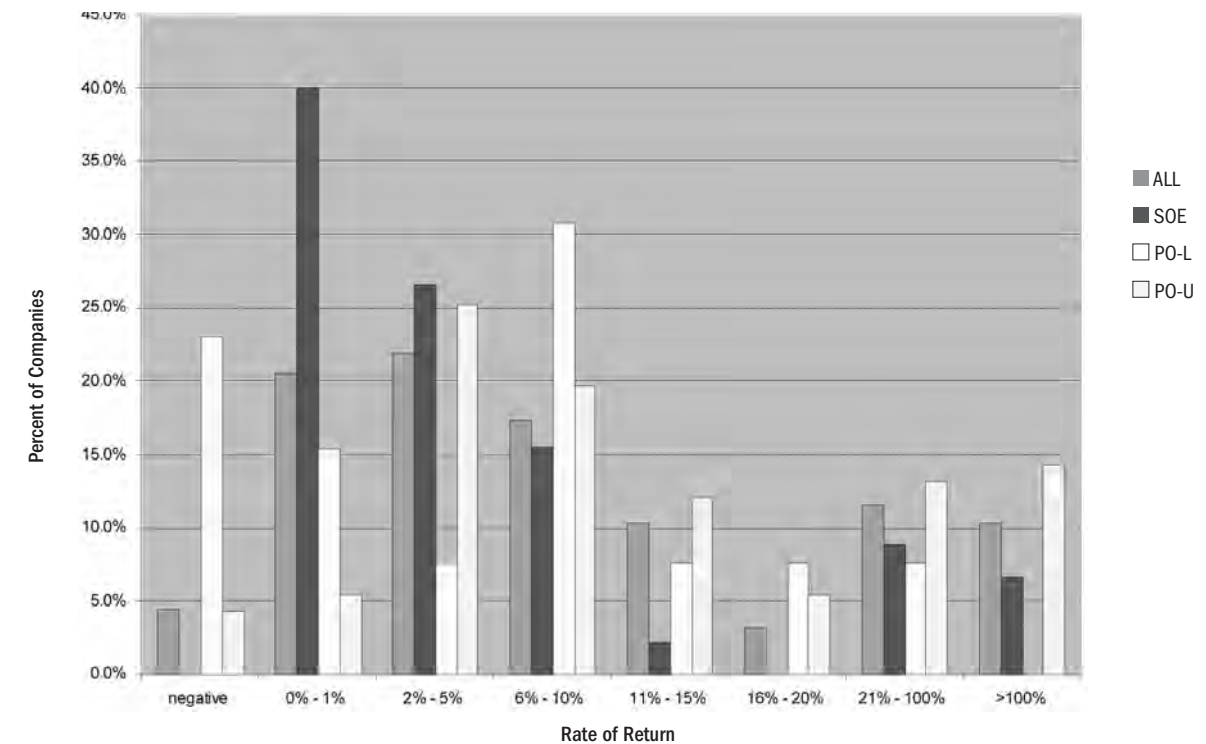
	All Companies		State-Owned Enterprises		Publicly-Owned Listed		Publicly-Owned Unlisted	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Negative	7	4.5	0	0.0	3	23.1	4	4.4
0%-1%	32	20.6	18	40.0	2	15.4	5	5.5
2%-5%	34	21.9	12	26.7	1	7.7	23	25.3
6%-10%	27	17.4	7	15.6	4	30.8	18	19.8
11%-15%	16	10.3	1	2.2	1	7.7	11	12.1
16%-20%	5	3.2	0	0.0	1	7.7	5	5.5
21%-100%	18	11.6	4	8.9	1	7.7	12	13.2
>100%	16	10.3	3	6.7	0	0.0	13	14.3
<b>Total</b>	<b>155</b>	<b>100.0</b>	<b>45</b>	<b>100.0</b>	<b>13</b>	<b>100.0</b>	<b>91</b>	<b>100.0</b>

Companies' performance was measured on a variety of metrics. Survey respondents were asked to assess their company's performance relative to its industry competitors over the last three years on the dimensions listed in Table 15, based on a seven-point scale, ranging from “significantly above average” to “significantly below average.”

The “average” response for the companies (computed as a weighted average where “significantly above average” responses received a weighting of 7, “significantly below average” received a weighting of 1, and responses in between these two extremes received commensurate weightings) is presented graphically in Figure 5.

It can be seen that, on average, respondents rated their relative performance below average (4) on every dimension. Of the attributes measured, performance was best on “increasing domestic market share” and lowest on “product quality” and “customer satisfaction.” This failure to offer quality products and satisfy customers may be related to (and a cause of) the low performance on the next two lowest ranked items: “build brand” and “increase foreign market share.” The results regarding product quality support the idea that the current issue of poor product quality is systematic rather than the result of a few rogue companies.

**Figure 4. Return on assets by Type of Ownership**

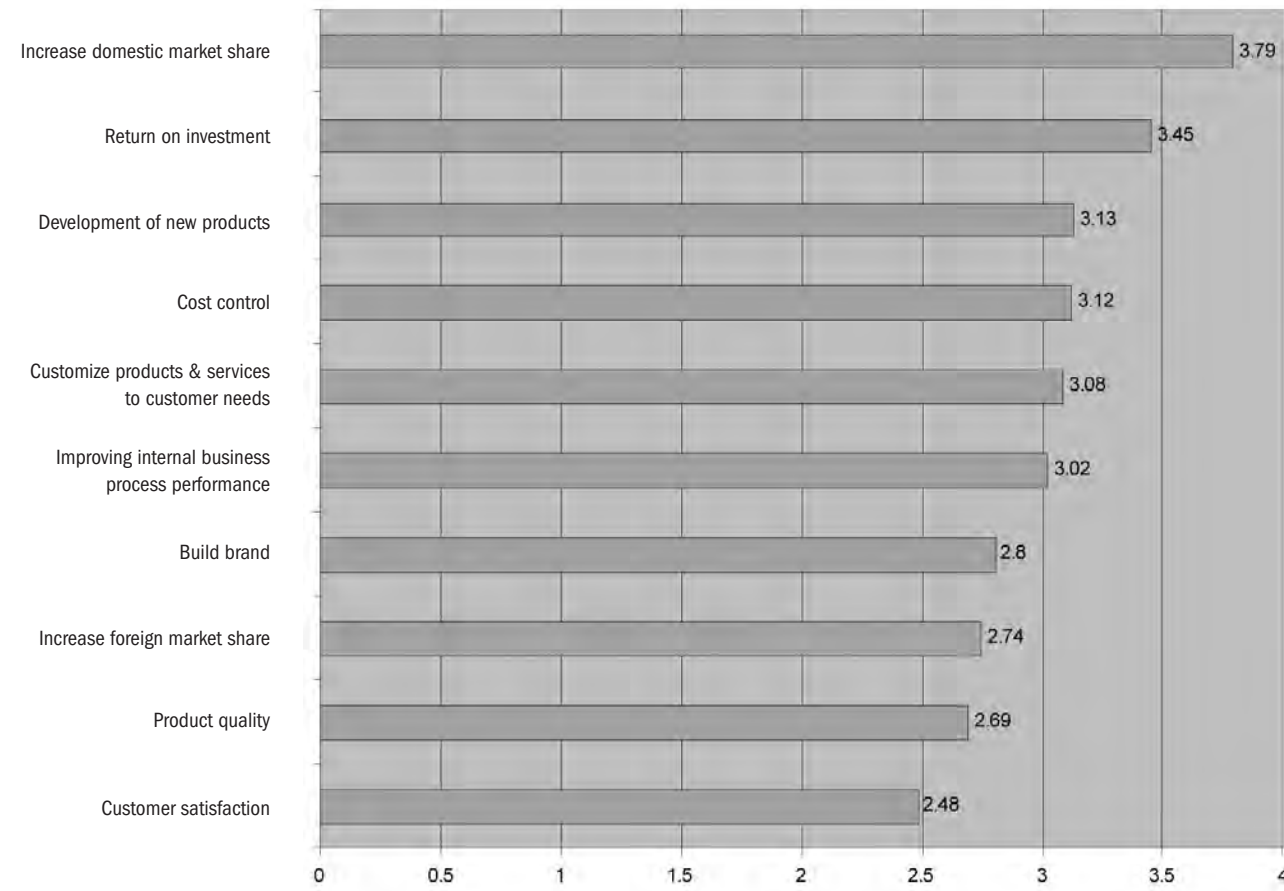


**Table 15. Performance of Respondent Companies Relative to Their Industry Peers**

	Sig. Above Average (7)	(6)	(5)	Average (4)	(3)	(2)	Sig. Below Average (1)	Subtotal	Don't know	Not applicable	Total
Increase domestic market share	16.6% (28)	4.1% (7)	5.3% (9)	41.4% (70)	2.4% (4)	8.3% (14)	21.9% (37)	100.0% (169)	(14)	(15)	(198)
Return on investment	8.5% (14)	5.5% (9)	1.8% (3)	47.0% (77)	5.5% (9)	7.9% (13)	23.8% (39)	100.0% (164)	(29)	(5)	(198)
New product development	6.7% (12)	4.5% (8)	2.8% (5)	39.9% (71)	5.6% (10)	7.9% (14)	32.6% (58)	100.0% (178)	(17)	(4)	(199)
Cost control and management	5.7% (11)	2.6% (5)	3.1% (6)	44.6% (86)	6.2% (12)	6.7% (13)	31.1% (60)	100.0% (193)	(6)	(1)	(200)
Provide products or services that match customers' needs	6.7% (12)	4.4% (8)	3.9% (7)	36.1% (65)	6.1% (11)	8.9% (16)	33.9% (61)	100.0% (179)	(11)	(8)	(199)
Improve internal business processes	4.7% (8)	3.5% (6)	3.5% (6)	40.0% (68)	7.1% (12)	8.2% (14)	32.9% (56)	100.0% (170)	(15)	(12)	(197)
Brand building	6.3% (12)	3.2% (6)	4.2% (8)	31.2% (59)	5.3% (10)	5.3% (10)	44.4% (84)	44.4% (84)	(9)	(1)	(199)
Increase foreign market share	8.1% (15)	2.2% (4)	2.7% (5)	28.6% (53)	4.9% (9)	8.1% (15)	45.4% (84)	100.0% (185)	(13)	(1)	(199)
Product quality	2.1% (4)	3.6% (7)	2.6% (5)	35.4% (68)	5.7% (11)	10.4% (20)	40.1% (77)	100.0% (192)	(7)	(1)	(200)
Customer satisfaction	4.2% (8)	3.2% (6)	3.2% (6)	27.4% (52)	5.8% (11)	9.5% (18)	48.9% (93)	100.0% (190)	(8)	(0)	(198)

Percentages indicate the percent of companies for a given response relative to the total number of respondents excluding those that did not know and those for which the item was not applicable. Numbers in parentheses indicate number of respondents.

Figure 5. Average Company Performance Relative to Their Peers



A factor analysis of this performance data failed to find any factors that were significant at the usual levels of significance. Correlation analysis indicated that many of the dimensions were highly correlated. These findings indicate that a company's performance on each of these dimensions is related to the overall capabilities and competency of its management.

**The Accounting/Finance Function**

An important consideration in the evaluation of cost and performance management systems is a company's organizational maturity, especially with regard to its finance and accounting (F&A) function, and its perception of the role of that department.

Under the planned economy, the accounting function was viewed as an accumulator and reporter of financial data, with analysis of that data typically being done by the Planning Department. Our case studies indicated that the

transition to a socialist market economy has led many companies to eliminate their Planning Departments and expand the role of their accounting areas to include some of the planning responsibilities.

Our survey further explored the changing role of the accounting and finance area. Table 17 presents survey findings regarding the perceived importance of activities often performed by organizations' F&A functions, and Figure 6 presents the "average" ranking of the responses in that table. It is clear from these exhibits that the F&A functions of the sample companies are viewed in a similar manner as is prevalent in the West. In both venues, the emphasis of the function reflects its traditional role as an accumulator and reporter of data and the transition to strategic partner is only beginning to occur, with much progress remaining to be made.

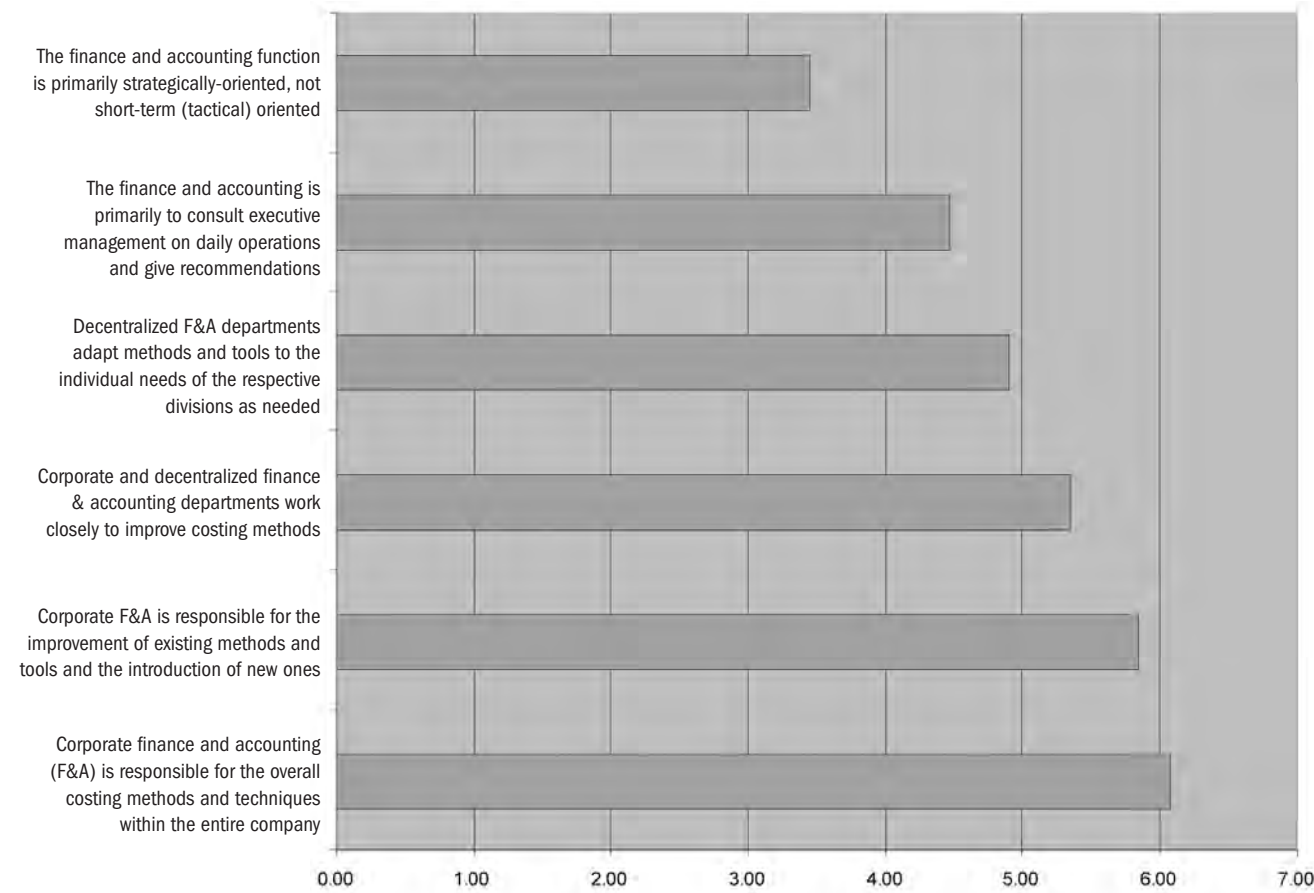
Table 16. Perception and Role of Finance and Accounting Organization

	Strongly agree (7)	Agree (6)	Somewhat Agree (5)	Neutral (4)	Somewhat Disagree (3)	Disagree (2)	Strongly disagree (1)	Subtotal	Don't know	Not applicable	Total
Corporate finance and accounting (F&A) is responsible for the overall costing methods and techniques within the entire company	67.2% (131)	6.2% (12)	3.6% (7)	18.5% (36)	0.5% (1)	1.5% (3)	2.6% (5)	100.0% (195)	(4)	(8)	(207)
Corporate F&A is responsible for the improvement of existing methods and tools and the introduction of new ones	56.4% (106)	10.6% (20)	4.3% (8)	23.4% (44)	1.6% (3)	1.1% (2)	3.2% (6)	100.0% (188)	(6)	(8)	(202)
Decentralized F&A departments adapt methods and tools to the individual needs of the respective divisions as need	31.8% (41)	11.6% (15)	7.8% (10)	34.1% (44)	2.3% (3)	3.1% (4)	9.3% (12)	100.0% (129)	(13)	(50)	(192)
Corporate and decentralized finance & accounting departments work closely to improve costing methods	43.3% (58)	13.4% (18)	9.0% (12)	21.6% (29)	1.5% (2)	3.7% (5)	7.5% (10)	100.0% (134)	(10)	(50)	(194)
The finance and accounting function is primarily strategically-oriented, not short-term (tactically) oriented	8.8% (16)	6.6% (12)	7.7% (14)	36.8% (67)	4.9% (9)	7.7% (14)	27.5% (50)	100.0% (182)	(10)	(7)	(199)
The finance and accounting function is primarily to consult executive management on daily operations and give recommendations	21.9% (41)	8.6% (16)	9.1% (17)	39.6% (74)	7.0% (13)	3.2% (6)	10.7% (20)	100.0% (187)	(4)	(6)	(197)
Internal decision support, planning, and control are as important as financial reporting in our firm.	4.9% (8)	0.0% (0)	1.0% (2)	14.0% (28)	5.5% (11)	9.0% (18)	65.5% (133)	100.0% (200)	(4)	(0)	(204)

Numbers in parentheses indicate number of responses.



Figure 6. Ranking of Importance of Items Related to the Role of Finance & Accounting



Survey respondents were asked to indicate the importance of various common responsibilities for accounting/finance departments. (See Table 17.) Basically, all of the activities listed were considered important.

Figure 7 contains the weighted average of the responses. The most important of the activities is a traditional one—preparing “financial analysis in support of financial management by others.” Cost management and control is also important.

Of lesser importance were management decision making, preparing external financial reports, and preparing budgets. The low rank of this last item is surprising, but may be due to this responsibility traditionally being handled by Planning departments. The low ranking of external financial reporting may be due to the inclusion of privately held companies in the sample of companies. Finally, of least perceived importance are strategy formulation and planning and corporate investment.

**Size of F&A Departments**

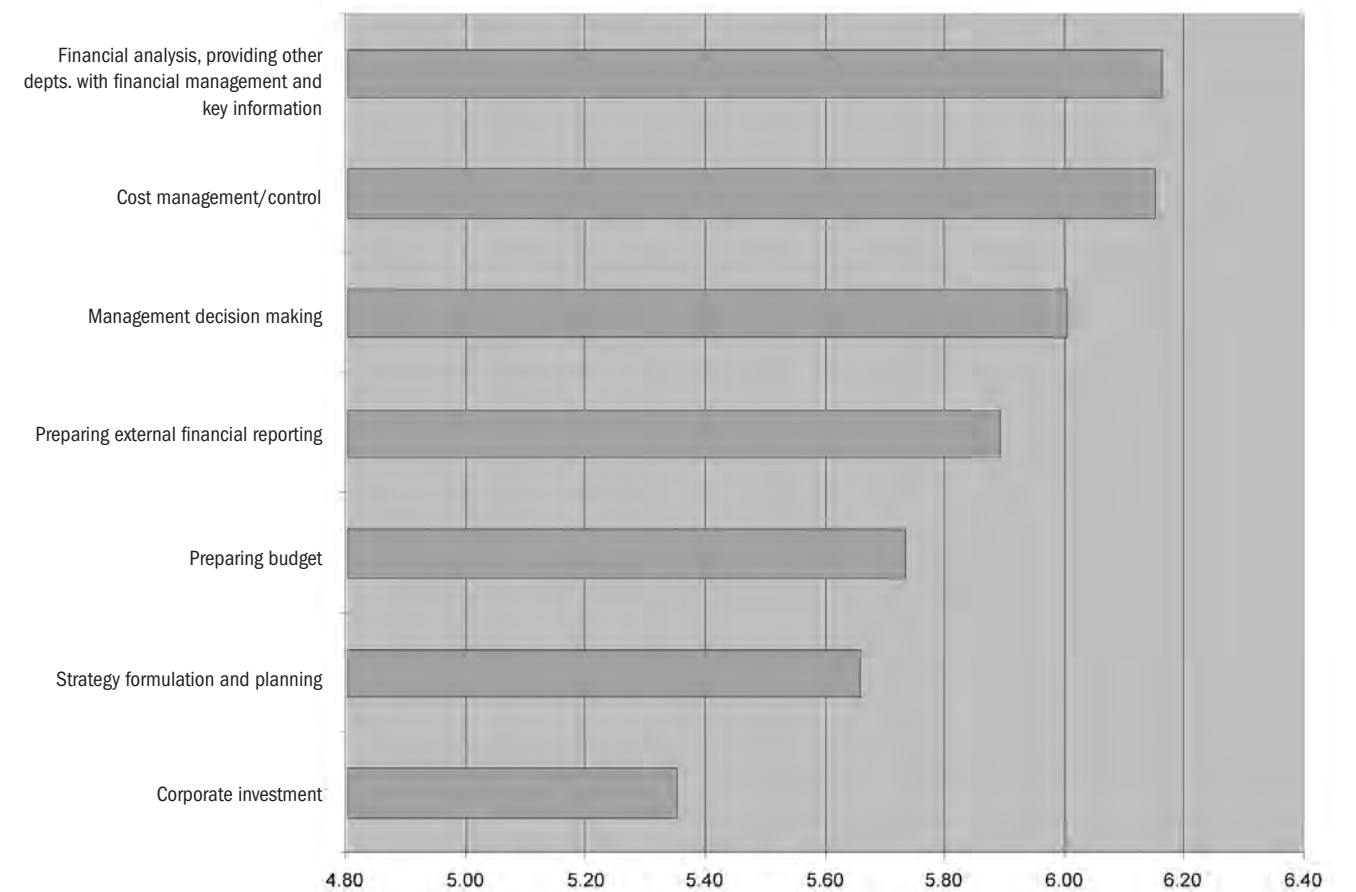
The surveyed companies have relatively few accounting and finance staff members, which is no surprise given their relatively small size. (The median number of F&A staff members was six.) Table 18 presents the distribution of the number of F&A personnel in the surveyed companies.

These figures can be better understood in the context of the overall number of employees of these organizations. Table 19 shows the number of finance and accounting staff members as a percentage of the total number of employees in a given organization. It can be seen that the percentage varies widely, ranging from zero to 50.0% (for a very small organization), with a median percentage of 3.3%.

Table 17. Importance of Finance & Accounting Responsibilities

	Extremely important (7)	(6)	Highly important (5)	Neutral (4)	Not very important (3)	(2)	Least important (1)	Number of responses
Financial analysis in support of financial management by others	49.5% (102)	29.6% (61)	14.1% (29)	2.9% (6)	1.9% (4)	1.9% (4)	0.0% (0)	(206)
Cost management/control	47.8% (98)	33.7% (69)	11.2% (23)	3.4% (7)	2.4% (5)	0.0% (0)	1.5% (3)	(205)
Management decision making	40.7% (83)	31.9% (65)	18.1% (37)	6.4% (13)	2.5% (5)	0.5% (1)	0.0% (0)	(205)
External financial reporting	37.7% (77)	31.4% (64)	21.1% (43)	4.4% (9)	3.9% (8)	0.5% (1)	1.0% (2)	(203)
Budgeting	31.2% (63)	31.2% (63)	23.8% (48)	8.4% (17)	5.0% (10)	0.0% (0)	0.5% (1)	(206)
Strategic planning	26.3% (52)	32.8% (65)	28.8% (57)	7.1% (14)	3.5% (7)	0.5% (1)	1.0% (2)	(204)
Corporate investments	24.9% (49)	21.8% (43)	33.5% (66)	10.2% (20)	6.1% (12)	0.0% (0)	3.6% (7)	(205)

Figure 7. Ranking of Finance & Accounting Responsibilities





**Table 18 Number of Finance & Accounting Personnel**

Number of Staff (FTEs)	No. of Companies	Percent
1	5	2.6
2-3	46	23.5
4-5	38	19.4
6-10	49	25.0
11-15	21	10.7
16-20	12	6.1
21-25	8	4.1
26-30	6	3.1
31-50	5	2.6
51-100	2	1.0
>100	4	2.0
<b>Total</b>	<b>196</b>	<b>100.0</b>

There were large differences in this percentage among the three types of organizations. For SOEs, the median percentage of staff in F&A was 8.4%; for PO-L companies the median percentage was 3.3%, and for PO-U, it was 1.9%.

Figure 8 presents a more detailed analysis of this difference by ownership type. SOEs tend to be the furthest from having world-class F&A functions in terms of their efficiency, with vastly more staff than other organizations. This may be a reflection of their history under the planned economy, with its strong emphasis on control through the “original record system,” and may as well reflect current Chinese public policy of maintaining employment in order to ensure social stability in this period of transition. Privately-owned unlisted companies tended to have the fewest F&A staff, possibly due to fewer reporting requirements (either to the State or external shareholders).

**Cost Accounting**

Reflecting the simple organizational structure of the surveyed companies, most organizations employed relatively simple costing systems. As shown in Table 20, most firms only had one cost, profit, and investment center. Few (6.0%) had more than 10 cost centers.

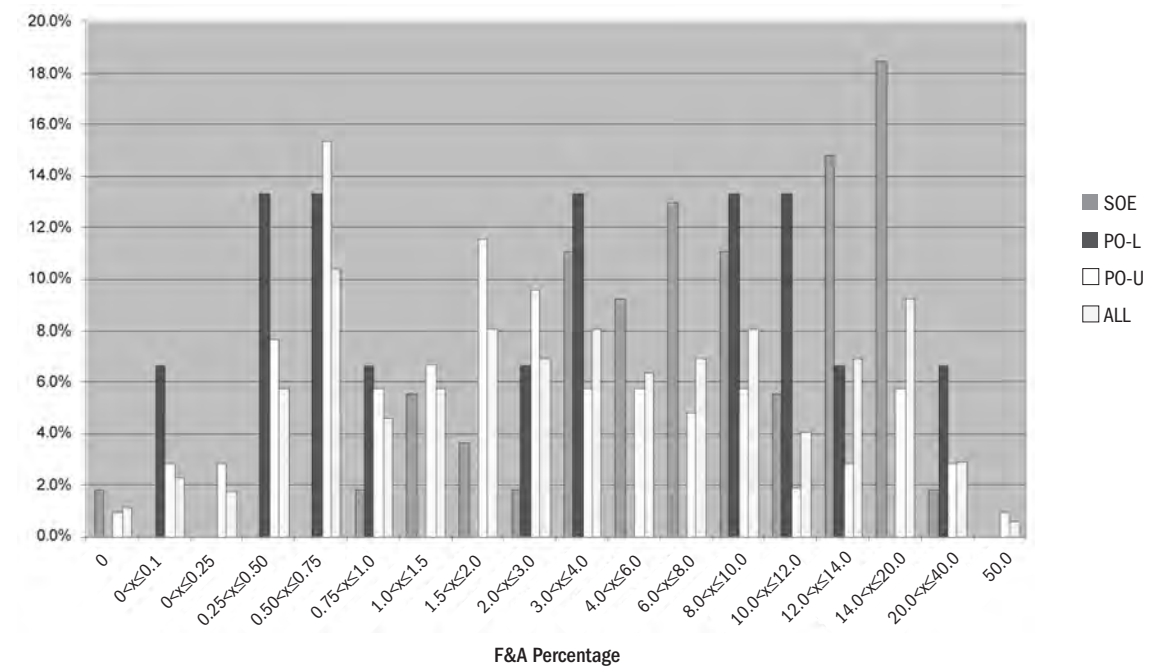
**Table 19 Accounting/Finance Personnel as a Percentage of All Employees**

Percent	Number of Companies	Category Percent	Cumulative Category Percent
0	2	1.1	1.1
0<x≤0.1	4	2.2	3.4
0.1<x≤0.25	3	1.7	5.0
0.25<x≤0.50	11	6.1	11.2
0.50<x≤0.75	20	11.2	22.3
0.75<x≤1.0	9	5.0	27.4
1.0<x≤1.5	10	5.6	33.0
1.5<x≤2.0	15	8.4	41.3
2.0<x≤3.0	12	6.7	48.0
3.0<x≤4.0	14	7.8	55.9
4.0<x≤6.0	11	6.1	62.0
6.0<x≤8.0	13	7.3	69.3
8.0<x≤10.0	14	7.8	77.1
10.0<x≤12.0	7	3.9	81.0
12.0<x≤14.0	12	6.7	87.7
14.0<x≤20.0	16	8.9	96.6
20.0<x≤40.0	5	2.8	99.4
50.0	1	0.6	100.0
<b>Total</b>	<b>179</b>	<b>100.0</b>	

**Table 20. Number of Cost, Profit and Investment Centers at Surveyed Firms**

Number of Centers	Type of Center		
	Cost	Profit	Investment
1	86	93	86
2	14	16	11
3-5	25	25	6
6-10	16	13	2
11-15	2	3	0
16-20	3	4	0
21-40	2	5	0
41-100	1	2	0
>100	1	0	0
<b>Total</b>	<b>150</b>	<b>161</b>	<b>105</b>

**Figure 8. F&A Staff as a Percentage of Total Employees, by Ownership Type**



**Treatment of Manufacturing Costs**

ASBE Number 1 (Inventories), Chapter 3 (Measurement) provides as follows:

**Article 5.** Inventories shall be initially measured at cost. Cost of inventories comprises all costs of purchase, costs of conversion, and other costs.

**Article 6.** The cost of purchase of inventories comprises the purchase price, related taxes and transport, handling, insurance, and other costs attributable to the acquisition of inventories.

**Article 7.** The costs of conversion of inventories include direct labor costs and the allocation of production overheads based on a particular method. Production overheads are indirect costs incurred for the production of goods and for the rendering of services. An enterprise shall reasonably determine the allocation method of production overheads according to the nature of those overheads....

The required sophistication of an organization’s costing system—and thus the means of allocating overhead—depends on a variety of factors. One important consideration is the composition of manufacturing costs. Companies with a high proportion of manufacturing overhead (or, conversely, a low proportion of direct material and direct labor [i.e., prime] costs) are more likely to need relatively

sophisticated cost allocation methodologies, while those with a low percentage are less likely to have this need.

An organization that incurs a large percentage of its cost as raw materials, all other things being equal, does not need to worry as much about the proper allocation of overhead as organizations with a lower percentage. Table 21 indicates the dispersion of this percentage for the respondent companies.

**Table 21. Raw Material Cost as a Percentage of Total Cost**

Percentage x	No. of Companies	Category Percent	Cumulative Percentage
0	1	0.7	0.7
0<x≤20	13	8.6	9.3
20<x≤30	9	6.0	15.2
30<x≤40	12	7.9	23.2
40<x≤50	18	11.9	35.1
50<x≤60	22	14.6	49.7
60<x≤70	21	13.9	63.6
70<x≤75	11	7.3	70.9
75<x≤80	16	10.6	81.5
80<x≤85	8	5.3	86.8
85<x≤90	10	6.6	93.4
90<x≤95	8	5.3	98.7
>95	2	1.3	100.0
	<b>151</b>	<b>100.0</b>	

In a similar way, the percentage of costs represented by labor is important for two reasons. First, as noted above with regard to direct material costs, the greater the percentage of labor costs, the smaller is overhead as a percentage of total costs, all else being equal. Second, labor cost is of importance due to its frequent use as a basis for overhead allocation. As indicated in Table 22, labor is a relatively minor (<10%) expense for most companies.

**Table 22. Labor Cost as a Percentage of Total Cost**

Percentage x	No. of Companies	Category Percent	Cumulative Percentage
x≤1	13	8.6	8.6
1<x≤2	12	7.9	16.6
2<x≤3	10	6.6	23.2
3<x≤5	16	10.6	33.8
5<x≤10	34	22.5	56.3
10<x≤15	25	16.6	72.8
15<x≤20	19	12.6	85.4
20<x≤25	10	6.6	92.1
25<x≤30	7	4.6	96.7
30<x≤35	1	0.7	97.4
35<x≤40	3	2.0	99.3
<b>Total</b>	<b>150</b>	<b>99.3</b>	<b>100.0</b>

Inasmuch as direct material and direct labor costs can be directly traced to products, a major issue in the design of costing systems is the treatment of manufacturing overhead costs. Clearly, this is a more important issue when overhead costs are a large percentage of total costs. Table 23 presents the distribution of overhead costs as a percentage of total costs. It can be seen that for most of the surveyed companies, overhead is a relatively small percentage (<7.5%) of total costs.

**Table 23. Overhead Cost as a Percentage of Total Cost**

Percentage x	No. of Companies	Category Percent	Cumulative Percentage
0	4	3.1%	3.1%
0<x≤1	7	5.4	8.5
1<x≤2	12	9.3	17.8
2<x≤5	25	19.4	37.2
5<x≤7.5	17	13.2	50.4
7.5<x≤10	28	21.7	72.1
10<x≤15	18	14.0	86.0
15<x≤20	9	7.0	93.0
20<x≤25	1	0.8	93.8
25<x≤30	4	3.1	96.9
30<x≤35	2	1.6	98.4
35<x	2	1.6	100.0

Table 24 describes the distribution of prime costs as a percentage of total manufacturing costs. For most of the surveyed companies, these costs are a large percentage of manufacturing expense, i.e., manufacturing overhead comprises a small portion of total manufacturing costs. (The median percentage is 92.3%.)

**Table 24. Direct Materials and Direct Labor Cost as a Percentage of Total Manufacturing Cost**

Percentage x	No. of Companies	Category Percent	Cumulative Percentage
0	2	1.3	1.3
0<x≤10	1	0.6	1.9
10<x≤50	1	0.6	2.5
50<x≤60	3	1.9	4.4
60<x≤70	4	2.5	7.0
70<x≤75	7	4.4	11.4
75<x≤80	11	7.0	18.4
80<x≤85	9	5.7	24.1
85<x≤90	26	16.5	40.5
90<x≤95	34	21.5	62.0
95<x<100	27	17.1	79.1
100	33	20.9	100.0
<b>Total</b>	<b>158</b>	<b>100.0</b>	

A conclusion based on this data that Chinese companies do not need sophisticated costing systems, especially with regard to their treatment of manufacturing overhead costs, must be tempered by two considerations. First, most of the surveyed companies are relatively small organizations, which do not incur the overhead costs associated with managing a more diversified organization.

Second, the classification as Administrative Expense by some PRC companies of costs that would be included in Manufacturing Overhead by Western companies artificially lowers the percentage of manufacturing costs represented by overhead. (This is discussed later under *Administrative Expense*.)

**Overhead Allocation**

The use of standard costs is a common practice in Western countries. Under the planned economy, Chinese firms had a similar practice, computing “planned” costs, which served many of the same purposes as standard costs. To what extent are these costs still used? These costs are used by 73% of the sample companies, and for a variety of purposes. As indicated in Table 25, the most common usage is for product pricing.

**Table 25. Use of Standard (Planned) Costs**

	No. of Companies	Percent
Used in product pricing	90	43
Used to determine production efficiency through variance analysis	66	32
Used to determine production efficiency through tools other than variance analysis	51	24
Used to evaluate employee performance	51	24
Used to evaluate the performance of organizational units (departments, branches, factories, etc.)	66	32
Do not use standard costing	56	27

Note: Percentages add up to more than 100% due to multiple uses by respondent companies.

Most Western firms allocate Manufacturing Overhead to products based on a standard overhead application rate (with the difference at the end of a period between overhead costs applied and actual overhead costs incurred being handled in a variety of ways). This is not a common practice in China. Under the planned economy, the application of overhead to products was required to be based on actual costs, based on a belief that this was the most accurate and reliable way of doing this allocation. Current accounting regulations still required this treatment and, as seen in Table 26, this practice is used by nearly all the respondent companies.

**Table 26. Methods Used for Overhead Allocation**

	No. of Companies	Percent
Overhead is allocated based on actual cost	125	89
Overhead is allocated based on a standard (budgeted) rate	1	1
Overhead is allocated based on a standard rate; the allocation is adjusted at the end of the period to reflect actual cost incurred	2	1
Overhead is NOT allocated	4	3
Other	8	6
<b>Total</b>	<b>140</b>	<b>100</b>

For organizations with a large percentage of manufacturing overhead, selection of an appropriate allocation methodology can be of great importance. In addition, as noted previously, accounting regulations require companies to “reasonably determine the allocation method of production overheads according to the nature of those overheads” (ASBE on Inventory, 2001). Table 27 indicates the methods used by the surveyed companies.

**Table 27. Overhead Allocation Bases**

	No. of Companies	Percent
Direct labor cost	51	37
Direct labor hours	33	24
Varies based on appropriate driver for each activity pool	34	25
Other	11	8
Do not allocate manufacturing overhead costs	8	6
<b>Total</b>	<b>137</b>	<b>100</b>

The use of direct labor (either cost or hours) as an allocation basis for overhead is a prevalent practice not only for the sample companies, but for Western organizations as well. The appropriateness of this methodology has been questioned in the accounting literature, and a variety of alternatives proposed. While the causal relationship between the costs of direct labor and overhead is more important than their relative magnitudes, this latter factor needs to be considered in determining the appropriateness of this methodology as an allocation basis. Manufacturing overhead as a percentage of direct labor for the sample companies is presented in Table 28.

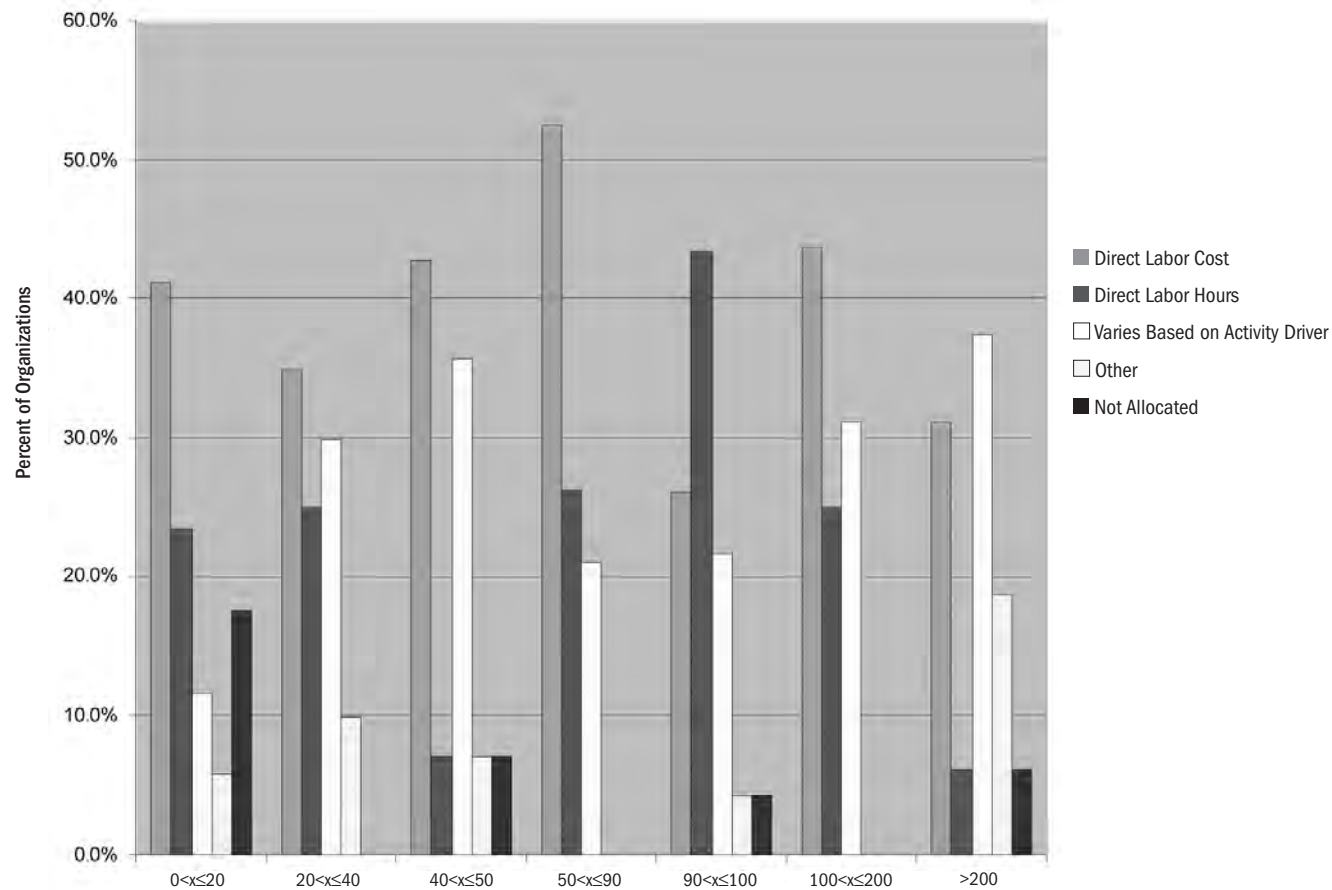
**Table 28. Manufacturing Overhead as a Percentage of Direct Labor**

Percentage x	No. of Companies	Category Percent	Cumulative Percentage
0	27	17.8	17.8
0<x≤20	7	4.6	22.4
20<x≤40	21	13.8	36.2
40<x≤50	14	9.2	45.4
50<x≤60	7	4.6	50.0
60<x≤70	7	4.6	54.6
70<x≤80	5	3.3	57.9
80<x≤90	3	2.0	59.9
90<x≤100	25	16.4	76.3
100<x≤150	8	5.3	81.6
150<x≤200	10	6.6	88.2
200<x≤300	4	2.6	90.8
300<x≤500	6	3.9	94.7
500<x	6	3.9	98.7
n/a (no D/L)	2	1.3	100.0
<b>Total</b>	<b>152</b>		

For the sample companies the median ratio is 60%. For many of the companies, it appears that use of a direct-labor based allocation could be appropriate. For others, for which overhead vastly exceeds direct labor, it would be unlikely that this would be an appropriate approach to overhead allocation.

An analysis of the bases used to allocate overhead by the sample companies is presented in Figure 9. It analyzes the method used by the firms' ratio of overhead to direct labor cost. From this figure, it can be seen that use of an allocation based on direct labor costs is prevalent throughout the entire range of the overhead to direct labor ratio, although there appears to be a slight increase in the use of other allocation bases as this ratio increases (and presumably the causal relationship between the amounts of overhead and labor becomes more tenuous).

**Figure 9. Overhead Allocation Methodology by Overhead/Direct Labor Ratio**



The accuracy of any specific method for allocating overhead is also dependent on aggregating overhead costs into "pools" at an appropriate organizational level. Among survey respondents, the most common level of aggregation is at the workshop (third) level (see Table 29) of the company, although aggregation at the factory (second) level is also common.

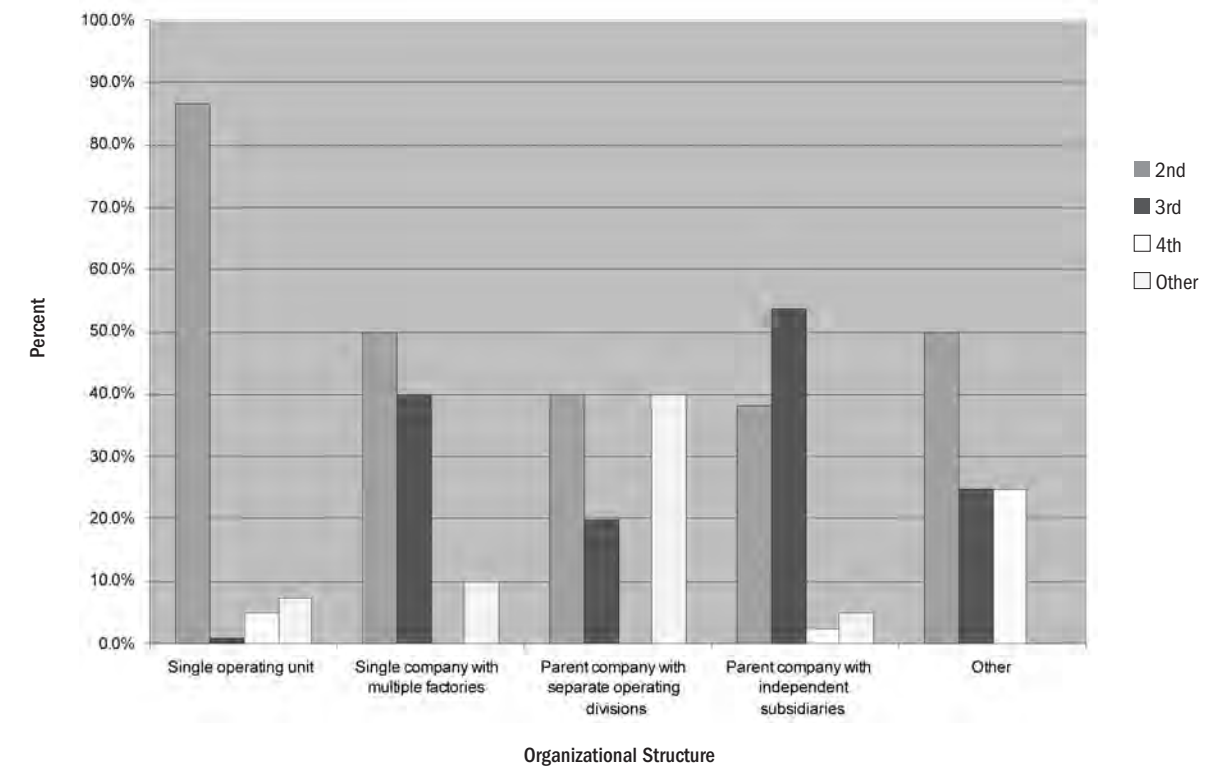
**Table 29. Organization Level at Which Overhead Is Aggregated**

Organizational Level	No. of Companies	Percent
Factory/department (2nd level)	62	43.4
Workshop (3rd level)	69	48.3
Work team (4th level)	4	2.8
Other	8	5.6

The level at which overhead is aggregated reflects the companies' organizational structures. The great majority (86.6%) of companies that are single operating units aggregate overhead at the factory/department level.<sup>3</sup> (See Figure 10.) This is not unexpected, as the simple operating structure of these companies would result in there being fewer activities involved in planning and managing their operations, with resultant lower overhead costs and less of a need to isolate overhead at lower organizational levels.

Factory level aggregation is also the most prevalent for companies with multiple factories, although aggregation at the workshop level is also quite common. Organizations that were parent companies with independent subsidiaries were the only survey respondents that most frequently aggregated overhead at the workshop (third) level.

**Figure 10. Organizational Level at Which Overhead Is Aggregated**



<sup>3</sup> We note that in China the term "factory" has often been used in the past to refer to a manufacturing organization as a whole and that, therefore, it is possible that some survey respondents, especially at smaller firms, may have misinterpreted this item and considered it in that sense rather than in the more Western sense of being an organizational subunit.



**OTHER ACCOUNTING ISSUES**

**Valuation of Fixed Assets**

Most of the surveyed companies value their fixed assets at historical cost (see Table 30). This is consistent with PRC GAAP, both under previous and current standards (ASBE 3). A few companies revalue their assets based on market value, which is required under US GAAP, and is consistent with IAS 16 (which allows both the cost and revaluation models).

**Table 30. Valuation of Land and Building**

Method	No. of Companies	Percent
We value these assets at historical cost	132	79.0
We value these assets at market	10	6.0
We revalued these assets in the past (say, prior to listing on a stock market)	2	1.2
We value these assets at the lower of cost or market	8	4.8
We value these assets at cost, subject to a write-down for impairment	8	4.8
Other	7	4.2
<b>Total</b>	<b>167</b>	<b>100.0</b>

**Land Use Rights**

All land in the PRC belongs to the State, but individuals and companies can lease it for terms up to 75 years. Payment for the right to use land can take various forms. In some cases, companies are given the right to use land without charge, often due to the employment and development opportunities they provide. Other companies pay an initial lump sum amount for their land use rights, while others pay just an annual fee.

Under ASBE 6, land use rights are accounted for as intangible assets (at cost) except for those that meet certain criteria and are accounted for as investment properties under ASBE 3. (In contrast, IAS 38 allows both the cost and revaluation models for intangible assets.) ASBE 6 further requires that an asset be amortized in a manner that reflects the pattern in which its future benefits are consumed, as opposed to prior PRC GAAP which only permitted straight-line amortization.

From a theoretical perspective, the amortization associated with this asset would vary depending on the utilization of the asset. Amortization associated with land use for production facilities should be included in Manufacturing Overhead and allocated to products, while amortization associated with Administrative offices should be included in Administrative Expense.

As indicated in Table 31, the most common treatment of the cost of land use rights (48.5% of respondents) is to amortize the cost of the asset and treat the expense as Administrative Expense. Only 7.8% of the surveyed companies include the amortization of land use rights in manufacturing overhead and allocate it to products. It thus appears there is room for improvement in the treatment of this expense.

**Table 31. Treatment of Land Usage Rights Expense**

Method	No. of Companies	Percent
This cost is not amortized	19	11.4
This cost is amortized and treated as a period (Administrative) Expense	81	48.5
This cost is amortized, included in Manufacturing (overhead) expense, and allocated to products	13	7.8
This cost is not relevant to our company	50	29.9
Other	4	2.4
<b>Total</b>	<b>167</b>	<b>100.0</b>

Of the companies that amortize land use rights, what is the effect on income? Table 32 indicates Land Use Cost as a percentage of companies' revenues.

**Table 32. Land Use Cost as a Percentage of Sales**

Percentage x	No. of Companies	Percent
0%	17	16.3
0%<x≤.001%	32	30.8
.001%<x≤.002%	6	5.8
.002%<x≤.003%	4	3.8
.003%<x≤.005%	9	8.7
.005%<x≤.01%	10	9.6
.01<x≤.02%	7	6.7
.02%<x≤.05%	9	8.7
.05%<x≤.10%	3	2.9
.10%<x≤.20%	6	5.8
.20%<x≤.30%	1	1.0
<b>Total</b>	<b>104</b>	<b>100.0</b>

**Administrative Expense**

While the treatment of Administrative Costs is clear from an external financial reporting perspective, the treatment of these costs for internal purposes remains largely subject to management discretion. Most of the sample companies, as is typical with Western companies, do not allocate these costs. (See Table 33.) However, a substantial portion (17.6%) of the surveyed companies allocates these costs to products. The perceived need to do this may be related to the inclusion of some costs in Administrative Expense by some PRC companies that are product-related.

**Table 33. Treatment of Administrative Expenses**

Treatment	No. of Companies	Percent
These costs are not allocated	110	60.4
These costs are allocated to business units	28	15.4
These costs are allocated to products	32	17.6
Other	12	6.6
<b>Total</b>	<b>182</b>	<b>100.0</b>

When China started adapting its accounting systems in 1992 to Western accounting conventions, it was generally thought that the cost item "Administrative Expenses" was comparable to the term "General and Administrative Expenses" used in the West and that "Workshop Expenses" was equivalent to "Manufacturing Expenses." Therefore, the term "administrative expenses" was kept and the term "workshop expenses" was changed to "manufacturing expenses." These maintained the same contents as the prior expense classifications.

One result of this transformation was that some costs considered to be product, or manufacturing, costs in the West are commonly included by PRC companies as Administrative Expense. This misclassification of product costs can, in turn, lead to undercosting of products. Table 34 presents the treatment of various types of costs at various levels within the sample companies.

**Table 34. Treatment of Costs at Various Organizational Levels**

Type of Cost	Company (1st Level)		Factory (2nd level)		Workshop (3rd level)	
	Period Cost	Product Cost	Period Cost	Product Cost	Period Cost	Product Cost
Marketing/Sales	91% (115)	9% (11)	87% (26)	13% (4)	77% (10)	23% (3)
Finance & Accounting	99% (132)	1% (2)	81% (21)	19% (5)	56% (5)	44% (4)
Planning	78% (54)	22% (15)	55% (11)	45% (9)	42% (5)	58% (7)
Production	40% (27)	60% (40)	29% (12)	71% (29)	37% (7)	63% (12)
Procurement	45% (33)	55% (40)	55% (16)	45% (13)	21% (4)	79% (15)
Human Resources	93% (88)	7% (7)	78% (18)	22% (5)	60% (6)	40% (4)
Equipment & Maintenance	45% (29)	55% (36)	34% (12)	66% (23)	22% (7)	78% (25)
Management	98% (123)	2% (3)	87% (20)	13% (3)	50% (5)	50% (5)

Numbers in parentheses indicate number of firms. Percentages indicate the percent of companies with a given type of cost at a given organizational level that used the specified accounting treatment (i.e., period vs. product cost).



**Transfer Pricing**

The issue of determining objective, market-based transfer prices can be complicated in the PRC, where purchasers, suppliers, and lenders can all have governmental ownership interests. It is perhaps for this reason, along with the difficulty in obtaining market prices for intermediate products, that the most common basis for transfer pricing in the sample companies (see Table 35) is cost plus some profit.

**Table 35. Basis for Determination of Transfer Prices**

	Number of Companies	Percent
Actual cost	38	32.2
Planned cost	12	10.2
Cost plus some profit	42	35.6
Market price, if available	26	22.0
<b>Subtotal</b>	<b>118</b>	<b>100.0</b>
This is not an issue relevant to us	46	
Other	7	
<b>Total</b>	<b>171</b>	

**Cost Planning and Management**

A firm's cost structure can influence its competitive strategy (and vice versa) and influence the design of its performance measurement and planning and control systems. This is especially true in the PRC, where a common strategy is that of "cost innovation." Part of this strategy involves pursuing the tactic of adopting a single-minded focus on reducing the break-even point for specialty products, thereby making it possible to deliver these products at low costs (Zeng and Williamson, 2007, pp. 167-8).

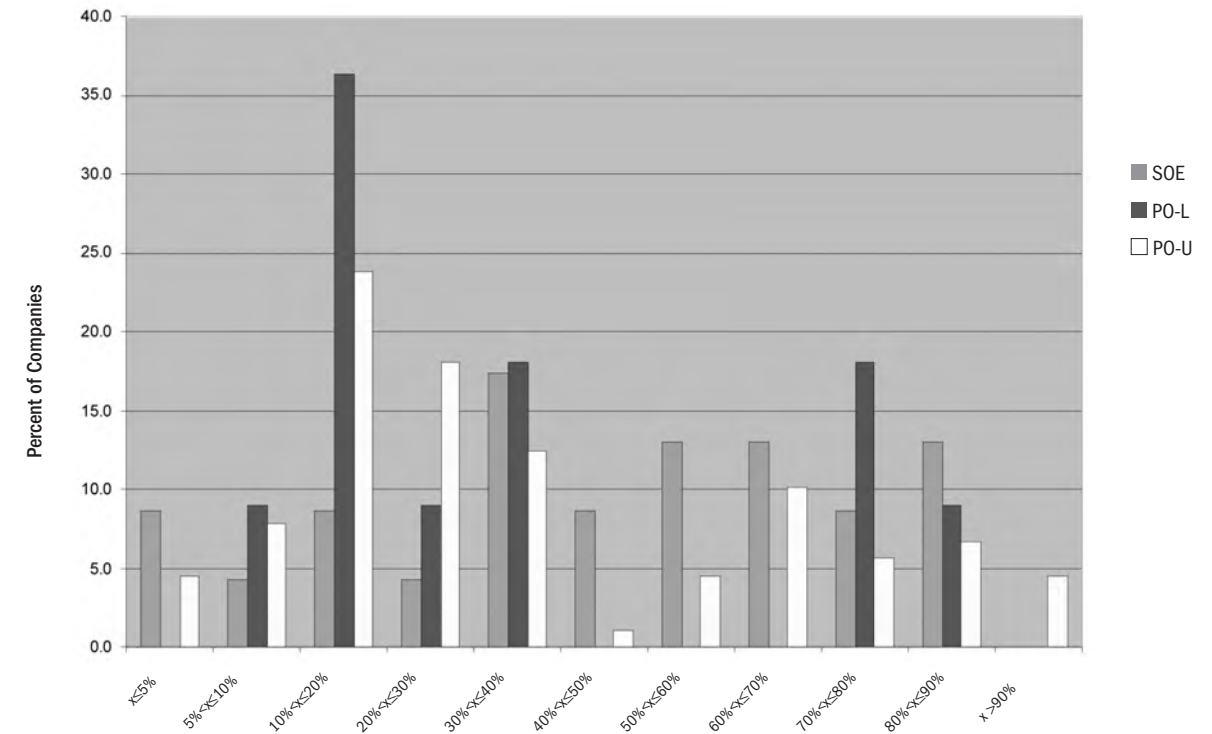
A broad view of the cost structure of the sample companies is given in Table 36, which shows the distribution of the percentage of manufacturing overhead that consists of fixed (versus variable) costs among those enterprises by ownership type.

From this table, and Figure 11, it can be seen that there is a significant difference in the cost structures among the various types of enterprises. Privately owned, listed companies tend to have the lowest level of fixed costs. This is not surprising, as these companies would be expected to contain a relatively higher proportion of emerging "dragons." These are the leading-edge companies that are pursuing the "cost innovation" strategy, described above, which requires minimizing fixed costs.

**Table 36. Fixed Costs as a Percent of Total Costs**

	All Companies		SOE		PO-L		PO-U	
	No.	%	No.	%	No.	%	No.	%
x≤5%	6	4.9	2	8.7	0	0.0	4	4.5
5%<x≤10%	9	7.4	1	4.3	1	9.1	7	8.0
10%<x≤20%	27	22.1	2	8.7	4	36.4	21	23.9
20%<x≤30%	18	14.8	1	4.3	1	9.1	16	18.2
30%<x≤40%	17	13.9	4	17.4	2	18.2	11	12.5
40%<x≤50%	3	2.5	2	8.7	0	0.0	1	1.1
50%<x≤60%	7	5.7	3	13.0	0	0.0	4	4.5
60%<x≤70%	12	9.8	3	13.0	0	0.0	9	10.2
70%<x≤80%	9	7.4	2	8.7	2	18.2	5	5.7
80%<x≤90%	10	8.2	3	13.0	1	9.1	6	6.8
x>90%	4	3.3	0	0.0	0	0.0	4	4.5
<b>Total</b>	<b>122</b>	<b>100.0</b>	<b>23</b>	<b>100.0</b>	<b>11</b>	<b>100.0</b>	<b>88</b>	<b>100.0</b>

**Figure 11. Fixed Costs as a Percent of Total Manufacturing Cost**



At the other end of the spectrum are the SOEs, which tend to have higher fixed costs than the privately owned (both listed and unlisted) companies. Again, this is not surprising, given the history of these organizations, and the PRC's "iron rice bowl" past. An implication of these findings is that the restructuring of the SOEs needs to continue in order for these companies to remain competitive with both their domestic and foreign competitors.

Significant industry differences were also observed. (See Figure 12.) Companies in the electronics and machinery industries, with their high investment in fixed assets, tended to have a higher proportion of fixed costs than other industries, while those in industries such as metal/rubber/plastics, food/textile, and "other" industries had relatively lower fixed costs.

**F&A Area Priorities**

Survey participants were asked to indicate the importance of a variety of possible F&A area priorities (see Table 37). The companies' priorities indicate that the F&A areas have concerns similar to those of their counterparts in many Western firms. The top priority is to reduce cost and improve efficiency. This is closely followed by providing relevant and actionable cost information for decision making by senior management. Third most important is controlling business risk. These items are consistent with helping organizations cope in an increasingly competitive business environment.

Figure 12. Fixed Costs as a Percentage of Manufacturing Costs by Industry

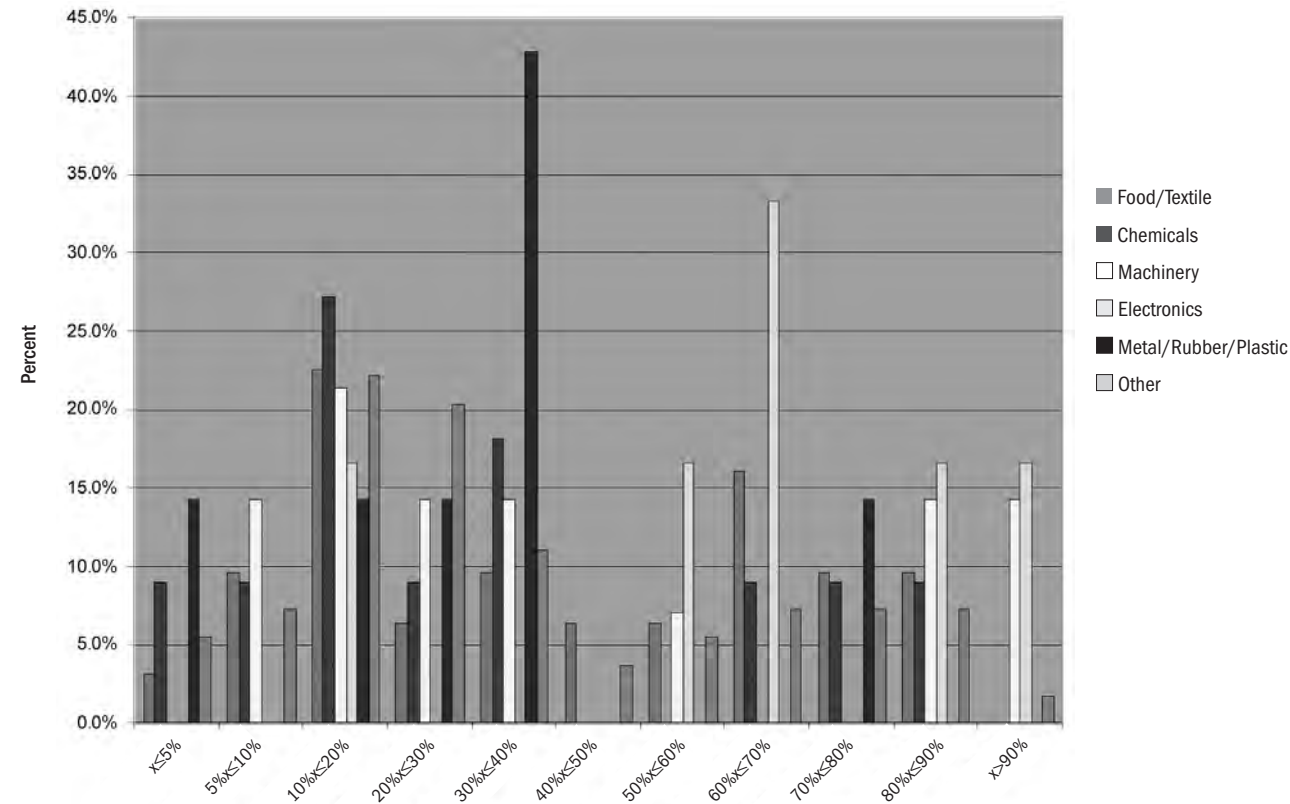


Table 37. Importance of Select Cost Management Topics

Topic	Top Priority (5)	High Priority (4)	Medium Priority (3)	Low Priority (2)	Not a Priority (1)	Total	Average
Providing relevant and actionable cost information for decision making by senior management	50.3% (93)	28.6% (53)	16.8% (31)	1.1% (2)	3.2% (6)	100.0% (185)	4.22
Developing a faster and more accurate reporting process	27.9% (51)	32.8% (60)	30.6% (56)	4.9% (9)	3.8% (7)	100.0% (183)	3.76
Setting standards to measure the company's performance	31.1% (56)	37.8% (68)	23.3% (42)	1.7% (3)	6.1% (11)	100.0% (180)	3.86
Automate the operations of non-production department	18.0% (30)	21.6% (36)	37.7% (63)	10.2% (17)	12.6% (21)	100.0% (167)	3.22
Reducing business risk	41.9% (75)	28.5% (51)	25.7% (46)	2.8% (5)	1.1% (2)	100.0% (179)	4.07
Developing core strategies to tackle unconventional finance issues	26.9% (47)	26.9% (47)	34.9% (61)	4.0% (7)	7.4% (13)	100.0% (175)	3.62
Reducing cost and improve efficiency	45.7% (85)	34.9% (65)	17.2% (32)	1.6% (3)	0.5% (1)	100.0% (186)	4.24

Note: Numbers in parentheses indicate number of responses.

Management Accounting Techniques

What management accounting tools and techniques do PRC firms use to cope in an increasingly competitive business environment? The introduction of "new," Western management techniques to PRC companies has been

widely noted and advocated, while the use of traditional Chinese techniques can also help organizations compete. Table 38 provides a ranking by the subject companies of the importance of various techniques in achieving their organizational objectives.

Table 38. Importance of Cost Management Techniques

Important/Unimportant	Very Important	Neutral	Very Unimportant	Don't Know	Not Applicable	Total	
Operational budgeting techniques	71% (69)	9% (9)	18% (17)	2% (2)		(97)	
Flexible budgeting	61% (11)	11% (2)	28% (5)			(18)	
Capital budgeting techniques	53% (16)	20% (6)	27% (8)			(30)	
Fixed-variable cost analysis, break-even analysis, etc.	61% (30)	16% (8)	20% (10)		2% (1)	(49)	
Value chain costing	44% (7)	44% (7)	6% (1)		6% (1)	(16)	
Target costing	65% (22)	9% (3)	18% (6)	6% (2)		3% (1)	(34)
Responsibility accounting	66% (43)	12% (8)	18% (12)	3% (2)		(65)	
Incentive compensation	70% (52)	10% (7)	19% (14)	1% (1)		(74)	
Performance measurement	64% (32)	14% (7)	14% (7)	8% (4)		(50)	
Standard costing	77% (10)	8% (1)	15% (2)			(13)	
Internal transfer pricing	43% (17)	12% (5)	43% (17)	3% (1)	3% (1)	(40)	
Traditional overhead allocation	54% (20)	5% (2)	35% (13)		3% (1)	3% (1)	(37)
Activity-based costing	67% (2)	33% (1)				(3)	
Life cycle costing	56% (5)	11% (1)	33% (3)			(9)	
Benchmarking	60% (3)	40% (2)				(5)	
Theory of constraints	50% (3)	33% (2)	17% (1)			(6)	
Economic Value Added	40% (2)	20% (1)	40% (2)			(5)	

Note: Numbers in parentheses indicate number of responses. Blank cells indicate zero responses. These were omitted to increase table readability. Percentages are based on the total number of companies that provided a response for a given technique.

The three most prevalent techniques—operational budgeting techniques, incentive compensation, and responsibility accounting—have roots that go back to the days of the planned economy. The popularity of fixed-variable cost/break-even analysis and performance measurement, indicated above, has been noted in other studies as well. (For example, Duh, et al. [2007] found that these were the five most widely used management accounting and control [MAC] techniques employed by firms in their study of MAC in PRC firms.) These relatively simple techniques can help provide companies with insight into their cost structure and its impact on their profitability.

Duh, et al. (2007, p.2) hypothesize that state ownership may impede Chinese firms' adoption of performance-enhancing practices like modern management accounting and controls. This is based on the observation "that state owners do not derive personal benefits from share ownership, and that they tend to emphasize objectives which diverge from profitability, such as wealth redistribution via employing more workers than is dictated by efficiency or effectiveness considerations alone." Our survey results do not support this idea.

**Table 39. Percent of Utilization of Management Accounting Techniques by Ownership**

	SOE	PO-L	PO-U	P-VALUE
Operational budgeting techniques	84 (26)	91 (10)	89 (59)	0.889
Flexible budgeting	25 (5)	43 (3)	29 (8)	0.855
Capital budgeting techniques	50 (10)	50 (3)	48 (14)	0.984
Fixed-variable cost analysis, break-even analysis, etc.	43 (9)	43 (3)	77 (33)	0.191
Value chain costing	6 (1)	43 (3)	34 (11)	0.302
Target costing	28 (5)	40 (2)	55 (21)	0.378
Responsibility accounting	68 (15)	89 (8)	81 (34)	0.628
Incentive compensation	72 (18)	80 (80)	84 (38)	0.664
Performance measurement	67 (18)	40 (2)	78 (32)	0.402
Standard costing	11 (2)	20 (1)	36 (9)	0.387
Internal transfer pricing	35 (6)	80 (4)	67 (20)	0.165
Traditional overhead allocation	42 (8)	60 (3)	64 (21)	0.527
Activity-based costing	6 (1)	0 (0)	12 (3)	0.798
Life cycle costing	17 (3)	40 (2)	14 (3)	0.768
Benchmarking	11 (2)	20 (1)	9 (2)	0.837
Theory of constraints	12 (2)	0 (0)	19 (4)	0.774
Economic Value Added	6 (1)	0 (0)	18 (4)	0.929

Table 39 lists the rate of utilization of the various cost management techniques, along with the p-value of the chi-square test for independence between the utilization rate and ownership. For none of the techniques listed above was there significant difference in the utilization rate among the various forms of company ownership. This finding, combined with our previous results, indicates that SOEs use similar management accounting techniques to those of privately owned firms and that their poorer financial performance stems from other causes, such as differing organizational objectives.

Factor analysis was used to capture commonalities in the use of these management accounting techniques. Using varimax rotation, a factor analysis was performed on the variables of the utilization (as opposed to perceived degree of importance, used above) of the various cost management techniques. Three significant factors (chi-square = 110.62, 88 d.f., p=0.05) were identified, with loading as indicated in Table 40.

**Table 40. Factor Analysis of Management Accounting Techniques**

Technique	Factor 1	Factor 2	Factor 3
Operational budgeting techniques	0.243	0.414	0.469
Flexible budgeting		0.333	0.290
Capital budgeting techniques	0.155	0.465	0.405
Fixed-variable cost analysis, break-even analysis, etc.	0.236	0.734	0.214
Value chain costing	0.575	0.393	0.355
Target costing	0.154	0.735	0.474
Responsibility accounting	0.200	0.340	0.678
Incentive compensation	0.252	0.177	0.840
Performance measurement	0.389	0.168	0.604
Standard costing	0.263	0.317	0.548
Internal transfer pricing	0.338	0.624	0.290
Traditional overhead allocation	0.488	0.562	
Activity-based costing	0.630	0.423	0.273
Life cycle costing	0.611	0.359	0.311
Benchmarking	0.953		0.158
Theory of constraints	0.838	0.114	0.183
Economic value added	0.566	0.362	0.242
SS loadings	3.8732	3.1668	3.0731
Proportion Variance	0.2278	0.1863	0.1808
Cumulative Variance	0.2278	0.4141	0.5949

The first factor had the greatest loadings on benchmarking, theory of constraints, activity-based costing, life cycle costing, and value chain costing and none on flexible budgeting. It can be interpreted as dealing with obtaining an understanding of costs, generally on a long-term horizon, to assess a firm's competitive position. The second factor, with its greatest loading on fixed-variable cost analysis, target costing, and internal transfer pricing can be interpreted as dealing with obtaining an understanding of cost behavior to enhance operational performance. The third factor, with large loadings on incentive compensation, performance measurement, and responsibility accounting, deals with the traditional performance measurement and control function of accounting.

**Performance Management Systems**

Under the planned economy, an organization's performance management system (PMS) typically had as its objective ensuring the fulfillment of the product plan while meeting various other production, technological, and financial metrics.

In line with the change to the market economy, today's companies have as the primary objective of the PMS aligning their performance with their strategic goals (see Table 41). Operational control remains important, as does evaluating employee performance and evaluating the performance of organizational units. This evolution in the objectives of companies' PMS means that companies need to have processes in place for updating these systems.

**Table 41. Primary Objectives of Companies' Performance Management Systems**

Objective	No. of Companies	Percent
Align with company's strategic goals	122	58.4
Use as controlling tool	121	57.9
Evaluate employee performance	105	50.2
Evaluate the performance of organization units	91	43.5
Promoting corporate culture	58	27.8
Other	3	1.4

Note: Sum of percentage exceeds 100% due to multiple responses.

**Cost Accounting Systems (CAS)**

An appropriately designed cost accounting system is important to managing most companies. In general, PRC companies (like companies elsewhere) believe that their CASs contribute to the success of their operations. They somewhat agree with the idea that their CASs help manage their costs and are a good fit for their current business conditions (see Table 42). They also slightly agree that the benefits of installing new CASs outweigh the costs of doing so, indicating the potential for improvement in these systems.

The surveyed companies slightly agree with the idea that their CASs are an effective system for budgeting, planning and evaluation, and for product decisions. They are also generally considered effective tools for supporting process improvement and for facilitating customer profitability

analysis. We note that these results differ from those of similar surveys of American companies, which generally express dissatisfaction with their costing systems, although they also lack a desire to change these systems.

Finally, survey respondents in general believe that data from their CASs provides an accurate assessment of companies' cost structure, although contribution margin is not widely used. This is surprising given the previous finding (both here and elsewhere) of fairly widespread use of tools such as fixed-variable cost analysis and break-even analysis. One possible explanation is that this type of analysis is done elsewhere in their organizations, such as engineering or planning, rather than by the F&A area.

**Table 42. Degree of Agreement with Statements Regarding Companies' Cost Accounting System (CAS)**

	Strongly Disagree (5)	Disagree (4)	Neutral (3)	Agree (2)	Strongly Agree (1)	Subtotal	Don't know	Not applicable	Total	Average
1. Our CAS helps us manage costs in this company	6.6% (12)	0.5% (1)	45.6% (83)	11.5% (21)	35.7% (65)	100.0% (182)	(2)	(4)	(188)	2.31
2. Our CAS is not a fit to our company's current business conditions	56.5% (83)	10.2% (15)	25.9% (38)	2.0% (3)	5.4% (8)	100.0% (192)	(12)	(17)	(221)	4.10
3. Overall, the benefits of installing a new CAS outweigh the costs	32.5% (38)	12.8% (15)	34.2% (40)	10.3% (12)	10.3% (12)	100.0% (117)	(33)	(21)	(171)	3.47
4. Our CAS is an effective system for budgeting, planning, and evaluation	5.5% (9)	7.4% (12)	46.6% (76)	16.6% (27)	23.9% (39)	100.0% (163)	(5)	(6)	(174)	2.54
5. Our CAS is effective for product decisions (e.g., pricing, design, outsourcing, product mix)	6.1% (9)	8.1% (12)	49.3% (73)	14.9% (22)	21.6% (32)	100.0% (148)	(10)	(16)	(174)	2.62
6. Our CAS is not helpful for process improvement	45.3% (62)	8.0% (11)	37.2% (51)	6.6% (9)	2.9% (4)	100.0% (137)	(12)	(23)	(172)	3.86
7. Our CAS is not helpful for customer profitability analysis	45.3% (62)	8.8% (12)	31.4% (43)	6.6% (9)	8.0% (11)	100.0% (137)	(12)	(23)	(172)	3.77
8. Data from our CAS provides an accurate assessment of our cost structure	6.5% (10)	5.2% (8)	41.9% (65)	11.6% (9)	34.8% (11)	100.0% (137)	(13)	(16)	(166)	2.37
9. Contribution margin is used extensively in our company	12.0% (12)	9.0% (9)	57.0% (57)	8.0% (8)	14.0% (14)	100.0% (100)	(26)	(43)	(169)	2.97

**Budgeting Practices**

Under the planned economy all enterprises were required to prepare an annual plan detailing goals for various technological, economic and production indices. Use of this planning technique still remains common in China today, with 55.4% of the 196 responding companies indicating that they develop a master budget.

Most companies in the West follow an annual planning cycle. Chinese companies under the planned economy followed a similar practice and, again, often continue the practice to this day. As indicated in Table 43, 83.1% of the respondent companies currently follow this practice. Interestingly, nearly 7% of the respondents do not prepare a budget. The use of techniques other than budgeting for organizational planning and control (i.e., the adoption of "beyond budgeting" techniques) would be considered very advanced by many in the West.

**Table 43. Frequency of Budgeting Cycle**

Frequency	Number of Companies	Percent
Annually	162	83.1
Few times a year	18	9.2
Interval between budget revisions is more than a year	2	1.0
Not applicable, we do not prepare budget	13	6.7
<b>Total</b>	<b>195</b>	

Western companies typically go through multiple iterations of their budgeting process before finalizing their budget for the next period. Chinese companies go through a similar process (see Table 44), with the modal (and median) number of iterations being two.

**Table 44. Number of Iterations in Budget Process**

Iterations	Number of Companies	Percent
One	48	26.4
Two	77	42.3
Three	40	22.0
Four or more	17	9.3
<b>Total</b>	<b>182</b>	

A company's budgeting process can employ "fixed" budgeting periods (say, 1 January through 31 December) or "rolling" budgets (in which the budget is revised every month or quarter, with each revision consisting of budget preparation

for the following twelve months). While most companies follow the traditional budgeting process (see Table 45), a substantial number (nearly 18%) utilize rolling budgets.

**Table 45. Type of Budgets Employed**

	Number of Companies	Percent
Fixed	153	82.3
Rolling	33	17.7
<b>Total</b>	<b>186</b>	

When establishing budgets, the survey companies generally establish them based on total (versus unit) cost. (See Table 46.) While this is also a prevalent method in the West, the use of unit costs under the "quota" system was more prevalent in the PRC under the planned economy for manufacturing companies.

**Table 46. Basis for Establishment of Staff Department Budgets**

	Number of Companies	Percent
Departmental total cost	153	80.5
Departmental unit cost	31	16.3
Other (please specify)	6	3.2
<b>Total</b>	<b>190</b>	

Consistent with the uses of PMS previously described, of the 189 respondents, 159 (84.1%) indicated that there is a linkage for the staff departments of performance evaluation and compensation. Additionally, of the 186 respondents, 175 (94.1%) indicated that for the staff departments, there is a comparison of budget and actual cost.

**Performance Management/Evaluation Systems**

The surveyed companies appear to be satisfied with their performance management systems. (See Table 47.) As indicated previously, budget management is a widely used management technique, and most companies agree that management and control of their operations is based on the budget. There is also general agreement that managers' performance metrics are linked to the overall organizational objectives, and that the performance evaluation system is linked to the compensation and reward system. Finally, the companies agree that there is a clear and transparent performance evaluation process for managers. All of these features are essential for performance management systems to be effective.



**Table 47. Extent of Agreement with Statements Regarding Company Accounting Policies**

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Subtotal	Don't Know	Not Applicable	Total	Average
Accounting policies are uniform company-wide	84.7% (171)	2.0% (4)	7.9% (16)	0.0% (0)	5.4% (11)	100.0% (202)	(1)	(0)	(203)	4.60
Management and control is based on the budget	45.4% (83)	10.9% (20)	37.2% (68)	6.0% (11)	0.5% (1)	100.0% (183)	(2)	(9)	(194)	3.95
Managers' performance metrics (measures) are linked to the overall organizational objectives	47.3% (86)	11.5% (21)	34.6% (63)	6.6% (12)	0.0% (0)	100.0% (182)	(5)	(5)	(192)	3.99
There is alignment of employee and organizational strategic objectives	52.1% (100)	17.7% (34)	26.0% (50)	3.6% (7)	0.5% (1)	100.0% (192)	(4)	(0)	(196)	4.17
Managers gain by achieving performance targets (and suffer by failing to achieve them)	50.5% (95)	17.6% (33)	23.4% (44)	6.9% (13)	1.6% (3)	100.0% (188)	(6)	(2)	(196)	4.09
Typically, all employees are compensated based on performance	39.7% (73)	14.1% (26)	30.4% (56)	10.3% (19)	5.4% (10)	100.0% (184)	(5)	(3)	(192)	3.72
There is a clear and transparent performance evaluation process for managers	54.6% (101)	13.5% (25)	29.7% (55)	2.2% (4)	0.0% (0)	100.0% (185)	(6)	(3)	(194)	4.21

Numbers in parentheses indicate number of responses. Percentages based on subtotal.

**Use of Cost Information**

Costing systems should be tailored based on their intended use. Table 48 indicates the extent to which companies agreed that cost information is useful for each of the listed purposes. Of the four possible uses listed, the one for which costing information was considered most useful was performance improvement. This is consistent with the previous finding that the budgeting system was a key tool in enhancing performance management, as well as the traditional use of the budget as a control mechanism under the planned economy.

Cost information was next most useful for price setting, marketing purposes, and strategic planning, in that order. This is understandable, as these decision domains become increasingly strategic (and less tactical), with the result that current cost information becomes a smaller part of the information needed in that domain.

**Selling Prices**

A variety of factors can enter into a company's pricing decision, with varying degrees of importance. Survey respondents were asked the extent to which each of the items in Table 49 is important for setting product selling prices.

**Table 48. Usefulness of Cost Information for Various Purposes**

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know	Not Applicable	Total
Performance improvement	60.3% (117)	13.4% (26)	21.1% (41)	2.6% (5)	2.6% (5)	(3)	(4)	(201)
Strategic planning	49.5% (91)	19.0% (35)	22.8% (42)	2.7% (5)	6.0% (11)	(6)	(7)	(197)
Price setting	55.7% (103)	18.9% (35)	20.0% (37)	3.8% (7)	1.6% (3)	(5)	(9)	(199)
Marketing	53.5% (100)	16.6% (31)	24.1% (45)	4.3% (8)	1.6% (3)	(3)	(8)	(198)

Note: Numbers in parentheses indicate number of responses. Percentages based on total excluding "don't know" and "not applicable" responses.

**Table 49. Importance of Various Factors in the Setting of Selling Prices**

	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Don't Know	Not Applicable	Total
Total product cost	66.1% (123)	12.4% (23)	16.1% (30)	0.5% (1)	4.8% (9)	(1)	(8)	(195)
Variable product cost	52.6% (92)	16.0% (28)	24.6% (43)	2.9% (5)	4.0% (7)	(1)	(11)	(187)
Market conditions	57.4% (108)	14.4% (27)	22.9% (43)	4.8% (9)	0.5% (1)	(1)	(3)	(192)
Production capacity	34.4% (54)	13.4% (21)	38.9% (61)	11.5% (18)	1.9% (3)	(1)	(23)	(181)
Domestic market share goals	34.2% (55)	11.2% (18)	37.9% (61)	10.6% (17)	6.2% (10)	(2)	(24)	(187)
Foreign market share goals	46.4% (84)	13.8% (25)	29.8% (54)	6.6% (12)	3.3% (6)	(2)	(6)	(189)
Sales targets / goals	43.2% (76)	13.6% (24)	31.8% (56)	7.4% (13)	4.0% (7)	(1)	(9)	(186)

Numbers in parentheses indicate number of responses. Percentages based on total excluding "don't know" and "not applicable" responses."

**Figure 10. Importance of Factors in Setting Selling Prices**

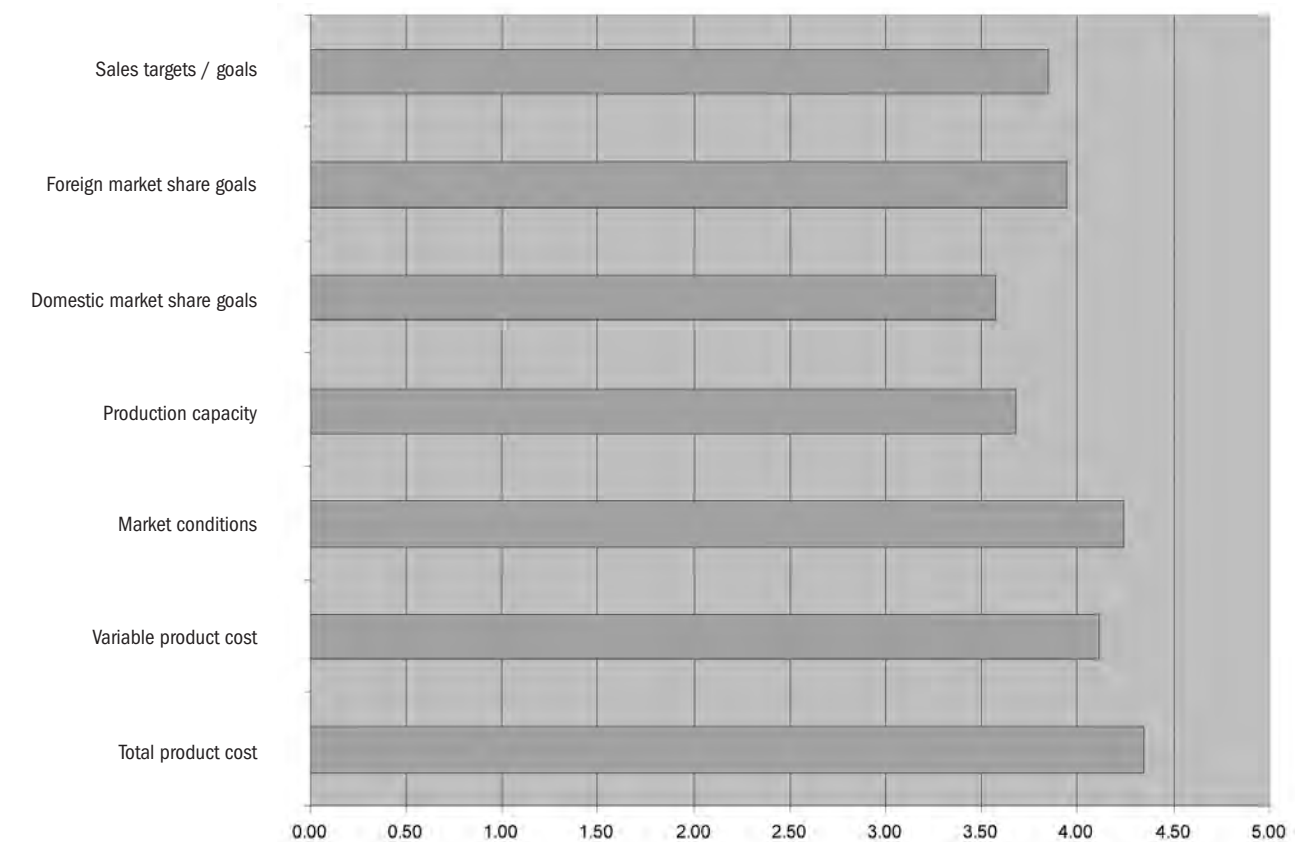


Figure 10 presents the average response for these factors. Product costs (both total and variable) rank highly in terms of importance in setting selling prices, as do market conditions. Foreign market share goals ranked more highly than domestic market share goals; this is expected given the export-orientation of the companies selected to complete the surveys. Production capacity is also a relatively less important factor in determining selling price. This may be due to the relatively high utilization rate of capacity that currently exists at many PRC companies.

Specifically with regard to setting *foreign* selling prices, companies were asked to list the relative importance of the six factors listed in Table 50. The results are

consistent with the prior table: the most important factor is production costs, followed by competitor pricing. Governmental programs and incentives, foreign currency exchange rates, and productive capacity have relatively little impact on product pricing.

An issue related to product dumping is the relationship between the price of goods sold domestically compared to the price of export goods. Table 51 indicates that more companies sell at higher prices abroad (35.3%) than at home (13.3%), while some (9.2%) sell for the same price both domestically and abroad. The most common situation, however, is one where the relationship varies (42.2%).

**Table 50. Ranking of Various Factors in Order of Importance in Setting Selling Price for Foreign Sales**

Item	Rank of Importance						Total
	Most Important 1	2	3	4	5	Least Important 6	
Competitor (market) prices	37.6% 68	28.2% 51	18.8% 34	8.3% 15	5.0% 9	2.2% 4	<b>181</b>
Production costs	51.6% 94	31.9% 58	11.5% 21	2.2% 4	1.6% 3	1.1% 2	<b>182</b>
Foreign currency exchange rates	9.0% 16	18.0% 32	24.2% 43	24.2% 43	15.7% 28	9.0% 16	<b>178</b>
Available productive capacity	5.7% 10	6.3% 11	21.7% 38	27.4% 48	29.1% 51	9.7% 17	<b>175</b>
Gov't. programs/ incentives/policy	7.3% 13	5.1% 9	10.2% 18	16.4% 29	31.1% 55	29.9% 53	<b>177</b>
Desired share of foreign market	14.4% 25	11.5% 20	18.4% 32	15.5% 27	15.5% 27	21.8% 38	<b>174</b>

**Table 51. Price of Goods Sold Internationally vs. Price of Domestic Goods**

	Number of Companies	Percent
Lower	23	13.3
Equal	16	9.2
Higher	61	35.3
Varies	73	42.2
Subtotal	173	100.0
Don't know	6	
Not applicable	10	
<b>Total</b>	<b>189</b>	

The accuracy of product prices is essential for a variety of reasons, and identification of reasons for possible distortion of product costs is thus important. Various possible causes of such distortion were identified in the literature, and the survey companies were asked to what extent these factors were, indeed, a cause of cost distortion.

As indicated in Table 52, none of the factors (overhead allocation, shared services allocation, product assortment, and customer diversity) was considered by a large proportion of the companies as a cause of cost distortion. This is consistent with the general contentment of these firms with their costing systems.

There is a variety of possible reasons for these results. First, many of the study firms have relatively simple organizational forms, which eliminates some costing issues. They may also have simple product lines and lack customer diversity, which would be expected of small companies. However, consistent with Mao's strategy of capturing the cities from the country, many Chinese are trying to capture market share from more established competitors by first entering niche markets and offering greater product diversity. Following this strategy will require more sophisticated costing systems in order to adequately cost the larger number of product offerings.

**Table 52. Extent to Which Factors Contribute to Product Distortion**

	Very Great Extent (5)	Great Extent (4)	Medium Extent (3)	Small Extent (2)	Not At All (1)	Subtotal	Don't Know	Not Applicable	Total	Average
Overhead allocations	2.7% (3)	2.7% (3)	19.5% (22)	22.1% (25)	53.1% (60)	100.0% (113)	(6)	(17)	(136)	1.80
Shared services allocations	1.8% (2)	3.7% (4)	11.9% (13)	25.7% (28)	56.9% (62)	100.0% (109)	(3)	(18)	(130)	1.68
Product assortment	4.5% (5)	5.4% (6)	26.8% (30)	20.5% (23)	42.9% (48)	100.0% (112)	(5)	(16)	(133)	2.08
Customer diversity	2.0% (2)	3.0% (3)	22.0% (22)	20.0% (20)	53.0% (53)	100.0% (100)	(6)	(24)	(130)	1.81

## V. Summary

In this study we examined the costing techniques and cost management practices used by PRC companies using both case study and survey methodologies. From these studies we can draw the following conclusions:

### Product Costing

- The adoption of the 2006 ASBEs by the PRC will make external financial reporting by Chinese companies closer to international standards.
- There are a number of cost items that have been inappropriately treated in the past per Chinese accounting regulations; the 2006 accounting regulations have addressed some of these.
- A major difference in the treatment of the cost of production relates to the treatment of the cost of fringe benefits related to direct labor; this has been addressed in the current accounting standards (initially for publicly listed companies).
- Other issues remain, including the treatment of the cost of the various production support departments. The treatment of these costs often varies by company (and may be inconsistent with general costing principles).
- Companies are largely following the Chinese accounting regulations.
- Direct materials and direct labor are generally appropriately recorded and are traced to products based on actual cost and usage.
- The classifications of overhead costs as period or product costs by PRC companies are generally appropriate, although exceptions exist for individual companies.
- The measurement of overhead costs is generally representationally faithful, although exceptions exist (e.g., land usage rights).

- The allocation of overhead costs to products varies widely by company, with most companies using relatively basic methodologies. We note that a similar situation exists among many Western companies.
- The most important factor in setting selling prices is product costs. Other factors, including competitors' prices, also affect selling prices.
- It cannot be concluded that differences between Chinese and Western costing practices lead to product dumping.
- While differences exist between the costing practices of Chinese companies and those used by Western companies, a convergence of practice is in process.

### Cost Management

- There is a wide diversity of cost management techniques and practices utilized by PRC enterprises, ranging from relatively primitive to sophisticated. This diversity of practice is similar to that in other countries.
- The cost management systems of many PRC companies reflect the planning and control systems previously used under the planned economy.
- Many of the practices employed under the planned economy are similar to those practiced by Western companies in market economies.
- The decisions made by Chinese companies also reflect the environment in which they operate (with employment goals being a major consideration for many companies).
- "Western" techniques, such as break-even analysis and fixed-variable cost analysis, are beginning to be adopted by PRC companies (although we did not find as extensive a rate of adoption as other studies).
- As PRC companies grow and face the complexities associated with more diverse products and customers and increased organizational size, they will increasingly face the need for more complex cost management systems.

### The Finance and Accounting Function

- The role of the Accounting department under the planned economy was generally limited to the bookkeeping function.
- Most PRC companies have evolved their F&A departments to reflect the greater role and responsibilities prevalent in similar departments in the West.
- Continued efforts (as in the West) are needed by most companies to have these departments fulfill their potential and become part of the strategic management team of their organizations.

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## VII. Appendix - Case Studies

### A. Luthai Textile Co., Ltd., Zibo City, Shandong Province

Luthai Textile Co., Ltd. (Luthai) is the largest manufacturer of high-quality color woven fabric in the world. Yarn-dyed fabrics accounted for 71% of 2005 sales revenue; shirts (including Arrow, Alain Delon, LT Graff) accounted for 21% of 2005 revenue. It also produces yarn. Revenues in 2005 totaled 2.233 billion (B) RMB. More than 80% of the group's products are exported, with sales to more than 30 countries and areas, including Japan, South Korea, Hong Kong, Southeast Asia, the United States, the United Kingdom, and Italy.

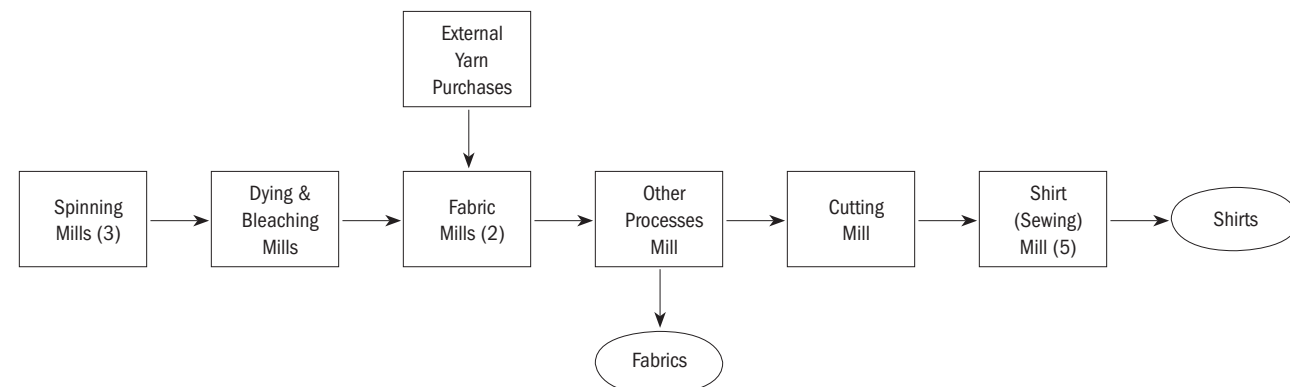
Luthai was established 16 years ago. It now has 13 plants, 4 branches, and 11 holding subsidiary companies. It has the capacity to produce 10 tons of fabrics per year and 9 million shirts. The company has assets of approximately 44 billion RMB and net income (2005) of 380 million (M) RMB. The company has issued A and B shares and is listed on the SZN exchange; there are also nontrading shares outstanding. Luthai has 11,260 (2005) employees. Of these, 140 are at the management

level. There are 35 accountants (including 4 managers) at the parent company; 56 (including 3 managers) in the subsidiaries, for a total of 84 accountants (including 7 managers) in the company.

The company's objectives include being a long-lived company, creating wealth, and benefiting society. It perceives the following factors as being key for its success: capital, markets, and technology. Capital is the most important of these. The company raised external capital in 1987 and this has been responsible for the company's rapid development. It currently has three ways to raise capital. Initially it raised money from banks; subsequently, it raised money on the capital markets by selling shares. It also raises capital by retaining earnings.

As indicated in Figure Luthai-1, which depicts Luthai's production processes, the company is an integrated producer of yarn, dyed fabric, and apparel.

Figure LuThai-1. LuThai's Production Process



The spinning mills operate 24 hours/day, 7 days/week. Workers receive two days "off" after six days "on." There are four shifts of workers in total. Individual workers are evaluated based on a variety of performance attributes, including: productivity, speed, working procedures (compliance), on time (attendance), safety, evaluation given by the public (fellow employees), and activity.

The fabric mill converts yarn into fabric. An important activity here is the initial threading of the needles on the frames. A worker can thread 8,000-10,000 needles per day, which is about one frame. If the material to be woven is more colorful, it may take two shifts to thread the needles on its frame. Luthai has automated equipment that can thread 140 needles per minute (~ 8,400/hour), which is 10-12 times faster than humans. It is generally more economical to use the automated equipment, but it can't handle the more complicated, colorful jobs.

The shirt factory employs around 700 machines, arranged in 6 groups. Each group produces a shirt from start to finish. A quota is set for each group; it is typically around 1,700 units, although it varies depending on the product. The factory produces around 10,000 shirts per day.

There are five procedures in making a shirt. There are approximately ten steps in each procedure. (The number of steps varies depending on the product, i.e., type of shirt.) Goods are inspected after each procedure. Work is done by batches. For each batch, at the last step in a procedure, a worker will bring her goods to an inspection station. Defective units are sent back to the responsible worker. If it is an urgent batch, the worker stops and fixes the defects and the supervisor redistributes the workload.

### COST ACCOUNTING

#### Direct Labor and Fringe Benefits

The company posts earnings by workers in the fabric mill. Some of them are salaried; others are paid on a piece rate. Workers receive a monthly bonus based on units produced. For salaried workers, a typical quota is 1,700 units; workers get a bonus if they exceed 2,000 units.

#### Manufacturing Overhead

Overhead is allocated to products based on indices; for fabrics it is machine hours, for spinning the index is based on 1,000 spins.

### COST MANAGEMENT

#### Operational Planning and Budgeting

There is an iterative annual planning process, starting from the top down, typically involving three cycles. There is also a monthly operational plan, which includes a budget for costs, a financial plan, and plans for sales, purchases, and production. The company does not use rolling budgets, but it does have a rolling three-month plan for procurement of special materials.

The Production Management department receives an annual production plan from management. It breaks this up into monthly plans, then into production plans by factory. Production reports are sent from the factories and used for a monthly production review (of production quantity only). There are also daily production reports and daily production meetings.

#### Performance Measurement and Employee Compensation

The key performance measure for a worker is production volume. Also important are quality and cost. Performance is assessed at three levels:

- Workers
- Managers of production departments
  - Their compensation includes salary (1/3), a variable component based on performance (1/3), and profit-sharing based on company income (1/3).
- Managers of supporting departments
  - Their compensation includes a salary based on an index for the position reflecting the difficulty and responsibility of the job (1/3), a variable component based on performance (1/3), and profit-sharing based on company income (1/3).

There are scorecards employing various performance attributes employed by the company for workers and managers; these are linked to compensation. As mentioned previously, there is a public posting of performance ratings and wages; this motivates the workers to perform better.

The company has a system for reporting non-financial information; it rolls up from the bottom. Factories have different scorecards than their groups. Achieving the quota affects the factory manager's bonus. The quotas for the groups (and factories) are set at slightly more than average production. They are rarely *not* met.

**Other**

In October 2005, the company signed an agreement with Intentia to implement an ERP system, with the first-stage construction focusing on Luthai's apparel manufacturing sector covering customer relationship management, manufacturing management, sales management, procurement management, and warehouse management functionality, among others.

The Senior Advisor is in charge of setting selling prices. Factors affecting selling prices include market prices, the desire to develop a market, the technology used, raw material cost, production costs, and the total volume of purchase by a customer. Profitability analysis is performed beforehand for all orders (and afterwards for all shirt orders and some fabric orders).

### B. Shandong Xinhua Pharmaceutical Co, Ltd. Xibo City, Shandong Province

**COMPANY BACKGROUND**

Shandong Xinhua Pharmaceutical Group Company Limited ("Xinhua") originally started out as a single factory, furnishing medicines for the Red Army. Today it is one of China's Top 500 king-sized enterprises and a backbone pharmaceutical enterprise. The "Xinhua" brand has been honored with the title of "Chinese Famous Brand."

Xinhua has 12 affiliated subsidiaries with several kinds of ownership systems and has an attached state-level technical center. The company owns an 88% equity interest in Zibo Xinhua Pharmacy Chain Company Limited (Xinhua Pharmacy), a 70% interest in Zibo Xinhua Sanhe Chemical and Industrial Company Limited, a 90% interest in Zibo Xinhua Pharmaceutical Design Institute Company Limited, a 76.9% interest in Shandong Xinhua Pharmaceutical (Europe) GmbH, and a 98% interest in Shandong Xinhua Medical Trade, Co., Ltd.

Xinhua is principally engaged in the development, production, and sales of bulk active pharmaceutical ingredients (API, 50% of sales), preparations (e.g. injections and tablets, 40% of sales), and chemical and other products (10%). The Group operates in the PRC (including Hong Kong), Europe, and the Americas. It has four manufacturing sites.

The average capacity utilization of equipment is 90%. For API, there are dedicated (i.e., single product) plants; for finished dosage (preparation) plants, the company can produce a variety of products in each plant. It is considering changing to multi-function API plants. The plants would then have a dynamic ability to change production according to market demands.

In June 2000, the company was subjected by the U.S. Department of Commerce (DOC) to an antidumping duty order. In June 2004, the DOC revoked the antidumping duty order with respect to the company, noting that the company had zero or *de minimis* margins for a period of at least three consecutive years; that it had sold its merchandise at not less than normal value for that period of time; and that the continued application of the antidumping duty order was no longer necessary to offset dumping.

**COST ACCOUNTING**

In general, the costs of the company have been increasing during the past several years due to the soaring price of raw materials. However, if the price effect is eliminated, costs have been decreasing due to marketing and technological progress and increased capacity utilization. (See figure below.)

Year	Rate of Change in Costs (%)	Rate of Change in Costs, Ignoring Price Effect (%)
2003	-3.5	-6.8
2004	6.6	-6.0
2005	9.9	-6.7

**Direct Materials**

Costs associated with the acquisition of materials include invoice price, transportation charges, reasonable quantity variance, handling and placing in stock, storage, travel expenses, and salaries of purchasing department. Of these, invoice price, transportation charges, and reasonable quantity variance are included in the cost of direct materials. (The invoice cost is more than 98% of direct material cost.) The cost of handling and placing in stock, storage, travel expenses, and salaries of the purchasing department are treated as administrative (period) expenses.

The cost of materials included in the cost of products is based on actual consumption.

Xinhua uses planned (budget) prices to calculate product costs. It calculates the price variance each month according to material consumption and the price difference between planned and actual prices. This variance is then allocated to its various products according to material consumption, adjusting product costs to reflect the actual cost of material consumption.

The planned prices, set by the Purchasing and Finance Departments at the end of the previous year, remain constant for a given year. The rate of price variance is usually within 5%.

**Direct Labor and Fringe benefits**

Direct labor includes the salaries of workers who are directly engaged in production. Of those salaries, 14% is included in overhead as welfare costs, of which 7% is medical insurance and 7% is other welfare costs. The cost of the housing reserve is also included in overhead. Social insurance is included in General Administrative expenses and treated as a periodic cost. The Xinhua representatives indicated that new accounting regulations effective January 2007 would change the treatment of these costs.

**Manufacturing Overhead**

Auxiliary (service) departments include the Utility Workshop and the Repair Workshop. Their prices are set each year based on the budget and the cost of their services is allocated each month to products based on the budget price and actual quantity used. The variance between budget and actual cost incurred by these departments is periodically calculated and allocated to products.

Overhead includes depreciation (14%), indirect labor (7%), repair and maintenance (25%), sewage (9%), analysis (5%), and other expenses. Expenses that can be distinguished between different products, such as repair and maintenance and depreciation, are directly allocated to those products' overhead. Expenses that can't be distinguished are apportioned to products based on the output (volume) ratio. This ratio is based on an index for each product and the quantity of each produced.

In general, fixed assets are depreciated over the shortest useful life consistent with tax law requirements. A new regulation stipulates that research and development assets with a value up to \$40,000 may be expensed. Land use rights are amortized over their 50-year lives. If land is used for a specific workshop, the cost of the land use rights will be added to the value of its fixed assets, with its amortization being included in factory overhead.

**Selling, General, and Administrative Expenses**

Administrative expenses include salaries (10%), social insurance (18.6%), office expense (2%), depreciation (8%), R&D (12%), intangible amortization (3%), bad debt expense (6.5%), taxes (6%), insurance (2.4%), storage (3.5%), travel (1%), and other expenses. These are treated as periodic expenses.

Interest cost associated with the ordinary operation of the business is classified as a financial expense and is expensed. Interest cost associated with construction in progress is capitalized and included in the cost of the related asset.

Selling expenses include transportation (15.5%), advertisement (24%), marketing (28%), salaries, and travel (10%) expenses.

Expenses associated with sewage disposal are related to production and are directly allocated to products based on their disposal quantity and treatment cost. Fees paid to the government related to environmental protection are included in Administrative Expense as a period cost.

**COST MANAGEMENT**

Xinhua's cost management system (CMS) is divided into three levels: the company level, the workshop (typically, factory) level, and the workgroup level.

The CMS consists of:

- Regulations for each working position (SOP—Standard Operating Procedures)
- Standard equipment maintenance
- Three "clarifications"
  - Maintain clear batch numbers
  - So actual usage can be compared to planned usage (yield calculation)
  - Necessary for quality control (QC) purposes
- Account for unit consumption clearly by batch
- Clarify economic responsibilities between teams

**Planning and Budgeting**

Xinhua has an annual strategic planning process with a 5-year planning horizon. Xinhua also has an annual operational planning process, which begins in the second half of the year. It is an iterative planning process, starting top-down and then going bottom-up. This process begins with the preparation of a Production and Development Plan. An annual (master) budget is prepared based on this plan; this master budget includes a selling budget, purchases budget, direct labor budget, manufacturing overhead budget, cash budget, etc. Based on these budgets, pro forma financial statements (income statement, balance sheet, statement of cash flow) are prepared.

The company has a linkage between annual operational planning and personal goal-setting by management. There is also a linkage of managers' performance to their compensation.

Xinhua has had its own cost management system since it was established. In the 1980s it started the "Financial

Cost (or Profit) Plan.” The content of this plan is almost the same as what the company had been using since the 1960s under the planned economy (e.g., output plan, usage plan, repair plan, construction plan). However, now there is a different department in charge of the planning process. The department that compiles the plan changed because the organizational structure changed to meet the needs of developing the company and due to acquisitions.

There has been a shift in emphasis in the budgeting process. The top priority in the 1960s was a focus on cost (6 targets); during this period the company achieved the highest yield and lowest material cost of any company in this industry. This was due to its strong control system. Now profit receives primary emphasis.

#### Performance Evaluation

During the 1950s, Mainland China companies had three accounting systems: financial accounting, operational accounting, and statistical accounting. The operational accounting system was based on the “Original Record System”—each team was responsible for the collection of data for each shift. (The company is famous for its development of this system, has achieved record efficiencies using it, and has instructed other companies in its use.)

#### Shift

For each shift, the company calculates input (consumption of raw materials) and output by batch; these are used to calculate yield. The company compares actual output with quota (standard). Frequently there is 3-shift production. The results for each shift are posted, spurring competition among the shifts (“Labor Contest”). This is a very effective motivational tool.

Performance incentives are based on this data. In the past incentives consisted mainly of recognition for outstanding performance and maybe a small object, such as a notebook. (Moral recognition was considered more important than monetary rewards.)

#### Workgroup

The performance metrics used for Workgroups are similar to those used to evaluate Workshops. However, these groups are cost—not profit—centers. There are consumption, output, and yield performance metrics at this level. Bonuses are based on a formula including these three metrics; the weights (which are predetermined for a year at the beginning of the year) are determined for each workshop.

#### Workshops

Workshops are considered profit centers, and their performance is evaluated based on profit calculated with actual pricing. This approach is based on the philosophy that market pressures should affect performance evaluation down to the second level of an organization. If a workshop is not profitable based on market pricing, then someone else must have lower costs and this methodology puts pressure on employees to find ways to lower costs.

In a similar way, the performance of the sales department is evaluated based on actual product cost. This is a change from the past (3-4 years ago), when standard cost was used. Reason: to align the interests of each salesman in the sales department with those of the company. This change was necessitated due to market pressures: if material costs increased very quickly, the sales department might not act in the best interest of the company if its performance was based on standard costs. (The company believes this is different from the normal practice in the West, where standard costs are used.)

This is consistent with the concept of responsibility accounting; each department should be evaluated based on factors it can control. For example, say the selling price of a product fell from \$4/kg at the beginning of the year to \$3/kg. Under this circumstance, if standard costs were used, the performance of the workshop would not be consistent with the overall company's interests. (This philosophy is similar to the one adopted at Handan Steel Co.)

The planned cost for each year is used to measure the performance for each factory. Based on the plan, each factory tries to figure out ways to reduce its various costs.

A BPR (batch production record) follows the flow of all materials. At the end of every month, summary statistics of factory receipts of materials and output are compiled. Yields are calculated and a comparison of planned versus actual material usage is performed. The company's inspectors periodically inspect records to detect manipulation of numbers. (If fraud is detected, everyone involved is punished.)

No labor variances are computed. They are not considered an important control issue since the speed of all machines is automatically regulated and cannot be adjusted by the workers.

#### Product Pricing

Product pricing is determined by a Price Committee consisting of the general manager (GM), the GM in charge of sales, the GM—finance, and the head of the finance department. Price is determined based on market information/price, costs, and company strategy.

#### C. Shandong Huijin Stock Co. Laiwu City, Shandong Province

#### BACKGROUND INFORMATION

Shandong Huijin Stock Company, Ltd. (“Huijin”) is a backbone enterprise of Shandong Province in the casting and automobile fittings industries. It is the leading enterprise for casting export in China. The company specializes in producing automobile axle shafts and automobile parts. Its main products include light and heavy front and rear axle shaft assemblies, automobile parts for steering and brake systems, chassis suspension system valve fittings, and stainless steel precision castings. These products are sold to large domestic mainframe factories and foreign enterprises, including Valeo, Volvo, GM, Ford, Caterpillar, John Deere, Mack, and Hyundai. The company has an operating policy of pursuing continuous improvement and of seeking product excellence. In order to achieve these objectives, the company has purchased numerous pieces of advanced quality-inspecting equipment, which are used as part of a comprehensive quality assurance system.

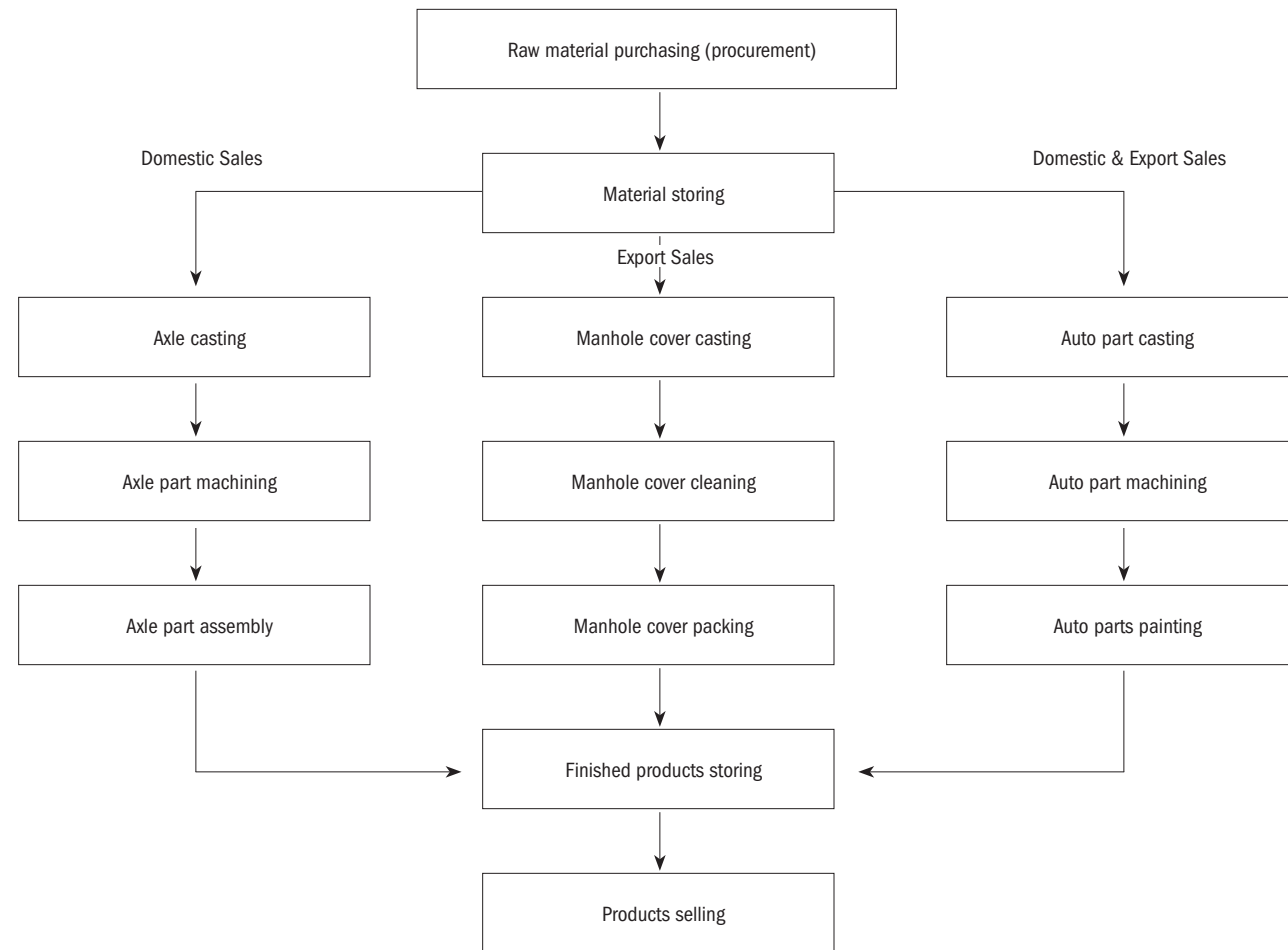
The predecessor of the company was established in March 1958, mainly as an agricultural mechanized tool company. In 1990, when China was still at the beginning of shifting to a market economy, there were still many small firms in the area. Huijin was better managed than the other firms and acquired them. Before the mergers it had 200-300 employees; after the mergers it had approximately 2,500. In March 1994, it received authority from the government to engage in exporting. In December 1997, management and some of the employees obtained ownership of the enterprise and a limited stock corporation was established. The enterprise changed its name to Shandong Huijin Stock Company, Ltd. It focused on producing automotive axle shafts, automotive parts, and export castings, and reorganized its foundry to satisfy the requirement of the automotive industry. In March 2001, it entered the international auto parts market. The company currently has \$7.5 million in registered capital and \$27 million in assets. It has revenues of in excess of \$100 million with 55% sold domestically and 45% exported (33% auto casting, 30% manhole covers, 22% pipe fittings, 13% valves, 2% other).

The company was the subject of a European antidumping complaint regarding its manhole covers product. It had produced this product since 1993. It sells them to the EU, especially Italy and France. It received a notice in May 2004 from the EU trade commission accusing it of dumping—that its selling price was lower than the actual cost of production. The company's trade association distributed information to all companies in the industry, which formed a group to fight the suit. In order to fight the suit, the company hired a lawyer and did a lot of preparation work. In September 2004 the EU committee came to the company to conduct an investigation. After an examination of the company's financial statements and cost accounting system, the investigating panel concluded that the selling price set by the company was reasonable (i.e., that its statements were basically in conformity with IFRS and its cost accounting system seemed to allocate costs appropriately). The company still believed that there was a potential threat to it with regard to antidumping charges. Therefore, in February 2006, as part of the settlement, it agreed to not sell its product for under a set price (US\$800). The cost to this company from this action was 1 million Yuan in legal fees defending the suit and the loss from having to stop exporting this product for eight months. Lessons learned by the company include the following:

- Companies must follow the regulations of the IFAC and accounting systems
- Antidumping is a common situation for Chinese exporters.
- Companies must address the challenge.

The flow of Huijin's production process is as follows:





**COST ACCOUNTING**

**Raw Materials**

In addition to the purchase price of raw materials, the cost of materials includes salary, welfare, business trip expenses, business entertainment expenses incurred by the purchasing department; material transportation expenses, material handling expenses within the factory, and the warehouse management expenses within the factory. The material purchasing expense varies depending on the type, variety, place of origin, and the short- or over-supply of a material. For example, for pig iron and coke purchasing the cost of a supplier delivering to the doorstep is different than the cost when Huijin hires the means of transportation.

The cost of the purchasing department amounts to about 0.69% of the total material costs. (Transportation cost amounts to about 0.45% of material costs—about two-thirds of total purchasing department costs.) The portion of transportation cost that can be clearly traced to materials is allocated directly to material cost. The part that cannot be clearly identified within material purchasing, such as the salaries of the purchasing staff and welfare, entertainment, business trip expenses, is included in Administrative Expenses and charged directly to Profit and Loss as a period expense at the end of the month.

The cost of direct materials is based on actual cost. There is no planned price for it, so there is no material price variance calculated. A material's warehouse price is calculated using the weighted average method. Included in the product cost is the value of each product's consumption of materials in the casting and machining processes.

**Direct Labor and Fringe Benefits**

Huijin calculates a quota for each product's average product time. Labor is paid based on a piece rate, with the rate based on the quota. The labor cost expense for each product includes the labor cost associated with each piece of casting and machining equipment. The labor costs associated with managers and workshop supervisors are included in Administrative Expense. There are no functional people in the workshops. There are only two directors (the superintendent and vice superintendent) for each workshop; their labor cost is included in Administrative Expense.

**Manufacturing Overhead**

The labor cost of the production auxiliary department is included in the work quota, and is apportioned according to the work quota. The material cost of the production auxiliary department (i.e., supplies) is allocated based on actual material cost. These are included in manufacturing expense of the respective workshops and allocated to product cost at the end of the month.

Manufacturing Overhead includes: salary, welfare cost, depreciation charge, maintenance cost, water and electricity cost, worker safety cost, office supplies, cost of rejected products (scrap), etc. It comprises 16.86% of the total cost of production. There are two parts to this company's overhead: direct labor and what would normally be considered manufacturing overhead. Salary and welfare costs consist of 64.12% of manufacturing (costs); overhead, depreciation, and water and electricity charge account for another 35.58%; and other costs, 0.3%. Huijin calculates manufacturing overhead cost on a monthly basis based on actual costs incurred. These costs are accumulated by factory and allocated to the products produced by each factory based on the production value of the products.

Direct labor in Manufacturing Overhead is traced to each product. The indirect labor portion of overhead is allocated to products based on the cost of direct labor (RMB). The allocation of the other part of overhead is based on the consumption of raw materials at standard quantity and actual price. (It is thus assumed that the material value of raw materials used is related to the amount of overhead cost incurred.)

Land Use Rights is recorded at an amount equal to the actual cost incurred and recorded as an intangible asset. It is amortized on a straight-line basis over a 50-year life, resulting in annual amortization expense of around 1 million Yuan (approximately \$125,000) per year. Amortization is recorded monthly (at a rate of 90,000 Yuan (approx-

mately \$11,000) /mo). The monthly amortization of Land Use Rights is included in Administrative Expense. From a theoretical point of view, it is equivalent to rent or the amortization of Leasehold Expense. However, it is not included in Manufacturing Overhead Expense by this company.

Asset valuation is based on book value. In line with an MOF regulation that required that assets should be revalued to the lower of cost or market value by the end of 2005, this company reexamined its asset values as of that date. This company did NOT need to write down its assets. The book value of fixed assets is a little bit lower than the current market price. Compared with market price, the difference between the market price and the book value is charged to Allowance for Fixed Asset Value Deduction. The service life of fixed assets for depreciation purposes is based on the categories of fixed assets contained in China's Enterprise Accounting Standards (which is a little different from the national taxation regulations).

Administrative Expenses include: managerial staff's salary, welfare expenses associated with the managerial staff, trade union expenses, training expenses, business travel expenses, business entertainment, office supplies, maintenance costs, insurance, consulting fees, lawsuit expenses, research and development costs, property taxes, vehicle license taxes, land-use taxes, stamp duties, technology transfer fees, intangible assets and deferred assets amortization, low-value-easy-consumption asset amortization, and Company administrative expenses. Departments included in Administrative Expense include: Technical center (R&D and technical development), Purchasing (procurement of raw materials), Logistics, Finance, HR, Quality, Production, Equipment (supervisors of maintenance workers in each factory), Sales, and International Sales.

**Selling and Administrative Expense**

The expense associated with Management, Engineers and Technicians, and Quality Management personnel is charged to Administrative Expense, except for the cost of salesmen (approximately 40). The cost of these employees is included in Selling Expense.

Enterprise administrative expenses equal 6.53% of sales revenue. Within it, salary consists of about 30%, depreciation about 15%, and all others individually are below 10%. These expenses are recorded monthly based on actual cost occurred, and are all currently expensed.

Interest cost is calculated every month per the loan contract, according to the loan interest rate and actual days elapsed. The interest on operational fund loans is

expensed. The interest on capital investment loans is included in the original value of the fixed assets.

Selling expenses include salesmen's salaries, welfare, packing costs, transportation, handling costs, insurance, advertising costs, business entertainment, and warranty and after-sales service costs. Selling expense equals 4.58% of the enterprise sales revenue. Within Selling Expenses, transportation takes 30%, warranty and after-sales service takes about 30%, salesmen's salaries take about 15%, and all others individually are under 5%. Selling Expenses are charged to the cost account on a monthly basis according to the actual amount occurred. All selling expenses are charged to the Profit and Loss account of the current month.

Environmental protection costs are charged to Administrative Expenses according to actual costs incurred. An exception is the cost of equipment specifically purchased to reduce pollution, the cost of which is capitalized and depreciated as part of overhead. The operation of this equipment is also charged to overhead. Fees paid for governmental inspections of the company's facilities are included in Administrative Expense.

The total Enterprise Administrative Expenses include the expenses incurred by the company's various functional departments. The Administrative Expenses are charged directly to the Profit and Loss account.

According to the accounting regulation, the value-added tax is calculated based on the monthly amount actually incurred. Income tax is based on the actual profits earned and is adjusted as regulated, and is accounted for as Income Tax Payable. It influences the margin significantly and equal about 33% of income.

## COST MANAGEMENT

### Planning and Control

Huijin has created a "cost target control" management system based on its past management experience. This method puts all work performed under the control of the cost target (budget). Costs are divided into four key links: Production, Procurement, Sales, and Management. Additionally, based on an itemization of costs, costs are divided into nine elements: materials, power, depreciation, salary and welfare, administrative expenses, selling expenses, financial expenses, taxation and surcharges, and other expenses. The four key links and nine elements are then decomposed by department. A brief description of the links and cost elements is as follows:

- Procurement link (cost element: material cost)—A detailed planned price is determined for all raw materials, auxiliary materials, and components with reference to market prices. These planned (budgeted) prices are then used to determine the performance of the Procurement Department. A comparison of the actual cost of material to the standard cost is made for each item; this is then summarized.
- The Production link (cost elements: power rate cost, depreciation, salary and welfare cost)—Targets are set up for all products and within every workshop.
- Sales link and Management link—Administrative and financial expenses are detailed into every functional department. Selling expenses are detailed into two sales departments.

By means of this method costs are detailed horizontally into every functional department and workshop and vertically into each product. The company has found that its "cost target control" system stimulates the respective departments to actively control their costs. Each employee tries his best to reduce costs, and this forms an atmosphere conducive to cost reduction.

### Control of Material and Direct Labor Costs

The company performs a detailed analysis regarding the achievement of the target plan on a monthly basis, enabling it to maintain close control over its production processes. In addition, each subsidiary factory and workshop is required to report daily material usage. This enables corrective actions to be taken in a timely manner in the case of any abnormal material consumption.

The company set up material consumption quotas and labor quotas in order to strictly control factories' and workshops' material and labor costs. The company measures product output in tons. Each month's production is considered a batch. The company compares the actual materials consumed with the budgeted amount per the quota on a monthly basis. It analyzes the reasons for the monthly cost variances. It then takes corrective actions for any existing problem and rewards cost-reducing workshops based on a certain percentage of the savings. The company organizes cost analysis meetings quarterly to exchange management experience, discuss the existing problem, and to promote cost reduction.

### Performance Metrics and Employee Compensation

There are numerous metrics used to evaluate the performance of the Procurement Department: price, expenses, timely delivery, and the ratio of returned materials. Each of these is quoted and evaluated. The compensation of employees in the Procurement Department consists of two parts: a fixed salary (approximately 50% of compensation), and a bonus that is based on an evaluation of employees' performance (another 50% of total compensation).

The manager of the Procurement Department sets a quota for each employee and evaluates the performance of employees based on their individual quota. Also considered in the evaluation of the performance of Purchasing Department employees are the other above-mentioned metrics. Additional metrics considered in evaluating performance are attendance, observation of discipline, and fighting in the office.

### Production

Performance is evaluated at the factory and individual levels. (There is no separate evaluation at the work-group level.) The company has several factories, each with several products, to each of which a unit cost is assigned.

As part of the planning process, unit raw material costs and planned total and unit costs (quotas) for manufacturing overhead (itemized, including: wages, benefits, depreciation, etc.) are computed at the factory level. At the end of the year the company compares unit actual costs to planned unit costs (quota) for each product. For example, a factory may produce three products; the company compares the actual cost to plan by product and evaluates the factory by comparing the total actual cost of production to total planned cost. A factory manager/director's performance evaluation is based on the following metrics: cost of unit produced, quality, equipment management (maintenance), and factory output.

Production employees are paid on a piece rate basis. The quality of the goods produced is also a factor in determining employee compensation. There is a detailed bonus/penalty scheme: employees that exceed their quota, or produce better quality units, or have better attendance will receive a bonus. Those that produce defective products are penalized. Additional performance metrics include: output, output value (in RMB), quality, equipment maintenance ("equipment perfection"), safety, and attendance. Besides the monetary bonus, the company has a "praise system" to help motivate workers.

### Sales

The sales department is treated as an expense center. There are several quotas for the sales department, the most important of which is sales revenue. Also considered as performance metrics are: collection of accounts receivable, gross profit on goods sold, sales expenses, and development of new products.

The company does not pay commission to its salesmen. Instead, they get paid salary plus bonus. There is a detailed scheme for calculating bonus. The total bonus is allocated to departments (Domestic or Export Sales). Each sales department then allocates the bonus to the individual salesmen within the department.

### Cost of Capacity

Capacity utilization varies by market. For domestic products, capacity exceeds demand. For export products, demand exceeds capacity. It is for this latter reason that construction of additional manufacturing capacity is now underway. Generally speaking, the output for each month does not fluctuate substantially. The company's philosophy is that market forces should be felt by all employees. In keeping with this philosophy, overhead is allocated based on planned annual output.

### Auxiliary Departments

Service (auxiliary) departments include Inspection and Laboratory. The costs of these departments are treated as administrative expenses. They are budgeted in RMB primarily, based on the prior year's budget. They are usually assigned a percentage reduction for the next year from the prior year's budget. Because the fulfillment of the budget is linked to compensation, it is usually achieved. The budget targets are a slight stretch, but not overly so.

The major costs of the auxiliary department are labor, office supplies, testing materials, etc. The company adopts a management system of "assigning each worker to a fixed post, assigning to each post a fixed number of workers, and assigning each worker with a fixed amount of compensation." It compares on a monthly basis actual costs with budgeted costs. A certain percentage of savings from cost reduction is given as a reward to those who have contributed to cost reduction.

### Technical Indices (Targets)

The major economic indices are: the products output value, sales revenue, accounts receivable collection, cost target decrease index (normally 2.15%), and quality index (finished products rate). The production planning department is responsible for organizing the fulfillment

of the products output value; the sales department is responsible for organizing the fulfillment of sales revenue and accounts receivable collection; the financial department is responsible for organizing the fulfillment of cost target decrease index; the quality control department is responsible for organizing the quality index. The company evaluates the departments based on economic indices monthly and yearly, and provides awards accordingly.

The yearly indices used by the company are: products value, sales revenue, collection of accounts receivable, profit, target cost decreasing index, products quality index, equipment management, and the safe-and-well-disciplined production index.

The production planning department takes care of organizing the fulfillment of the products value index, and decomposing the company's value index into its two factories on the basis of the catalog of products manufactured by each factory. The subsidiary factory decomposes its index to different workshops under its supervision.

The quality control department takes care of organizing the fulfillment of the quality index.

The two sales departments take care of organizing the fulfillment of sales income and collection of account receivables. Each sales department decomposes the sales revenue as well as the receivable collection by individual salesman under its supervision.

The financial department takes care of organizing the fulfillment of target cost decreasing index and decomposes the index into company's functional departments, each taking care a part of the index.

Profit is the overall reflection of the achievement of each functional department, and it is the major index for assessing the performance of the company's general and vice general manager. Evaluation of the fulfillment of the above indices is carried out by the company's Assessing Committee monthly, with the result related to the salary paid. The company rewards good performance annually.

#### **Effect of Costing on the Management (Decision-Making) of the Company**

At present, the company calculates its cost on a monthly basis and for each product. The monthly cost accounting calculates the company's operational efficiency for the month, and provides the basis for market development, products engineering, and awards and penalties policy-making. The individual product cost accounting reflects the cost efficiency situation for a given customer or a certain product; it not only provides the monthly efficiency

of the company's operation, but also information concerning the profit and loss of specific products and customers. This can be used as the basis for ongoing decision-making. Currently, there are some unreasonable procedures in the distribution of costs related to the accounting process and in allocating expenses to individual customers. The company needs to analyze and solve these problems.

#### **Management Practices**

With regard to cost management, the company adopted the management method of Shanghai Yitong, with its "Each employee acts as the manager," philosophy and Handan Steel's "Cost pressure" ("Backwards Cost Analysis") approach to cost management.

In order to promote a market-oriented approach to running the business, Huijin forms buying and selling relationships between workshops, and performs target control based on the workshop unit. Also, the transfer of semi-products and materials between the warehouse and the workshop and between two workshops is regarded as a selling-purchasing relationship. Such transactions are performed in the form of receipts, which are accounted for and compared with the budget/target separately. The company also awards and penalizes its workshops monthly based on their performance.

#### **D. TBEA Co., Ltd., Wulumuqi, Xinjiang Province**

##### **COMPANY BACKGROUND**

Before 1993, TBEA was privately owned. After 1993 there were public stockholders, including several investment companies owned by the local government (with approximately a 30% ownership interest). The State capital has subsequently "retreated" and the company is now about 8% state-owned. It is listed on the Shanghai stock market, with 5% of the shares held by foreigners, including Morgan Stanley. It had sales in 2005 of \$500 million (10% export), and net income of approximately \$15 million. It has 8,600 employees.

In the 1980s and 1990s, with the change in economic policy, there was a great deal of consolidation among Chinese companies. TBEA was a major force in the consolidation of the transformer and related industries. In 1996 it acquired another (state-owned) cable company. In 2000 it acquired Hangyoung transformer factory, a large state-owned enterprise with 3,000 employees, which was the second largest transformer manufacturer China. Then, in 2003, it acquired for \$50 million the largest transformer company in China, with 8,000 employees. The acquired company was one of 184 projects purchased from the

Soviet Union. The company turned this around from losing large amounts of money to being profitable.

TBEA's vision/mission is as follows: "We strive to maintain satisfied customers, contented employees, and assured shareholders, achieve win-win in cooperation, serve the global economy, promote human progress, and become a reliable electric service provider." In order to fulfill this vision, it has adopted the following global strategy ("TBEA marching to the world"): "Facing the world, the company will keep the open attitude to pursue win-win cooperation with global best enterprises in power transmission and transformation, new material and new energy resource fields; promote the globalization of the enterprise with a global view, realize the globalization of talented people, organization of production, marketing, service, and market, and enhance the sustained development of the Chinese and world economies."

TBEA has three product divisions:

- power transmission and distribution (transformers, general contractor of international turn-key projects) with 2 business divisions: wire and cable, transformer;
- new materials (electronic materials, IT materials); and
- new energy resources (solar energy, wind energy).

There are 2 factories at the location visited; TBEA has 12 overall. Each factory has a factory manager, three to four vice-managers, and one general accountant. Each factory has its own independent production, sales, procurement, human resources, management, equipment management (maintenance), and financial departments. Each factory has its own sales territory (based on natural boundaries). This one supplies northwest China and Middle Asia.

##### **ACCOUNTING FUNCTION**

All of the 12 financial managers are appointed by the CFO of the company, and their performance is evaluated by him. Each factory's financial manager supervises two to three accountants. While the financial managers are responsible directly to the CFO, they also have responsibility to the factory manager.

In total, there are 100 people in top management; 35 of these are in the finance department. This department is responsible for cash management, financial accounting including budget, and taxes. In all, there are 35 management-level people in the financial department: 28 appointed down to the factory level and 7 people working in top management.

Each factory has its own accounting systems, depending

on its industry. Accounting policies are decided by top management. There are no shared service centers in the organization.

There are separate accounting departments in each factory, with 10 to 30 accountants each. Eight of the 12 factories are independent legal entities. While the majority of the time of the finance function is spent in an operations-related role, the financial department also takes part in decision-making, which is why the appointment of the second level chief accountants is made by the CFO (to see how operations are progressing). The function also includes internal audit, to determine if effective decisions are being made. Overall, at this company, the accounting function is considered very important.

##### **COST ACCOUNTING**

The company has a simple production process: it receives raw materials from copper companies, pulls it, encases it in plastic, twists it, and coats the cable. A transfer (inner) price is used for product transfers between workshops. This price includes raw materials, direct labor, and manufacturing costs (including energy cost) incurred in each workshop. Raw materials are recorded at standard cost; direct labor and overhead at a planned rate.

The company has approximately 10,000 products. It aggregates manufacturing overhead costs at the group level. The cable factory has eight groups. The allocation of group cost to products for inventory purposes is based on an index.

##### **Raw Materials**

Raw materials make up more than 90% of product cost for the cable products. The rest of the manufacturing costs consist of labor and manufacturing expenses (especially energy). The cost of the Procurement Department is included in Administrative Expense, in a manner similar to the other functional departments.

Raw materials usage is classified into various categories and a variance is calculated for each category. At the end of each month, the price variances are added together to compute the total price variance, which is allocated between ending inventory and cost of goods sold. This allocation is made at the factory level.

A planned (or standard) cost system is used in order to make a comparison of planned vs. standard cost. TBEA revises its price catalog (standard cost) every few months. Raw materials cost is collected in detail at the product (around 100 for the factory visited) level.



**Direct Labor and Fringe Benefits**

From the original record, the company records the actual number of hours spent on each job. Employees are paid on a piece-rate basis and the company charges actual labor cost to each job.

Machine setup is undertaken by direct laborers; the time taken for setup is recorded on the job order sheets.

**Manufacturing Overhead**

Overhead costs are aggregated at the workshop level. They are allocated between inventory and cost of goods sold. This allocation is not done on a consistent basis. Some factories base their allocation on direct labor hours; most factories use an allocation based on raw materials consumed. The allocation basis used is influenced by the product and technology employed. The company does not use a predetermined rate for the allocation of overhead. The allocation is based on actual cost, and is done on a monthly basis. In the past, production and sales were not subject to great fluctuation so there would not be a large difference between an allocation based on actual usage and one based on a standard rate. Budgeted rates are used for planning purposes only.

The cost of fringe benefits is generally treated the same as the related salary cost (i.e., it follows the cost of employees: if direct labor, it is included in the cost of production). This cost is followed on an individual (not group) level. The cost of the cafeteria for workers (cooks' salaries), where employees only pay for the food cost of their meals, and the cost of union staff and activities are distributed based on direct labor cost.

The company's auxiliary departments include Maintenance and Power. The cost of the Power Department is allocated to the production workshops based on metered usage (and actual energy costs). Maintenance cost is allocated based on actual maintenance hours worked and a planned rate.

Fixed assets are depreciated on a straight-line basis. The factory buildings are assigned a life of 30 to 40 years, the general machines 10 years, and the electrical (testing) equipment 5 years.

**Selling, General, and Administrative Expenses**

The cost of all functional departments is allocated to Administrative Expenses except for the cost of the Sales Department, which is allocated to Selling Expense.

Administrative Expense is treated as a period cost. It includes salaries, welfare expense, research and development costs, and other items such as travel, office,

environmental, and forestation (landscaping) costs. It accounts for less than 4% of total costs. This amount includes administrative costs incurred at the company, factory, and workshop level.

The land-use tax is charged to Administrative Expense. It amounts to 2 RMB/sq meter/year.

Interest cost is expensed unless associated with a capital improvement project.

Selling Expense includes the cost of payment to salesmen and the Sales Department.

The company produces no pollution; however, it incurs government fees in the amount of \$500,000 for administration cost related to environmental activities.

There is no allocation of Parent's Administrative Expense to factories. The same is true for company-level income tax.

**COST MANAGEMENT**

Generally the company has four levels of administration: the company level, the factory level, the workshop level, and the workgroup level. This last level does not exist in all of the industries in which TBEA operates.

**Budget Management**

TBEA has an overall budget management system. The annual budget process occurs in the fourth quarter of the year and includes the annual updating of a five-year development plan. There is a budget management committee at the administrative (parent) level of the company consisting of the CEO, CFO, head of economic operations (responsible for planning and strategy), head of the financial department, head of the internal audit department, President. There are also similar committees for each factory. Management at the second level of the organization initiates preparation of the budget. Budget submissions are consolidated at the top level of the company. The number of consolidation rounds varies, with some factories submitting a budget package only once. Others submit it two to three times.

The plan includes targets for key economic performance metrics, including: production, sales, employee training, quality standards, and satisfaction of customers. When the plan is finalized, a contract detailing the plan and performance responsibilities has to be signed by each factory. The performance objective is then delivered by the General Manager to each department and each workshop and by each workshop to each group and worker. Contracts are signed between each level. This is the setting of performance metrics at the managerial level. Budget

targets regarding cost, output, and customer satisfaction are set to be very challenging, but attainable. Product quality is a must—a target that must be achieved.

The company uses the idea of tracking back from the market to make sure that each factory does its duty in meeting market demands. There will be a target cost in the process of bidding for a job. This includes the cost of each process, step by step. TBEA gets orders by bidding for jobs. It traces back the cost of each order and calculates each factory's cost target separately. Each company must fulfill the targets to which it originally committed. It also uses benchmarking to find out the cost of outside companies. Several factories may have the same product, and the company will use the one that has the best performance.

There is a monthly evaluation of performance against the budget. At the factory level, TBEA uses a quota management system: targets are set on a fixed *per-unit* cost basis. The overhead allocation is set based on prior history and the sales plan for the coming year. Typically the company operates at 80% to 90% of capacity for the cable factory. For other departments, the company compares actual performance with the monthly plan to evaluate performance.

The targets for the factories we visited included: output (basis for employee compensation), direct labor consumption, raw materials consumed (these are from original records), working hours consumed on each machine (for distribution of direct labor cost; some factories use this for allocating overhead, while at others it is based on material consumption), quality (using a track-back system to a group or an employee, with strict inspection of finished goods), and unit cost. Variances can be handled in a variety of ways. If, through analysis, the company finds that enough effort was not made to achieve the target, the control process is strengthened; otherwise the company will revise the targets.

**Linkage of Compensation and Performance**

The company motivates its employees to improve performance in a variety of ways. One of these is the traditional Chinese praise system, where employees receive recognition for outstanding performance. In addition, the company employs a bonus system: typically 80% of employees' compensation is based on the piece-rate; the remaining 20% is based on their performance evaluations. Quality, stability in the consumption of materials, and operation skill will determine each worker's rank. From time to time, the performance of workers is evaluated and they are given a promotion or a raise.

The leader of the workshop is responsible for output, quality, and safety. He is paid a fixed salary (40%) based on rank, and a bonus (60%) based on performance of the whole workshop. So, output is a bigger factor in determining a supervisor's pay than his rank. On average, a superintendent's pay is 2 to 3 times a line worker's pay. Superintendents (and above) can get a yearly bonus if they have completed their targets for this year.

For state owned enterprises, the general guideline is that the pay of top executives should not exceed 15 times the salary of the average worker. Here, pay for a second-level manager generally does not exceed this guideline. Top executive compensation does not exceed 100 times the average pay of workers.

**E. Xinjiang Bayi Iron & Steel Co., Ltd.,  
Urumchi, Xinjiang Province****BACKGROUND**

Xinjiang Bayi Iron & Steel Co., Ltd. (Bayi) is a state-owned integrated iron and steel producer. It got its name from the Peoples' Liberation Army, which has a similar name. *Ba* means "eight"; *yi* means "one"; 8/1 was the date of the founding of the PLA. The Company was founded in 1951 under General Wang Zhen by the Peoples' Liberation Army and the local people. Chairman Mao had asked which Zhen wanted to build in this region first—a rail or steel plant. The general replied steel. Three of the original top four managers were from the Army. The fourth was the mayor (Communist Party Secretary) of the local town. At the time it was hard to build a plant here due to its remote location. The workers needed to build roads to transport materials. Construction (which included the first blast furnace) of the plant took seven months and was completed in 1952. The factory continued to grow. Blast furnace #3 was built in 1954; the converter was completed 14 July 1952. Other milestones: completion in March 1983 of a 5-ton electric arc furnace; completion in October 1987 of a 310-ton blast furnace; 2003 construction of three 380 m<sup>3</sup>-capacity blast furnaces to complement the three already in existence (all identical). Originally a single plant, the company is now a group company, with 33 subsidiaries/functional departments, producing 700 kinds of steel products, generating 550 M RMB (2003) of revenue. The efficiency of the company has improved, as reflected by its coke ratio (coke used/iron output), which used to be greater than 1000 kg/ton and is now about 450 kg/ton.

**COST ACCOUNTING**

The basic trend in costs in recent years is upwards, due to: (1) the rising price of raw materials and fuel, (2) the rising price of water and electricity, (3) rising labor costs, and (4) the rising price of spare parts.

**Raw Materials**

Approximately 80.8% of the total cost of direct materials consists of the purchase price of raw materials. Warehousing (included in Administration Expense) comprises another 1.6% of the total cost of raw materials, and transportation cost (included in raw materials) comprises the final 17.6%. The cost of raw materials is allocated to products based on actual cost and actual usage. Bayi does not use standard costs.

The Procurement Center is responsible for purchasing. Actual prices are allocated to production. The Demand and Supply Department is responsible for the warehouse operation. There are two warehouses: one for raw materials, the other for general materials. The cost of the purchasing department, including warehouse-keepers' salaries, is treated as an Administrative Expense.

Using original records, the consumption of major raw materials is reported daily. The consumption of direct material is controlled through the use of indices, based on monthly production.

**Direct Labor and Fringe Benefits**

Production cost includes direct labor cost, based on the actual cost of labor. The iron-making factory labor is accumulated by sub-blast furnace. The salary cost of each blast furnace is allocated to production cost. Iron-making is allocated to production cost based on output and rolling mill records; direct labor is allocated to production cost based on the output of each piece of equipment. Welfare cost is allocated to production cost based on 14% of total salaries. Hospitalization costs (basic hospitalization insurance) are paid out from this account. Expenses provided for the aged and housing common funds are charged directly to Administrative Expense; they are not distributed to production cost.

Equipment change-overs are done by the direct labor workers. The cost of these product change-overs is included in product cost.

**Auxiliary Departments**

The expenses of the auxiliary departments for the iron-making operations (which include the management office and the maintenance center) are included in management scope and manufacture scope separately. At the end of every month they are allocated to the molten iron output of the blast furnace based on output.

The expenses of the auxiliary department (the maintenance center) for the steelmaking operations are allocated to the converter furnace and electrical arc furnaces based on the headquarters plan. The salary cost of this department is included in the direct labor cost of the converter furnace and electrical arc furnaces. The other maintenance center expenses are allocated based on yield and selling price to the converter furnace and electrical arc furnaces as manufacturing overhead.

There are three steel departments: converters, two electric arc furnaces (EAF), and the Maintenance Department. This last department takes care of the three factories. Its cost is divided into two parts: labor and other. Allocation of its costs is based on the philosophy that it should guarantee the smooth operation of the factories. This department therefore contracts for a fixed annual fee to provide services to the factories. The fixed fee has two parts. The labor portion is included in direct labor; the other portion is included in manufacturing overhead expense.

Allocation of the cost of the Utility (including electricity) Department is based on the quantity of energy consumed (which is determined by meter readings). The unit cost for this department is based on planned (standard) cost.

**Manufacturing Overhead**

Overhead is allocated based on actual costs incurred. It includes:

Depreciation charge	42%
Repair cost	10%
Test cost	9%
Material consumption	8%
Salary	7%
Labor overtime	4%
Welfare	2%
Labor protection charge	2%
Mine maintenance charge	2%
Freight	2%

Overhead allocation is done in the same manner as service (auxiliary) department costs.

**COST MANAGEMENT AND PLANNING SYSTEM**

Bayi's planning system is typical of the "production-techno-financial planning" systems used by large and medium-sized State enterprises in China since it started its industrial development at the beginning of 1950s. (It was so named because the overall planning process was comprised of three major parts: the production plan, the techno-economic indices, and the financial results set by the government institutions supervising those enterprises.) Its content is almost the same as the "master budget" in the West, except that the production plan goes before the sales plan. (After shifting to the market economy, Chinese enterprises start their planning with sales, but large state-enterprises typically still keep the old "production-techno-financial planning" name.)

Consistent with having a planning system grounded in China's past, Bayi's planning department is responsible for the annual planning process. Economic/technical indices are taken care of in the production technical center (formerly, technical center). Starting with the production plan and technical indices, each department prepares its budget; the Planning Department prepares the overall plan. The Planning Department works on cost analysis when it is not working on the budget. Financial planning/cost analysis is not done by the Financial Department.

The budgeting process is undertaken in the fourth quarter of each year. The company revises the budget for the next month for uncontrollable factors (and the year as a whole). Bayi Steel uses volume-based budgets, which are based on the cost incurred in the base period and adjusted based on the forecasted volume of operations in the budget period and cost-reducing measures.

The monthly cost/profit plan is prepared on the basis of the annual cost/expense/profit plan and the monthly production schedule. This monthly plan is reviewed and approved by the responsible person before it is assigned to departments/units for execution. The annual cost, expenses, and profit plan are combined with the monthly production plan to work out at the end of the month the dynamic cost/profit/checking plan for the next month. After examination and approval by the chief leaders, the plan is transmitted to lower levels for execution.

Bayi recorded its receipt of land-use rights by debiting "Land" and crediting "Capital" for the assessed value of the land. This value is being amortized over a 50-year life. The amortization is treated as an Administrative Expense and is not included in production cost.

Depreciation is based on the book value of capital assets. There is not much difference between book value and the market value. Also, there is not much difference between depreciation expense for financial reporting and tax purposes.

Overhead expense of the stock (parent) company includes all expenses related to the organization and control of production affairs by the enterprise administration management department. These are treated as Administrative Expenses. For 2005, these expenses consisted of:

Labor insurance	23.6%
Manager salary	22.4%
Depreciation charge	17.8%
Tax	3.8%
Heating system expense	3.6%
Material consumption	2.4%
Worker and staff welfare	2.2%
Amortization of intangible assets	2.0%

Interest cost is capitalized for capital projects; otherwise it is recorded as Administrative Expense.

The marketing function is centralized at the company level. Selling Expenses consist of the cost of transportation (82%), salaries (4%), inspection fees (3%), service charges (2%), and materials consumption (2%). They are treated in the same manner as other Administrative Expenses—as a period cost.

Every year Xinjiang Iron & Steel Group Co., Ltd. pays discharge sewerage fees to the Environmental Protection Bureau. The company's Environmental Security Department is responsible for paying the discharge sewerage fees and allocating them to each cost unit.

The parent's administrative costs are not allocated to factories.

The company typically operates at over 95% of capacity, except for the rolling mill, which is used less.

The company holds a cost analysis conference periodically to perform quantitative and qualitative analysis of the reasons for variances. The company then compares its performance with average level and advanced indices of companies in the same industry so that it can determine the difference and set up measures as the basis of checking and strengthening cost management. A comparison of actual and target costs and expenses and profits of each working unit is performed monthly and summarized at the end of the year.

There is a comprehensive set of production management targets (yield output, types, dispatching instructions, production process control, fuel gas management, production accident rate, auxiliary production and guarantee of service departments to mainline production units), quality management targets (process control and quality management on site, product quality, physical and chemical testing management, customers' quality claims management, working quality, and three systems standardization), accident management targets (production, equipment), profit cost management targets (profit, cost and expenses), equipment management targets (fixed asset management, equipment checking and repairing management, industrial construction management, purchasing plan, storage management, projects management, construction management, special equipments management, etc.), and safety and environment protection management targets (personal accidents, traffic accidents, environment protection, safety checking, cleaning, and meal sanitation). In order to reduce costs the company encourages units that fulfill the reviewing targets to reduce costs by a certain ratio. The company also awards the units that exceed their profit target a certain percentage of the excess.

The cost management system has had a positive effect on development planning, on business strategy, on business decisions, on operating targets, on resource allocation, and in dealing correctly with the relationship among the responsibilities, rights, and interests of cost management. It supplies information for determining product selling prices and adjusting product mix, facilitates the establishment and carrying out of the price comparison system for material purchasing, and helps optimize the flow of work and reduce unnecessary division of work.

In developing its cost management system, Bayi studied the experiences of Baosteel.

**Performance Evaluation/Incentive Compensation**

In determining the amount of bonuses due employees, Bayi first evaluates the performance of each factory and computes its bonus. For the iron-making factories, performance metrics include: production (includes several indices, such as output, ratio of liquid production to failed delivery, management of gas); cost (per-ton coke consumption, hours/batch), accidents, and safety (with three indices for accidents: producing [breaking operating rules], equipment, quality). Each factory then evaluates the performance of individual furnaces and further allocates the bonus. Approximately 20% of employees' compensation comes from the bonus, 70% from evaluation of cost performance, and 10% from accident prevention. Safety has a veto factor with regard to the payment of bonuses.

For the rolling mill there are four parts to performance evaluation: cost (including quality and yield), production, accidents, and safety. The company distributes the bonus to the factory, then to the furnaces. The Manager of the second level has great discretion in the distribution of the bonus in his factory. The factory managers are not supposed to hold a portion of the bonus, but they can hold up to 5% for flexible purposes. The average bonus is around 500 RMB. There can also be negative bonuses/incentive pay. In those cases the company defers the bonus for several months until a penalty is paid.

**Selling Prices**

Factors considered in setting sales prices include: historical selling price and additional information from the planning department, the market, and the national pricing association. There is a sales price committee that is responsible for revising sales pricing.

**F. Jiangxi Copper Corporation (JCC)  
Guixi City, Jiangxi Province**

**BRIEF HISTORY**

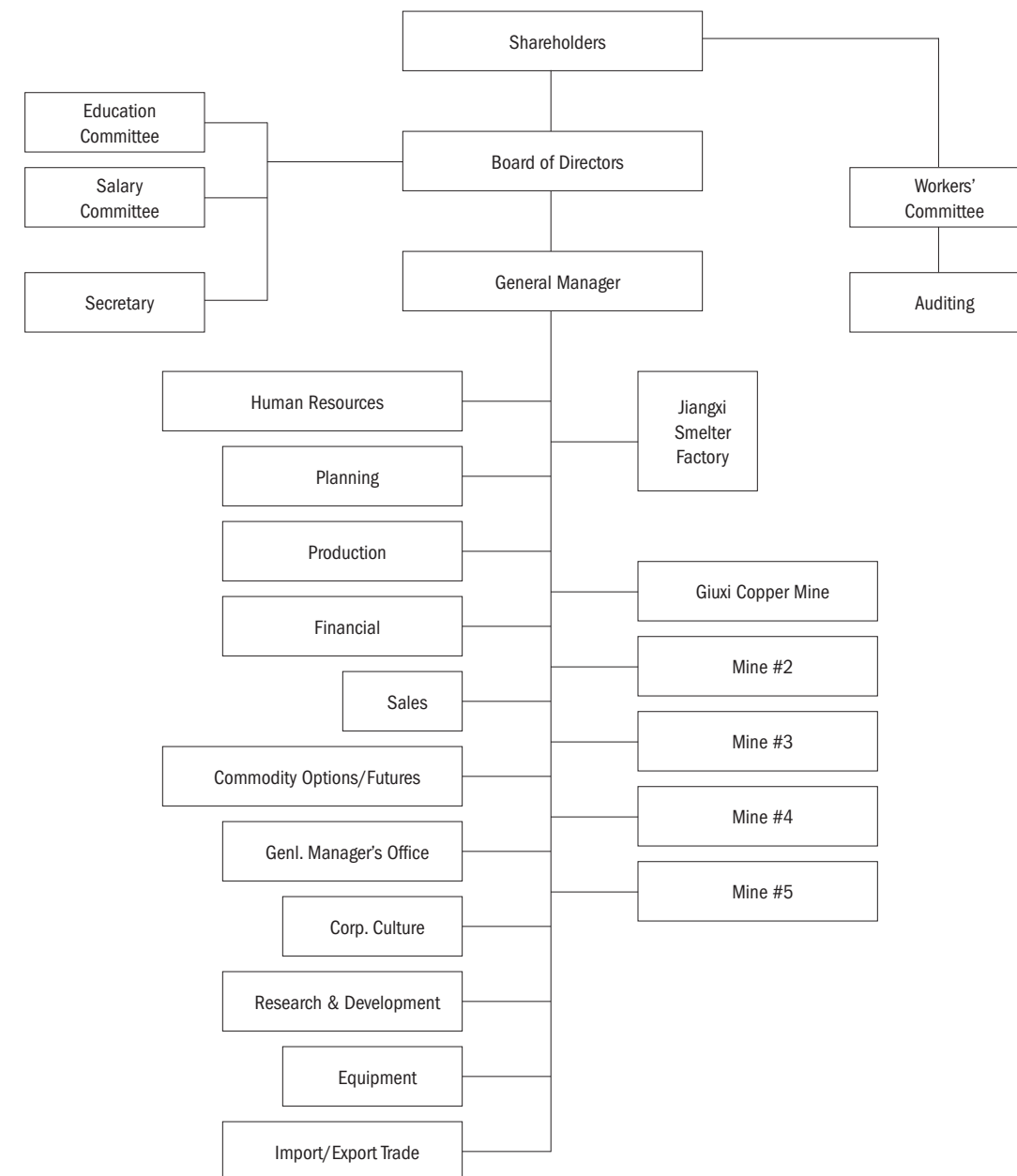
JCC is the largest copper producer in China; it owns two of the largest copper mines and one of the largest smelting plants in the PRC. It is one of the largest corporations in Jiangxi Province. It had the first smelter in China to use new technology from Japan and Finland, resulting in lower energy consumption and higher automation. Besides copper it produces silver, gold, and other by-products.

The company was founded in 1979 as a state-owned enterprise. As China has transitioned to a market economy, ownership of the company has undergone a series of changes. During the shake-up of China's metal industry, JCC's ownership was transferred to a state-

owned enterprise, China Copper Lead Zinc Corp., in a bid to create more efficient utilization of resources. It became clear that precluding regional and enterprise management involvement caused many problems within the system. In a move toward restructuring of China's loss-making non-ferrous metal industry, ownership of JCC was transferred to Jiangxi Copper Company and it was managed by the Jiangxi provincial government.

Jiangxi Copper Company, which is currently 46-47% state-owned, holds a 52.41% stake in Jiangxi Copper. The company now has nine plants. JCC formed a subsidiary that went public in 1997 and is now a stock company. The company is listed on the Hong Kong and Shanghai stock exchanges, and also has A shares listed on the London Metal Exchange (LME), which are also issued as an American Depository Receipt (ADR).

**Figure JCC-1. Jianxi Copper Corp., Ltd. Organization Chart**





In order to go public, JCC followed a peeling-off process: part went public; part remained owned by the State or a mixture of state-owned and private enterprise. The original assets of the peeled-off companies were evaluated by an auditing company; the results were conveyed to the Ministry of Finance. The evaluations were used to value the assets of the company prior to going public. The funds raised by going public enabled the company to pay off existing high-interest debt and to improve equipment and enlarge production.

The company had sales of 20.1 B RMB in 2005. It produced 442 tons of copper; 12 tons of gold; 330 tons of silver and other real-metal by-products. It has total assets of 21.4 B RMB, net assets of 11.4 B RMB, and 13,040 employees. The company is organized as indicated in Figure JCC-1.

## COST ACCOUNTING

### Direct Materials

The cost of direct materials includes the purchase price, purchasing expenses, transportation expenses, reasonable waste, and taxes. The smelting factory is permitted to directly purchase 20 to 25% of its materials and spare parts. These self-purchased raw materials are accounted for at planned cost; the company also uses planned prices to transfer the cost of concentrate to the smelt. (JCC uses standard cost to simplify the accounting process.) An adjustment to actual price is made at the parent company level. The remainder of the factory's materials are purchased at the company level and also transferred at planned price. (At the company level there is a purchasing department that is responsible for the price of goods purchased.) The purchase price variance is adjusted by the finance department at the company level. The product cost of this company is relatively low due to its relatively low cost of raw materials. This is due to the significant percentage of ore it obtains from its own mines.

### Direct Labor and Fringe Benefits

All the salary costs of the company visited (Jiangxi Smelter Factory) are included in the cost of manufacturing. (This makes sense since this is a manufacturing subsidiary.) Welfare costs equal to 14% of salary are accounted for at the company level.

### Auxiliary Departments' Costs

The company uses three sources of energy: steam, purchased electricity, and self-produced electricity. It uses the actual cost of this energy in computing the cost of its products.

The company evaluates the energy workshop's performance based on the unit cost of energy. In the energy workshop there are two workshops (cost centers): one is self-produced electricity; the other is the group that transforms electricity purchased from outside. The energy workshop is evaluated on the total costs incurred by the two workshops (and not each individually).

Every year the Financial Department sets up a planned cost for each of the energy workgroups, which is evaluated annually. The factory only evaluates the controllable part, such as salaries, of workshop expenses. The variable cost of the department is changing because of changes in the cost of the electricity. For the purchased portion of this resource, the per-unit cost is rather stable. For self-generated electricity, the variable costs are a large portion of the cost and subject to fluctuation. This cost is allocated to factories and workshops based on metered usage.

### Manufacturing Overhead

Manufacturing overhead includes salaries, welfare, office cost, water and electricity, travel, insurance, heating, rent, interest, repairs, supplies, depreciation expenses, design (for the maintenance department), testing expenses, labor protection, warehouse, and other expenses.

JCC has 14 cost centers, one for each production and service department. There is a cost pool for each. There are also cost centers for administrative functional expenses (with a subsidiary account for each functional department); the cost of these expenses is not allocated to the production departments.

Each production department produces only one product, so allocation of overhead is not a problem. The cost of the administrative functions is allocated to the four different products based on the value of the product (at standard prices, set by government for statistical purposes).

There are two kinds of maintenance expenses: daily maintenance and periodic (overhaul) maintenance. Overhaul expenses are accounted for using the deferred method; however, if the overhaul cycle is 15 months or less, all costs must be amortized by the end of the year.

Depreciation is taken over the average life of assets based on asset lives contained in the tax regulations.

Actual manufacturing overhead incurred is allocated to products based on predetermined percentages of the costs incurred. The government requires that quarterly reports reflect reality; and this company believes that actual costs do this. The use of standards costs would better allocate responsibility for cost variances.

The factory is operated as a cost center. The parent allocates the cost of this factory to the extent of the benefit.

The costs of materials and labor consumed by indirect departments are allocated directly to the cost items that support the production. The indirect costs of these departments are allocated at the end of the month to products.

### Administrative Expense

Administrative Expense includes the cost of the labor union, education, insurance, intangible assets amortization, advisory expenses, pollution expenses, land taxes, housing, and administration expenses. The company gathers these expenses together and treats them as period expenses. Administrative Expenses do not include the expenses of the functional departments; these are allocated to the manufacturing costs.

JCC has an internal bank organized by its Finance Department. The subsidiaries use funds from or lend funds to this bank. (All subsidiaries must fund the internal bank.) Borrowers pay interest and other related expenses. Interest expense is paid by the listed company; the loan expense is allocated to secondary profit centers. The internal interest rate is not the same as (but is close to) the bank loan interest rate. This device is used only for internal performance evaluation purposes.

### Selling Expense

The group has a sales department responsible for sales at the company level. Because sales price is based on the London Metal Exchange (LME) price, the compensation of salesmen is just the base salary. They have to achieve at least the price on the LME.

### Cost Management

The copper industry is very globalized. In geological terms, this company does not have an advantage over other companies. In China the mines are usually underground, and that type of mine is more expensive to operate. Overseas mines are mainly open pit, and cheaper to operate. There is also the cost of transportation to the refinery. Additionally, in foreign countries copper ore typically has a concentration of 2 to 4%; here it may be down to 0.2 to 0.4%. Cost management is essential to being profitable.

During its many years of operating experience, the company has formed its own style of management, which includes its financial management system, consisting of cash management, capital management, cost management (the 3 Cs), and risk management. It believes that cash management is fundamental, and that cost management is essential. Capital operation is a major process. Accounting information forms the basis for these systems. Risk management exists through the whole system.

Capital management flows from the top (group) level. The parent company has many subsidiaries. The listed company is a subsidiary; it has the authority to make investments. The other subsidiaries can also invest. The mine subsidiaries also have their own workshops; they form the basis of the cost management system.

JCC views having a carefully constructed budget plan as the most important part of cost management. The company still uses the term "cost planning." It normally makes a cost plan beginning in the third quarter of each year for the following year.

The cost plan generally goes through two rounds. It is first guided by top-level management; then it is sent to the factories. The subsidiaries revise the budget based on market conditions, and send it back to the parent company.

JCC's general philosophy is that it is not realistic to reduce costs every year: it is a copper producer and ore quality varies. Methods used to reduce costs include:

1. Technological innovation, which accounts for approximately 50% of cost savings. This includes the improvement of the existing flash furnace (from 75 000 T to 300 000 T).
2. Management innovation, accounting for 20% of cost savings. These innovations include installation of a dispatch (satellite) system, increasing processing recovery, and improving the grade of the copper concentrate.

3. Capital operation and asset operation, accounting for 3 to 5% of savings, includes savings from lowering the cost of debt financing.
4. Centralizing purchasing (approximately 1/3 of cost reduction) of materials.

Every year JCC makes the program plan for the following year. However, a “dynamic adjustment” is made as needed. If (for example) the cost of energy changes, the company will adjust planned costs for the Purchasing Department. This occurs when there are major natural changes or major changes in market prices (such as oil), or when there is a new government regulation that significantly affects costs. This is done mainly for the evaluation of the cost centers. An adjustment may also be made with respect to the mining operation as a result of either of two factors: the mining itself or the peeling off of the dirt on top. The ratio must sometimes be changed because these factors cannot be controlled by the mine.

Cost control is exercised at three levels: the company level, the factory (smelter and mines) level, and the workshop level.

The finished product of the smelt factory (which has no right/ability to sell its output independently) is allocated to the listed company at the planned price. The smelter (factory) evaluates the performance of its various workshops using planned cost.

JCC employs a parallel costing method. Under this method finished products are allocated the difference between planned price and actual cost on a monthly basis. The difference goes to the cost of production at the company level. This helps eliminate the effect on the factories of changes in the market price. The refined ore (final product of mines) market price may change, but JCC keeps the planned cost the same.

The transfer (planned) price for the concentrate transferred between the mines and the smelter is set based on market price. There is a different planned cost for each mine (based on geological factors). The mines are treated as cost centers. JCC feels this is the best treatment because the market price for the mines' product (concentrated ore) varies so substantially (which is beyond their control) and they are not authorized to sell it on the market.

### Performance Evaluation

The company uses actual cost in its accounting system, but uses planned rates for performance evaluation.

JCC considers two parts of costs for performance evaluation purposes. Top management may evaluate groups by total cost. For the smelter (the next layer), the company evaluates performance based on conversion cost, not total costs.

For workshops there are four categories of performance: output (including total output and yield index), unit conversion cost (fixed and variable), quality, and safety and environment.

JCC believes that internal performance evaluation is a management function and should be carried out regardless of whether the company is operating in a planned or market economy. However, with the listing of its subsidiary on the stock market, the company received more international attention, necessitating the improvement of its management in order to compete with international companies; this is another incentive to enhance its cost management.

The company had a performance evaluation system before the economic reforms that was very similar to its current system, but the linkage between performance evaluation and compensation was not strongly emphasized. Now it is, down to the individual level, and a larger percentage of pay is performance-related.

### Cost Management Experience

After the company was listed on the market, it was “closer to the market.” In 1998, during the Asian financial crisis, the price of copper plunged and the company had to control its costs very strictly. It managed costs down to the workgroup and individual levels in order to make all employees feel the pressure from the market. As time went by the price of copper increased and profits increased, but the need to control costs has not eased and JCC has developed a system of cost control.

Beginning in 2005 the company has developed a system of cost saving awards under which cash awards are given to the groups that control costs to an amount below plan. In this way, the group is motivated down to the individual level.

JCC believes it is important to create an atmosphere of cost consciousness and cost control. It has devised a 3-2-1 slogan to communicate the idea of cost management to employees. This system includes:

- 3 “completion”: (1) “cost is the responsibility of all members,” (2) “cost controlling throughout the whole process,” and (3) “cost saving in all dimensions”
- 2 “strict”: the first is planned cost operated strictly, the second is cost evaluated strictly. (This means that if you don't achieve your cost-controlling goal, your performance on other metrics will not help.)
- 1 “detail”: operating cost indicators in a very detailed way

The company produces a very hazardous by-product, so environmental training is taken very seriously.

### Budgeting Process

JCC has a very comprehensive cost management system, including a budgeting and economic responsibility evaluation system. It also carries out a cost responsibility and technical economic indicators evaluation system, evaluated by different departments.

Budgeting is carried out at four levels: the company level, factory level, workshop level, and work section (3 or 4 per workgroup) level (although sometimes the budgeting may go down to the individual level). At the factory level, JCC use the flexible budgeting method to budget based on technical indicators. All staff departments have expense budgets.

At the end of each year, the financial department makes the cost budget for the following year for a factory based on its planned production. At the other level of the organization, it divides the cost budget downward. When setting the budget, JCC considers the difference between controllable and uncontrollable costs. The company uses a participatory budgeting style.

The planning department makes the following year's production plan, the technical department makes the economic indicators plan, and the purchasing department makes the purchase plan. All of these plans are consolidated for cost planning purposes. First, the upper department sets the suggested plan for the secondary departments. These departments consider it and discuss it with upper management; after three or four iterations, the budget is set. This process generally occurs in the fourth quarter of the year.

### Responsibility Cost System

The Financial Department makes responsibility cost standards for materials, electricity and maintenance, and other workshop-controllable costs after considering technical and economic indicators, last year's results, and this year's production plan.

At the end of the month, the Financial Department and the other departments evaluate the results of the responsibility cost and technical economic indicators. All the controllable costs are evaluated. Direct material and direct labor consumption is managed based on unit costs. The company measures expenses only based on their controllable portion.

The factory analysis of economic activity is done every quarter based on responsibility cost and technical economic indicator analysis. The difference between practice and planning provides the resources for management decision-making about next year's production and cost management.

Cost planning and analysis are done by the Finance Department (unlike Bayi, which performs this function in a different department).

## G. Anshan Iron & Steel Group Corporation Anshan, Liaoning Province

### COMPANY BACKGROUND

The area around Anshan Iron and Steel Group Corporation (“AnSteel”) possesses rich iron ore reserves (9.3 billion metric tons) that account for about one-quarter of China's total reserves. (There are enough reserves left for another two centuries of production at the present pace of production.) There are also large deposits of coal (which is used to make coke, another important raw material needed for iron production) in the nearby Fushun coalfield. The Anshan area is also rich in auxiliary raw materials such as manganese, which is necessary for ferrous metallurgy. It is for this reason that the area in which Anshan is located is called the “Ruhr” of China.

The Japanese occupied the area from 1931 to 1945 and exploited its natural resources, operating the predecessor of AnSteel. The Soviet Union declared war on Japan soon after Germany's surrender, and defeated the Japanese. At the time of the Japanese surrender, Soviet troops used their occupation of this area to dismantle and take back to Russia important equipment from the steel plant. A new Anshan Iron and Steel Company was established in 1948 and started up on the ruins of its predecessor iron and steel works. Production was quickly resumed, and large-scale technical renovations and capital investment followed.

During the first decade after the 1949 revolution, AnSteel occupied a decisive position in China's steel industry. There were few other companies in the industry, and AnSteel was the most important company in this vital industry. This importance was based not only on its physical output, but was also due to its being a source of trained workers, enabling the expansion of the steel industry in other provinces throughout the country.

Despite its prominent role in the early years of the steel industry, AnSteel failed to maintain its competitiveness. AnSteel's business efficiency was poor compared with other steel giants in China since the early 1990s. Since that time, AnSteel has taken steps to improve its competitiveness, including improving its management control system, pursuing public ownership of part of its operations, and renovating its production lines. By following market-oriented production arrangements and management, improving its business operations, adjusting its product mix, and actively developing new markets, AnSteel has dramatically improved the quality and the profitability of its operations.

#### Company Organization

In the late 1990s, the factory structure was changed. Previously, all similar processes were grouped into a factory, regardless of location. Each factory had its own selling, purchasing, and accounting departments, and acted like a division, selling its products and purchasing raw materials. The accounting function was not centralized. Each factory had its own chief accountant. The chief accountant was the second highest-ranking person in each factory (as required by the Central Government).

In 1997 the company was restructured; now all related processes are grouped together into an "operational district" under one manager. There is one accountant who calculates costs for each district. The company uses "operational accounting," or the "original record (registration)" system (similar to Bayi), which tracks consumption of raw materials and labor, and other indices. (The accountant for each area is responsible for maintaining the original records.) The accountants submit their reports to the accounting department of the company. The company Finance Department can then use this information to calculate total product cost.

As part of the company restructuring, the sales function was moved to a company-level Marketing Department, and purchasing to a company-level Procurement Department.

The finance section in the factories was changed to be devoted solely to cost calculating and the remaining accounting functions were consolidated at the company level as well. In the past each factory had a chief accountant. That position was eliminated in 2000. The factories are now more production-oriented and are no longer operated like divisions.

The Planning Department used to have two functions: quarterly production scheduling and general coordination of the planning process. (AnSteel also had a Production Department responsible for monthly, weekly, and daily production planning.) This department was split in two parts. The production scheduling is now done by the Production Department and general planning was merged into the Planning and Finance Department.

#### COST MANAGEMENT

##### Background

AnSteel was the pioneer in cost management in China's steel industry and, to some extent, the pioneer nationwide, especially during the 1950s. Later on, other steel companies caught up to it and developed their own cost and production management techniques based on AnSteel's innovations. Cost management at AnSteel has gone through four stages. A brief summary of these stages follows.

During the first stage (1950-1960) AnSteel developed the parallel costing technique, now widely used throughout China, and "mass-line" accounting. AnSteel's status as China's preeminent iron and steel enterprise resulted in its becoming a national model, profoundly affecting the development of cost management throughout the entire industry.

The second stage (from the 1960s to 1970s) encompasses a short period of time during which innovative cost management techniques were developed, followed by a period of political activity during which many of these techniques were abandoned. During this period AnSteel's parallel costing method became popular. AnSteel's cost accountants took the methodology one step further. Instead of using it solely to assign planned costs to each factory, AnSteel assigned an "intra-company transfer price" to each factory's product or semi-products that were transferred to the downstream factory for further processing. By doing so, they could decompose the whole enterprise's profit into profits "earned" by factories/work-

shops, and factory directors' sense of responsibility for the fulfillment of the profit of the whole enterprise could be greatly enhanced.

By the end of the 1970s, political movements (the Great Leap Forward and the Cultural Revolution) had twice extinguished the enthusiasm among Chinese accountants to improve enterprise cost management. However, with the commencement of China's openness policy in the late 1970s, they once again resumed their efforts. In the third stage (from the 1980s to the 1990s), AnSteel's experiences blossomed and bore fruit, with many of its management and costing techniques spreading to other steel giants, while the company itself abandoned use of these tools. Finally, in the fourth stage (1995 to the present), AnSteel returned to its roots, re-adopting and adapting the methods it helped develop through decades-long trials.

##### Cost Management Today

AnSteel was in an extremely difficult economic situation in 1994: its equipment had become obsolete, its products were of poor quality, it lacked a market for its products, it was required to support a labor pool of 500,000 employees, it had 13.8 billion RMB of uncollectible debts, and it had more than 10 billion RMB of long-defaulted bank loans outstanding. Since then, AnSteel has instituted organizational reforms and equipment renovation and achieved a remarkable turn-around.

From 1991 on, procurement was based on market prices. AnSteel established a standard (planned) cost for each of its production processes. This standard (planned) cost is calculated at the beginning of the year and fixed for the whole year. At the beginning of the year, the factories have zero profit goals based on standard costs. (The planned prices included internal profit.) If a factory reduces its cost below standard, it will have a positive profit at the end of the year.

##### Transfer Pricing

In the 1990s, AnSteel faced the same problems as those encountered by HanSteel: sluggish sales, declining market prices, and declining employee morale. There was great pressure to reduce costs. AnSteel, like steel enterprises all over China, followed HanSteel's "pulling backward" cost analysis method. The HanSteel experience called for putting pressure from the market on the second-tier managers, and eventually on all employees. Later when the market recovered, this method gave the factories too much margin. AnSteel then switched back to the original "push" method using standard costs. This resulted in a big change in cost planning.

##### Budgeting

The control of raw material usage using the quota system was practiced in the 1950s. (Quotas were set by the Technology Department.) The comprehensive budget (products, technology, and planning budgets) was formerly under the Planning Department. Even though AnSteel had traditionally used such controls, in the course of transition to the market economy and the peeling off of the listed company, and with the change to market prices, the regular routine of quota control was neglected.

Prior to 2000, AnSteel had a planning and control system, but it was rough because it was a manual system. There was too much work to have a detailed system. The company didn't compute cost by product, only by category (less than 10 of these). In 2000, the Planning and Finance Department assumed the responsibility for coordinating preparation of the budget. It got all departments involved in its preparation. (This is a change from the company's prior practice, where the Planning Department did all the planning and the Accounting Department focused solely on cost. In the budget control system all functional areas are now involved, including Sales and Production.) The company now has more detailed control over costs.

The budget process begins with the Production Department suggesting a production schedule based on capacity (in rather general terms). The Sales Department then gives information regarding what products will be sold on the market and submits product sales plans. The annual budget includes a cash flow budget, production budget, and profit budget. The budget is divided into months. The profit budget is more important than in the past because everyone is involved in the budget. This is what AnSteel means by "everyone attending." The budget is now used in evaluating everyone's performance.

The process of preparing the budget can have several iterations. Mr. Zhang (head of the Finance and Planning Department) prepares the first iteration, and sees what the pro forma profit is. The company then has a meeting to see where performance can be improved. After several iterations, a final budget is agreed upon.



The setting of a quota is very important in that it determines costs. So although originally set by the Technology Department, the Finance Department pushed to get quotas approved by top management and printed in a company handbook. Direct costs are planned based on the quotas. Raw materials quotas are set by the Technical Department (with input from the Ministry). Indirect (overhead) expenses and administrative expenses are controlled by the Finance Department. Their budgets are based on the prior year.

When the budget is prepared and approved, standard costs are used as a benchmark to evaluate performance of factories and as transfer prices. In practice, whenever an expense is incurred, the relevant functional department must give its approval.

The budget department must collect data step-by-step and report it to the General Manager (GM). If the GM agrees with the budget, the company will work on its execution. This is called overall control because results (actual vs. standard) are reported to the GM. In setting the budget amounts, the company considers costs for prior years and the technical plan.

If a department is spending less than standard, it can spend the difference on other things. If it wants to spend more, it must get approval. Two factors affect budget results: internal and external. External factors include the cost of raw materials and the market prices of goods sold. The General Manager considers both factors in deciding the following year's budget. The company's management believes budget management is a good tool for cost management and for getting everyone involved in cost reduction. It has helped reduce costs rapidly in the last two years because everyone feels the market pressure.

#### Performance Evaluation and Compensation

In the 1990s, AnSteel implemented a comprehensive performance evaluation system, which is linked to the compensation system. The whole company is treated as one large bonus pool. If the company does well, there is a larger bonus pool. The pool is allocated to the factories based on their performance. Factories allocate the bonus to the second level (workshop) based on their performance. This is then allocated to work teams. Workers' performance is based on multiple indices. This method of allocating bonus motivates employees to work for the good of the company as a whole.

The difference between actual and standard costs is used to evaluate the cost performance of the factories. This difference is usually very small—less than 1%. Because the budget contains not only quantities but values, each worker knows what he or she should do and feels pressure. There is now a budget book that includes raw material prices, quotas, etc. Each factory has its own standard performance metrics. Each factory has its responsibility to specialize this to each worker. If the workers do not perform well, they get paid less. Bonus and penalties range from +/- 1,000 RMB. If an employee's standard salary is 3,000 RMB and he/she performs well, he/she might get 3,500 RMB; if an employee performs poorly, he/she might get 2,500 RMB.

The Accounting Department's function is not to determine workers' pay. This is decided by the teams, as each team leader knows how hard each worker works.

In the past, the company tried to express all performance in monetary terms, but it then realized that this was not necessary. Workers pay more attention to non-monetary performance metrics.

#### Outsourcing

In the past, AnSteel didn't outsource any functions. Now it has found that it may be better to outsource to specialized companies. The company currently outsources maintenance of the iron kettles: the cost is lower and the quality is better. It also outsources the operation of its "sky vehicles." These are directed by the ground work-team leader. They now split it in two parts. The lift belongs to another company and not the iron company.

#### H. FAW (First Auto Works) Auto Group Changchun, Jilin Province

FAW was formed in 1953. From a single factory producing 30,000 trucks annually, it has grown into a motor vehicle company producing one million vehicles annually, with a sales value of 1.4 billion RMB. Approximately 10% of its production is exported.

The Group Company has a parent-subsidiary organization, with 18 functional departments, 4 branch companies (FAW hotel company, a power company, an education and training center, and a housing exchange center), 29 wholly-owned companies, and controlling interest in 19 other subsidiaries, including three listed companies (FAW Passenger Car Co., Ltd., FAW Si Huan Chang Chun Auto Co., Ltd., and FAW Xin Li Tianjin Auto Co. Ltd.). The company has three production bases, located in the Northeast, North, and Southwest of China.

There have been five main phases in FAW's development.

- The first phase consisted of the time period 1953-1956. During this time period, construction of its first factory was begun (15 July 1953) and the first truck rolled off its assembly line (15 July 1956). The output of the factory was primarily trucks for use by the Red Army; there was very limited car and bus production.
- The second phase (1956-1978) was the "second pioneering stage"; it was one of growth and development. During this time period (1965-1970) it assisted in the construction of Auto Company #2.
- The third phase (1978-1986) was a period for remodeling of the factories and the introduction of new models. Capacity of the factory was increased to 120,000 vehicles per year. In the 1980s it started the batch production of cars.
- The fourth period (1987-1998) was a period of adjustment, the "third pioneering stage," with adaptation to the market economy. This was a breakthrough product period, with the introduction of light-, medium-, and heavyweight trucks and the transition from being a domestic to an international vehicle vendor.
- The fifth period (1999-present) involves reconstruction, the building of a new FAW, with the forming of alliances with foreign partners. The company has three goals during this period: to produce and sell one million vehicles annually, to install computer-based management systems, and to expand international operations. (The company currently has joint ventures with Toyota and Volkswagen).

At the location visited, there were two workshops. The first, built in 1953, employed 200 people and had a capacity of 2,500 vehicles/month, or 125 vehicles/employee/month. The second (new) workshop, currently operating at 60% of capacity, employs 600 people (with plans to increase that eventually to 845), and has a capacity of 10,000 vehicles/month. This latter factory includes a subassembly line, a final assembly line, and an adjustment line.

Employee compensation consists of a basic wage plus two types of incentives. The first of these is moral encouragement: praise and recognition for superior performance. The second type of incentive is bonuses, which are based on fulfillment of production targets and the difficulty/skill requirements of a given task. Quality measures are tracked by individual and affect bonus payment; safety is a "veto" index.

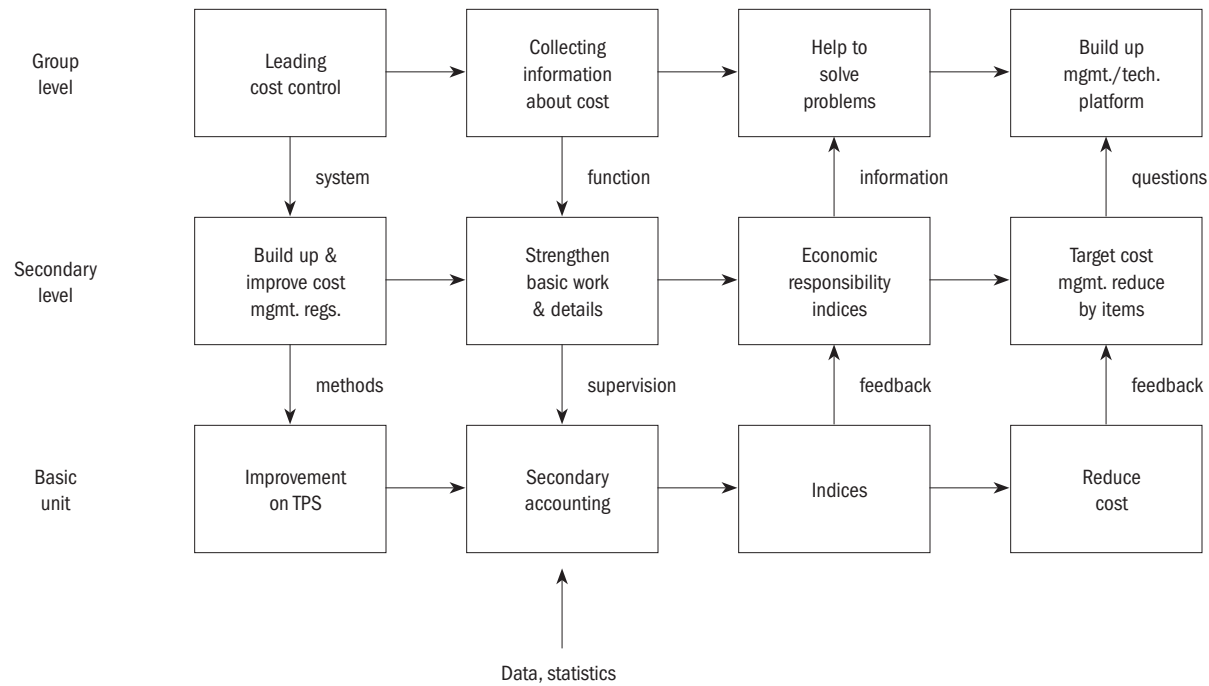
The company has bank debt with a nominal interest rate and an indefinite term. The portion of the interest payments attributable to the unlisted part of the Group has been stopped.

#### Accounting Function

There are 1,703 employees in the accounting and finance function at the first and second levels of the company.

- The group- (corporate-) level finance function sets group accounting and management system requirements according to national requirements, supervises second-level implementation, and fulfills other top-level finance functions (consolidation of group results, forecasting, analysis, assist in decision-making);
- The company/subsidiary-level finance function sets and monitors its own details on implementation and performs other functions (data collection, budgeting, managing, controlling, data analysis); and
- The factory or third-level branch companies (e.g., the axle company) level is the primary accounting unit level, at which requirements from above are carried out. At this level factories can set their own management methods and give feedback to upper management levels; they also perform other functions, including accounting (data entry), budgeting, managing, controlling, and analysis.

The interrelationships between the roles of these three levels are as follows:



Management accounting is viewed by FAW as a more detailed aspect of financial accounting. It has set up its accounting rules to be in conformance with the national Unified Accounting Rules.

Prior to 1997, FAW—like all enterprises in China—was considered a “cost center.” Each company would report its costs and variances based on an internal price to the Finance Department. After 1997, a market-based system was initiated, with each unit acting as an independent accounting entity.

**Cost Management**

FAW’s management is working to improve its cost and performance management systems. It is doing this in the following ways:

- Training in cost management concepts, including “lean production,” “TPS learning,” “Secondary accounting,” “Cost indices evaluation to workgroup and individuals,” and raising the consciousness for the need for cost control (2005: “the year of cost”; 2006: “strengthen cost control”),
- Enhancing accounting rules and regulations,
- Improving the internal accounting control system, and
- Improving the financial management information system.

Cost management methods/tools for the company include the following:

- Target setting: the setting of cost management indices and targets at the group and subsidiary levels,
- Methods: having the involvement of all employees in the use of a variety of methodologies/tools, including the TPS, ERP accounting system, economic responsibility indices evaluation system, etc., and
- Management system: having a cost system in place to help analyze, control, and forecast operations in the various departments.

The goals of FAW include:

- Improving cost accounting regulations,
- Making cost accounting more detailed and combining cost accounting with the performance evaluation,
- Improving input-output analysis and controlling the use of materials,
- Building up and improving the cost management system, and
- Developing the ERP management system.

**I. Haier Co., Ltd., Qingdao, Shandong Province**

**COMPANY BACKGROUND**

Haier is the world’s fourth largest white goods manufacturer and one of China’s top 100 electronics and IT companies. It is a collective corporate enterprise, with listed subsidiaries. It has 240 subsidiary companies and 30 design centers, plants, and trade companies and more than 50,000 employees throughout the world. Haier specializes in technology research, manufacture, trading, and financial services. Haier’s global revenue in 2005 reached RMB 103.9 trillion (US\$12.8 billion).

Haier’s development can be divided into four phases: Brand Building, Diversification, Globalization, and Global Brand Building. In 1993, Haier’s brand was officially recognized as a “famous brand.” Since 2002, Haier has been ranked first among China’s most valuable brands for manufacture of 16 products, including refrigerators, air conditioners, washing machines, televisions, water heaters, personal computers, mobile phones, and kitchen integrations. On August 30, 2005, Haier was ranked first among China’s top ten global brands by the Financial Times.

Haier has long attached significance to innovation in satisfying the demands of worldwide consumers. It currently has 6,189 patented technology certificates (819 for inventions) and 589 software intellectual property rights. Haier has hosted and taken part in modification of approximately 100 of China’s technology standards.

Haier’s “OEC,” “Market-chain,” and “Individual-goal combination” management methodologies have been recognized worldwide. Its experiences have been included in case studies from leading educational institutions.

Facing intense global market competition, Haier has launched its global brand building strategy and updated its spirit (“Create resources, worldwide prestige”) and work ethic (“Individual-goal combination, swift action, and success”) with the aim of gaining global recognition and sustainable development.

Haier’s strategy is to create a world brand in three steps (known as go abroad, go localized, and go up to a higher level), enabling it to realize the goal of 10/20/30 (that is, the value of the brand surpassing US\$1 billion, foreign sales revenue exceed 20% of total revenue, and the benefits from abroad exceeding 30% of the total). The Group’s strategic plan is updated every three to seven years, with small adjustments being made according to changes in the market and environment.

**Product Dumping**

On May 17, 2004, the European Union imposed a definitive antidumping duty (of 44.6%) on imports into the Community of cathode-ray tube (CRT) TVs manufactured by Haier Electrical Appliance Corp Ltd. and six other Chinese producers. The EU had initially adopted antidumping measures on imports of cathode-ray tube (CRT) TVs from China in 1998. In 2002, it accepted a “joint undertaking” with the companies and waived the tariff under the agreement. The EU subsequently requested on-the-spot verification visits on the premises of two of the companies, but was rebuffed by one of them. Because this broke the terms of the 2002 agreement, the EU decided to re-issue the anti-dumping duty. The impact of the duties is not expected to be large as the penalties pointed at low- and medium-end CRT TVs, which account for a relatively small proportion of exports to the EU.

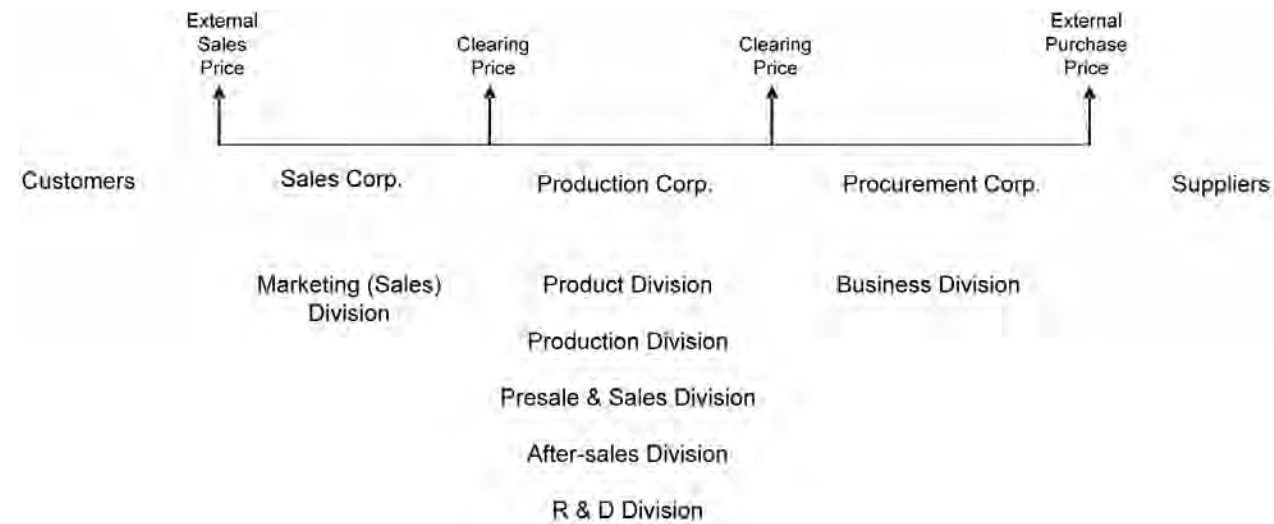
**ACCOUNTING FUNCTION**

Haier has a Funds Promotion Division, which is equivalent to the Finance Department in a Western company. There are also an Accounting Division, a Budgeting Division, a Capital Center, an Auditing Center, a Strategy Division, and an Overseas Business center.

Haier has sales, production, and procurement corporations, each of which is a separate legal entity and a separate taxpayer. However, in keeping with its SBU concept, Haier is managed at a divisional level, with the divisions being treated as independent, internal profit centers as depicted in Figure Haier-1.

In the Washing Machine Production Division, there are five factories, each with its own bank account. When an order is received from a customer, the Sales Division places an order for product with a factory, which produces and delivers the goods. (Prior to 2002, production was set to satisfy given inventory requirements; now it starts with a customer’s order.) When the Sales Division collects cash from the customer, it pays the factory for the goods based on a predetermined transfer price. The factory in turn pays the Finance Department for its purchases. The difference between the amount received from the customer and the amount paid to the factory is profit to the Sales Department; this amount is remitted to the parent.

Figure Haier-1. Organization of Haier Divisions



**COST ACCOUNTING**

Haier is involved in four fields (technology, industry, trade, and metal) and has more than 240 individual accounting units.

In its washing machine business, there has been a general upward trend in manufacturing costs due to rising energy costs and increases in the cost of colored metal. The company addresses this trend by engaging in technological innovation and developing high value-added products, leading to an increase in average selling price.

**Direct Materials**

The purchase price of materials accounts for 97.4% of the cost of direct materials, with other costs accounting for the remaining 2.6%. The cost of raw materials is directly allocated to the cost of the products according to the type of product.

Haier sets a planned price to control the price competitiveness of its products and fixes a standard cost for each. Variances from standard costs are typically in the range of between 1 and 2 percent.

**Direct Labor and Fringe Benefits**

Direct labor cost is allocated to products based on actual costs incurred and direct labor hours. Fringe benefits (including child care, tuition, and medical expenses) are allocated to products as a percentage of direct labor cost. Medical insurance, pension expense, and the housing allowance are included in Administrative Expense.

**Manufacturing Overhead**

Overhead includes indirect labor (the salaries of the managers in the workshops; 15% of overhead), welfare expense (child care, tuition, and medical expenses; 7% of total), depreciation expense (30%), maintenance expense (24%), labor protection expense (7%), and other expenses (17%). It is aggregated at the workshop level, which is the third level of the organization. Indirect labor and welfare expense are allocated to products based on direct labor hours. The other elements of overhead are allocated based on machine hours used. Overhead allocation is based on actual costs incurred.

Auxiliary departments include the Energy Company, the Logistics Department, and the Equipment Company.

The cost of land usage rights is included in overhead.

**Selling and Administrative Expenses**

Administrative expenses include research expenses (41%), salary expense (13%), brand expense (7%), labor insurance (7%), welfare expense (4%), and other expenses (28%). These expenses make up 11% of total costs.

Selling expenses include advertising expense (31%), branch sales office expense (6%), delivery expense (28%), and other expenses (25%); they make up 13% of total costs.

Selling and administrative expenses are treated as period expenses; they are not allocated to the business units.

**Transfer Prices**

Transfer prices, set by the Finance Department, are based on market value. They are determined by negotiation between buyer and seller. This is done on a quarterly basis.

**Cost Management**

Haier uses the following cost management tools/techniques, which it believes are very useful: target costing, responsibility accounting, pay for performance, performance evaluation, standard costing, and activity-based costing. It also uses internal transfer pricing, which it believes is useful, and flexible budgeting.

There is an annual budget, which is divided into months and days. There are typically seven to ten iterations in the budgeting process. Some variance analysis is performed to improve the budgets for subsequent periods. The contents of the budget and the department responsible for each portion of the plan are as follows:

Item	Department in Charge
Sales plan	Marketing department
Production plan	Order unit
Technological and economic index	Development department
Standard (planned) cost	Finance, marketing and development departments
Purchase budget	Distribution and JIT
Labor plan	Personnel department
Pro forma statements	Finance department
Capital plan	Finance department
Planned cash flow chart	Finance department
Profit budget	Finance department
Fixed asset investment plan	Programming office
Direct labor budget	Personnel department

**Performance Evaluation**

Employees' performance is assessed in order to evaluate staff members; these evaluations are a key factor in their promotions and the granting of salary increases. The evaluations are performed according to Haier's "market chain salary system."

The performance metrics employed are linked to the overall organizational objectives. This alignment is achieved using Haier's concept of every employee belonging to an

"SBU," whose income comes mainly from the value the staff of the SBU create. Each SBU is related to the market and owns its own goals. It can develop only through a combination of the goal and individual efforts. The goal of each SBU should be to achieve higher profits by optimizing usage of the resources it employs and through innovation. The objective is to have each employee "face the market" (internal or external). In this manner, alignment of the goals of the employee and the organization is achieved.

**Control of Direct Material and Labor**

Quotas for material usage are calculated according to the Bill of Materials. Material cost standards are based on the usage quotas and target costs. Variance analysis is used to find unfavorable material usage and the party responsible for such usage.

**Cost Management and Performance Measurement**

Performance is measured using Haier's TVM—total value management—system. The key factor in this system is to get incremental value and development of the organization by self-management and achieving increments in value of each SBU.

The "market chain salary system" of Haier is based on the income of an SBU and the value it creates. Value creation is measured based on a profit-and-loss calculation for the SBU. Typically 20% of the profit is allocated to a bonus pool for the group (the employee team within an SBU), with the remainder being allocated to the organization. Part of the bonus pool is paid to individuals in the form of cash; the balance (often the larger part) is allocated to the unit. The cash bonus is allocated among team members based on a predetermined percentage, including the team leader.

There is a comparison of actual performance to budget on a monthly, weekly, and daily basis. This evaluation is performed using the "SBU market chain profit-and-loss chart."

Cost information is used in strategic planning and price-setting as well as for process improvement, development of a purchasing network, and optimizing product design.

Prices are set by first analyzing the market situation, Haier's competitors, and Haier itself. Haier's competitive market position is then assessed, based on an analysis of users' needs and market conditions. An analysis of Haier's cost competitiveness is then made, using target costing and break-even analysis. An analysis of profitability is then made by examining the sales budget, channel budget, and target profit. Finally a market price is determined.



**J. Tsingtao Brewery Group, Qingdao, Shandong Province**

**COMPANY BACKGROUND**

Tsingtao Brewery's history dates back to 1903, with the establishment of the German Beer ("Tsingtao") Company. It was one of the earliest beer companies in China and was established to produce German-style beer. Initially, it had an annual capacity 2,000 tons of beer. The high quality of the water in the area contributes to the quality of Tsingtao's beer; soon after the building of the brewery, its beer earned an international prize for its quality.

The brewery was taken over by the Japanese at the end of the First World War and operated (1915-1945) as the Japan Ale Company. It was during this time (the 1920s) that it began exporting its beer, with sales to Southeast Asia. After the Second World War (1945-1949) the brewery became the National Tsingtao Beer Factory, operated by the National Government.

Other company milestones include the export of beers to Hong Kong (1954); the appointment of Tsingtao's brewing process as the national standard in China (1964), and the first exports to the U.S. (1972). Tsingtao continued to grow during this period, and in 1992, producing capacity reached 200,000 tons. In 1993, Tsingtao went public, becoming the first Mainland China company to be listed on the Hong Kong and Shanghai stock markets (H and A shares). The established capital is 1.3 B RMB. A total of 32.56% of the stock is held by the government. Of the non-state-owned stock, 23% is listed on the Hong Kong stock market (H shares); the remaining 50% is listed on the Shanghai (domestic) market.

The period from 1996 to 2001 was a period of expansion. The company implemented its Grand Brand Strategy and purchased 40 companies nationwide using its newly-raised capital; 18 provinces in China now have Tsingtao breweries. There are also over 20 sales branches nation-wide.

From 2001 to the present, the company has focused on doing more work internally. There have been three transformations/change in focus:

- from production to marketing
- from focusing on purchasing competitors to building its own brand
- from emphasizing production capacity to business capability

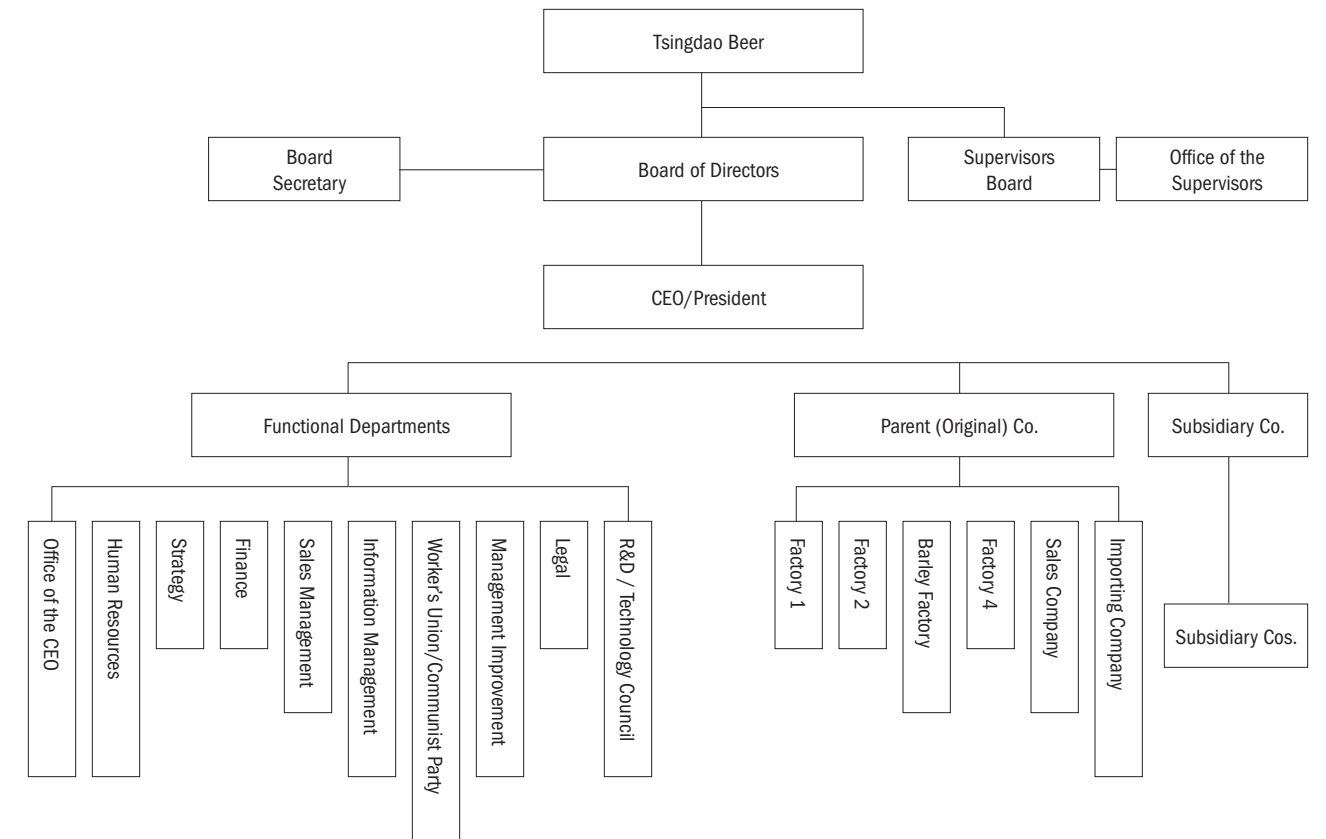
In 2002 the company formed a strategic alliance with AB (Anheuser Busch), U.S., and implemented a best practice exchange. AB is now the second largest stockholder of Tsingtao Beer, with 27% of non-state ownership. Tsingtao beer is a well-known beer, and Tsingtao has considerable export sales. In 1980 it comprised 2% of China's total export trade volume (now less due to China's growing exports). Today the Tsingtao brand is sold in more than 50 countries worldwide and accounts for more than 50% of China's beer exports.

The Tsingtao Beer Company is now China's largest domestic beer company and also its largest exporter. In 2005, the company produced 4,080,000 tons of beer, had sales revenue of 10 B RMB, earned a profit of 3.4 B RMB (including value added tax), and had net profit of 0.53 B RMB. (Company representatives indicated that Tsingtao has a 3% profit rate, consistent with that achieved by other Chinese companies.)

Today, the company produces a variety of beers. Besides its original beer, it brews black and green and bitter and sweet beers. A key factor in Tsingtao's success is the quality of its beers, which is based on its special technology, mainly based on its original German technology. This is one of its core competencies. There are two others: human resources and technological development, which reach the international level. (Its R&D center is sponsored by the government.) Its raw materials are also the best available, and include high quality water and barley imported from Canada, Australia, and France.

The current organization of Tsingtao Brewery is depicted in Figure Tsingtao-1.

**Figure Tsingtao-1. Organization Chart**



**Role of Finance Function**

Accounting is not considered to be a function of top management—not a leading department. Other departments, such as engineering, are primary. The role of the accounting department is viewed as providing information, not making decisions.

With regard to the use of cost information by the engineering department, the engineers ask for the information they need. Decisions regarding the introduction of new technology and the addition of new capacity are made by bringing in the engineering, logistics, and finance departments. The capital expenditure budget is prepared by the engineering department, and it also participates in outsourcing decisions.

**COST ACCOUNTING**

The accounting method employed by Tsingtao keeps the characterization of raw materials, direct labor, and overhead as they move through the various processes. This is called "parallel" costing and is now done by all brewers in the industry. (This is the old Soviet methodology.) The company believes that is useful for cost analysis.

The company faces generally rising costs for the resources that it consumes with, for example, energy costs rising 3.4% in 2005.

**Direct Materials**

Tsingtao annually solicits bids for its barley supply. In recent years there has not been much variation in the price.

The company uses full absorption costing in valuing its inventory. A small amount of transportation-in costs of raw materials as well as the cost of the purchasing department are included in inventory. Also included are factory rent and corporate overhead. The company values its inventory in its ERP (Oracle) system at actual cost.

**Direct Labor and Fringe Benefits**

The company declined to disclose its labor costs, but noted that there are differences across brewers, with some incurring labor costs twice as much as Tsingtao.

Direct labor includes salary and 14% fringe benefit, and pension and health insurance; they are allocated to inventory. The pension and health care plans are defined-contribution plans from the perspective of the employer. Following the rules for firms with some foreign ownership, employees pay 8% of their previous year's total pay (salary and bonus); an additional 20% is contributed by company. The total of 28% is sent to the Social Security Bureau. The 8% is vested in each employee's name; the 20% is kept collectively in an anonymous pool by the local government. Health insurance contributions are 2% from employees and 8% from the employer. Benefits are age-dependent. There is also a working housing benefit, with a contribution of 7% by employees and 13% by the company, all vested. For unemployment insurance, 1% of wages is paid by employees and 2% is paid by the company, all vested, with benefits up to 24 months, similar to the U.S. The company pays 1%, adjusted based on experience, to the government for health coverage insurance for workplace accidents (and the company must continue to pay the employee's wages while the employee is recovering). Finally, there is birth insurance, with a rate of 0.9% paid by the employer for all employees, male and female; the benefit is 5 months of vacation paid for by the government. So, in total, the company pays an additional 45.9% (20% + 8% + 13% + 2% + 1% + 0.9%) of salary and wage cost for various fringe benefits.

**Manufacturing Overhead**

Tsingtao includes the cost of overhead in product cost rather than including it in Administrative Expense (which it indicated is done at many other Chinese firms). Figure Tsingtao-2 provides an example of this allocation. Costs are allocated to units sold and to ending inventory on a per-unit basis (using a FIFO flow assumption).

The basic production workshops and auxiliary (service) workshops (maintenance and energy) at the third level of the organization are treated as cost centers. The company treats the costs incurred at this level as product costs. In a similar way, Tsingtao treats expenses incurred at the factory (second) level as overhead and allocates these to products. (Each factory has a barley-making department, a brewing department, a packing department, and auxiliary departments [maintenance and energy]). At the first (company) level, costs incurred are treated as period expenses.

The cost of land usage rights is amortized over a 50-year period.

**General and Administrative Expenses**

Administrative expenses include company expenses (48%), insurance (16%), housing (7%), taxes (6%), inventory variance (3%), and other expenses (20%). These expenses account for 9% of Tsingtao's total costs. They are treated as period expenses and not allocated to products.

Sales expenses account for 20% of total costs. They are treated as a periodic expense.

**COST MANAGEMENT**

Under the planned economy, the company did not have any right to set prices for its finished goods (and the prices for its raw materials and labor were fixed as well). Production volume was *not* controlled, but the company was told to produce as large a volume as possible. Output was distributed to consumers by means of ration coupons for beer. Now the planning process is much more complicated.

Starting in the early 1990s (1992-93), beer prices have been determined by the market. The costs of raw materials and wages are also market-based. This change extends to the raising of capital: under the planned economy, the company was reliant on the government for funds; now it must raise them itself.

**Budgeting**

Tsingtao employs a master budgeting system and also uses flexible budgeting. Its budget is based on its strategy, sales, and financial plans. The overall budget management system has three levels: the company, the subsidiary companies, and the factory level. A Budget Committee oversees the budget process. The budgeting process includes preparation of the following: sales plan, production plan, economic indices, standard costs, procurement budget, planned labor, direct labor budget, planned revenue, capital budget, planned balance sheet, profit budget, capital and debt budget, and cash flow budget. The sales budget is provided by the Sales Department. It, in turn, is used to prepare the purchasing and production budgets.

Since the 1990s, the budget has included detailed standard costs. The standards are created based on company experience; these are then reevaluated if there are departures. Target profits are calculated using standard quantities and prices. These are used as part of the performance evaluation system.

**Cost Management and Performance Evaluation**

Performance is evaluated at the following organizational levels:

- HQ
- Sales division
- Brewery
- Workshop
- Production Line
- Workteam

The type of performance metrics used to evaluate performance varies depending upon the organizational level, as indicated below:

Organizational Level	Revenue/Profit	Cost	Techno-economic Indicators	Other
Sales division	X			
Brewery		X		X
Workshop		X	X	x
Producing line		X	X	
Workgroup		X	X	
Functional department		X		

To motivate workteams, Tsingtao uses tailored scorecards, which include metrics such as efficiency, yield, cleanliness, and recent innovations. The performance measures are not just profitability and are not the same across all workteams.

At the factory (brewery) level, actual and standard product costs are compared (for a given output volume). A given percentage of costs under budget is allocated to workers' bonus. (At the older factories the salary/bonus ratio is about 50/50. At the company's new factories, sometimes bonuses are higher.) Other performance metrics are also used, including safety. The most important targets for the factory are production, quality, and cost. These are linked to the compensation of the workers. Safety is a "veto" metric. The compensation of all the employees of the factory is linked to these metrics, not just that of the manager.

Internal transfer prices are set at an amount equal to cost (including taxes) plus a small profit. They are set jointly by the Financial and Sales Departments.

Tsingtao has learned from AnSteel's cost management experience. It ties budgets to both production volume and also annual cost reduction in order to provide incentives for innovation and incentive to manage costs more efficiently. However, since many improvements in efficiency have been realized since moving from the planned economy, it is starting to get harder to reduce costs year

to year. In recent years, emphasis has been on saving energy. Other opportunities exist to reduce costs, such as machine maintenance. One possibility is to stop production for a week each year to maintain all equipment. Now maintenance is done every day and it is not necessary to close down the plant. Another possible cost reduction opportunity is batch production by beer type.

**Other Issues**

With regard to use of various cost management techniques, Tsingtao uses target costing, pay for performance, variance analysis, flexible budgeting, and internal transfer pricing. It is introducing the BSC now, and it already uses a "tailored scorecard." There is no awareness of ABC. The company is familiar with, but does not use, TOC and EVA.

With regard to dumping, Mr. Nu (deputy CFO) indicated that Tsingtao's raw materials (including barley) costs are the same as for international competitors because they are sourced in international markets. Water might be a little lower per unit, but water is cheap. Bottles might be cheaper in China because the raw material for glass is less. Beer cans are similar in raw material cost to international competitors since aluminum is bought from abroad, though processing costs are less in China. Tsingtao's processing equipment is Chinese-made and less expensive than that available abroad, as is the processing cost of turning barley into malt. The retail price of Tsingtao beer in the U.S. is higher than the company average. No dumping charges have been brought against China with regard to beer pricing. The company's main motivation is increasing market share, not getting foreign exchange for China.

Figure Tsingtao-2. Example of methodology used to calculate unit cost (hypothetical data).

Brewery Mills	beer surplus		beer current input		shift to package (500 tons)						beer surplus	
	output	100	output	900	Jan. surplus 100 tons		400 tons Feb.		total		output	500
	amount	sum	amount	sum	amount	sum	amount	sum	amount	sum	amount	sum
1. Major raw materials												
Malt	10	25000	100	250000	10	25000	44	111111	54	136111	56	138889
Rice	4	7200	40	72000	4	7200	18	32000	22	39200	22	40000
Water	100	300	800	2400	100	300	356	1067	456	1367	444	1333
2. Utility												
Coal	4	1200	50	15000	4	1200	22	6667	26	7867	28	8333
Electricity	600	300	5000	2500	600	300	2222	1111	2822	1411	2778	1389
3. Salary		2500		12500		2500		5556		8056		6944
4. Overhead		10000		90000		10000		40000		50000		50000
Manufacturing cost		46500		44440		46500		197511		244011		246889
Unit cost		465		494		465		494		488		494

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Package Mills	beer transfer		current package		finished beer	
	output	500	amount	sum	amount	sum
	amount	sum	amount	sum	amount	sum
1. Major raw materials						
Malt	54	136111			54	136111
Rice	22	39200			22	39200
Water	456	1367			456	1367
2. Utility						
Coal	26	7867	40	12000	66	19867
Electricity	2822	1411	3500	1750	6322	3161
3. Packaging						
Carton			70000	140000	70000	140000
Bottle			800000	400000	800000	400000
4. Salary		8056		30000		38056
5. Overhead		50000		60000		110000
Manufacturing cost		244011		643750		887761
Unit cost		488				1776

Beer waste not included

K. Hongdou Group, Wuxi, Jiangsu Province

COMPANY BACKGROUND

The origins of Hongdou Group (“Hongdou”) extend back to 1957, when the grandfather of Zhou Haijiang (Hongdou’s current CEO) began a cotton-processing operation which employed three people in a rented space near Wuxi. Soon thereafter Communist officials forced his operation to merge into a collective with two other companies. In subsequent years, business was tough as China went through years of starvation and social chaos. In 1983, Zhou Yaoting—then the Communist party secretary of the family’s home village—took over the operation of the near-defunct company partly founded by his father. China’s new economic policies permitted—and even encouraged—the sale of state- and collectively-owned enterprises to their directors and employees and 3,000 (out of 4,000) of Hongdou’s employees, led by Zhou, bought out the company and re-registered it as a privately-owned enterprise. A dozen farmers then put together their domestic sewing machines to provide the production equipment for a new garment factory, laying the foundation for the future growth of the company.

From this small beginning, Hongdou has grown into a diversified group of companies. Its philosophy is that “a small boat is easier to turn around; a large one is more stable.” With its current parent-subsidiary organization it believes that it has the advantages of stability and flexibility.

Hongdou currently has ten subsidiaries, with one company listed on the Shanghai stock market and three more that are soon to be listed. (One of these would be the first Chinese company listed abroad.) It operates 116 factories, including two in New York and Los Angeles. It is currently the largest producer of clothing (underwear, layer style clothing, and other garments) for the domestic market. It also produces Western-style suits, shirts, fashion garments, jackets, ties, lingerie, children’s and women’s garments, and woolen sweaters. In 1995, it entered the motorcycle business by purchasing a motorcycle factory in Shanghai. As a result of this acquisition it needed tires for its motorcycle business, and it went into the tire manufacturing business as well. Besides these businesses, Hongdou is engaged in real estate development, the weaving of cloth as part of its garment business, and the raising of Hongdou trees for medicinal purposes. Currently 10% of Hongdou’s revenue comes from real estate, 20% from the sale of motorcycles, 20% from tires, and 50% from garments. Hongdou’s organization chart is depicted in Figure Hongdou-1.

Along the way, the company has undergone numerous changes in its ownership. After the initial employee buy-out, the company ended up with too many stockholders and none felt like owners. The listed company was established on June 16, 1995. In 1997, the shareholders decided to increase the register capital to 100 B RMB. The following year, the listed company was changed into a group limited company. The group now has 800 shareholders (50 for the parent company and 750 for its 10 subsidiaries, excluding the public company), who are generally all at the senior management levels. Of the group’s equity capital, 70% comes from the parent company, with the rest coming from the minority shareholders. Shares of the listed company are traded on the Shanghai security exchange. More than 48% of the shares of this company are owned by Hongdou Group.

Sales revenue for 2005 totaled RMB 1.2 billion, of which RMB 245 million was export sales. Total assets are RMB 2.48 billion, owners’ equity is RMB 1.1 billion, and net income for 2005 was RMB 74 million. Hongdou employs 4,915 people.

In keeping with the group’s operating philosophy, the relationship between factories is viewed as being similar to dealing with the outside markets. Each company may buy materials from inside or outside of group. Once the motorcycle factory didn’t buy tires from within the group for two years due to a lack of quality and the high cost of its product. This motivated the tire factory to improve its operations very quickly. Tires are now the third largest in the company.

The Hongdou Group values innovation, as evidence by it having the most Chinese patents in Wuxi (in 2004), and in its ranking as 25th in China in 2005 in the number of patents received.

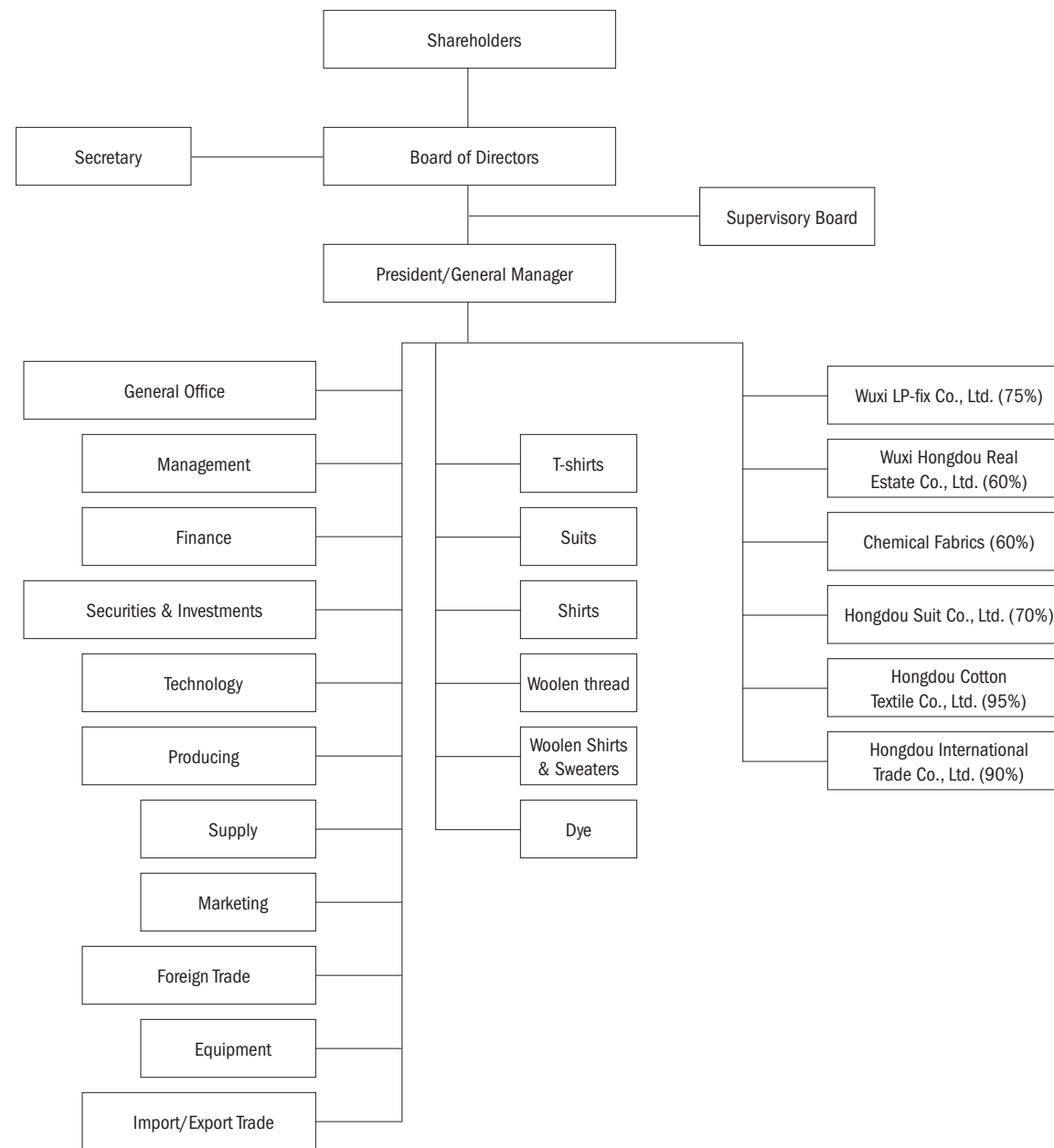
The company’s goal is to achieve sales revenue equal to 20 B RMB by 2008. In order to do so, it will:

1. Develop new brands, with an emphasis on Anthony and HoDo garments;
2. Build factories in foreign countries (Indonesia, soon Cambodia and Pakistan);
3. Increase spindle capacity (currently 70,000 spindles; planning to build a 200,000 spindle factory on 2,000 acres in an industrial park in another city);

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Figure Hongdou-1. Hongdou's Organization Chart



4. Speed up development of its own textiles;
5. Develop all-steel banded tires;
6. Produce 300,000 motorcycles and scooters per year;
7. Have 12,000,000 trees planted on 6,000 hectares; and
8. Develop a real estate project in the center of Wuxi city (1,000 km; 45-48 usable stories, plus cap; finished in 2009).

Some of the industries in which Hongdou is operating are newly established and their potential profitability is hard to estimate. For these industries the company does not set its goal too high.

**COST ACCOUNTING**

In the suit factory costs are accumulated by workshop. These workshops include: cutting, sewing, and ironing. The company aggregates costs (material, labor, overhead) by workshop.

**Direct Materials**

The cost of direct materials includes the purchase price of raw materials; this is allocated to products by volume. The salaries of workers in the Purchasing Department and other purchasing expenses are not included in the cost of direct materials, but instead are included in Administrative Expense. Warehouse expense is treated in a similar manner. Transportation-in cost is usually paid by suppliers; if that is not the case, it is included in the cost of materials.

**Overhead**

Overhead is accumulated and allocated at the workshop level. The allocation is based on the quantity of goods produced (e.g., number of suits) and is based on actual costs incurred. Depreciation accounts for 21.6% of overhead, electricity 14.1%, and steam 19.6%.

There are no service workshops; all activities are part of the main workshops.

**General and Administrative**

Administrative Expense makes up 4.45% of total cost (with materials accounting for approximately 50% of this amount, labor and related costs <10%, and overhead approximately 35-40%). Salaries and salary-related expenses (such as the cost of pension, workers' union, and health benefits) take up 19.44% of Administrative Expense. This salary expense includes management level salaries from factory departments (including R&D, the factory manager, marketing, accounting function under the control of the

Finance Department, procurement, logistics, and union activities). Labor-related costs follow the treatment of the related labor.

Marketing expenses account for 2.58% of total costs. Of this amount, travel accounts for 17.35% and office expenses another 1.56%. This is treated as a periodic expense.

**Transfer Pricing**

The internal transfer of products, semi-finished products, services, and labor are accounted for at the market price. The price is set jointly by the Finance and Operations Departments. The transfer price is flexible; it may change based on changes in the market. The transfer price is used as an evaluation indicator. The transfer of goods between factories is done using an "internal banking system," with sub-accounts used for each factory.

**COST MANAGEMENT**

For suits, the company measures its gross profit rate (selling price less manufacturing cost). It doesn't have a planned or standard cost, since suits may have very different cost of materials (different measures/targets for different situations). For motorcycles, the sales price can vary by month, so the company sets up a standard cost each month, and then analyzes the achievement of that standard.

Prices are set by the Sales Department; the objective of salesmen is to increase the sales volume. The compensation of salesmen is based on margin in excess of cost. A detailed calculation is used to determine this margin.

Human Resources controls the total number of employees; there is no need to control the wage/employee as that is determined by rate/piece.

**Planning and Budgeting**

Management and control is based on the budget, operational statistics, and competitors' behavior. Cost management varies by organizational level, with cost management focusing on profitability at the company and factory levels, on costs at the workshop level, and on technological economic indicators at the workgroup level.

Planning, budgeting, and evaluation of the subsidiaries are done at the group level. There is a level-by-level evaluation of performance. The budget goes upwards from the third level. The company doesn't utilize flexible budgeting (or much budgeting for that matter) since costs change so much. Rather it sets a planned gross profit rate for each quarter. At the end of the first quarter, it readjusts the target profit rate for the rest of the year. The company's factories run at full capacity and it outsources some production.

Hongdou prepares an annual budget. The budgeting process, which usually takes three iterations, results in sales budgets down to the individual salesman and production budgets down to the individual work team. A key performance metric for the company is the gross profit rate.

The budget includes monthly projections. However, each March is targeted to be the "low cost" month: all methods possible are used to lower costs. After that month, the plans for April through December are adjusted accordingly.

Components of the budget plan include the following:

Budget	Responsibility
Sales	Sales Dept.
Production	Production Dept.
Technology economic indices	Technological Dept.
Standard costs	
Purchasing	Supply/service Dept.
Labor	
Direct labor budget	
Profit budget	Sales & finance Dept.
Fixed asset investment plan	Managing & producing Dept.
Pro forma balance sheet	Finance Dept.
Capital plan	Finance Dept.
Pro forma cash flow statement	Finance Dept.

**Performance Evaluation**

There is alignment of the company's targets to those for the subsidiary companies, to those of each department, to those of each division, and finally to each staff member.

Performance metrics utilized at the various level of the organization include the following:

Company level:

- performance metrics: profit, sales, growth rate of each indicator, employee turnover, equipment maintenance rate

Subsidiaries:

- performance evaluated based on profits less the cost of capital (all)
- used to discourage subs from wasting capital
- stems from their roots as a private company
- cost of capital: take bank interest rate as a reference, a little bit higher
- one fixed rate regardless of debt/equity mix, but relevant

Staff departments:

- performance metrics: quality, on-time delivery, taking position responsibility regulations and determine extent to which these are met
- inspection department—can charge factories but must break even
- production development department = a percentage of sales, its requirement is a given number of new products in one year
- at the end of each year, evaluate

Factory level:

- company signs performance contract with manager of factory
- performance metrics: sales, profit less cost of capital [], cash flow, technical economic indicators (in more detail)
- same metrics as other levels but in more detail
- compensation: base salary plus prize (bonus) determined quarterly and annually based on profit largely
- (also dividend if a stockholder, but doesn't have a stock option plan)

Department level:

- factory signs performance contract with department managers (sales, purchasing, etc.)

Workshop levels:

- evaluated based on quality, efficiency, production (vs. targets)
- compensation: base salary plus

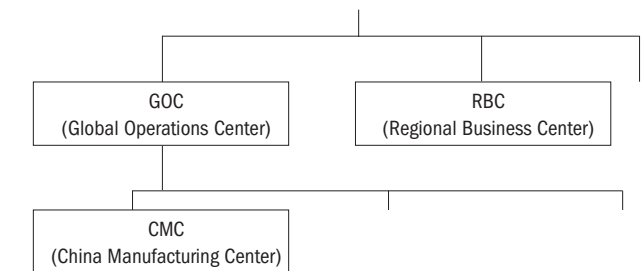
**I. TCL King Electrical Appliances (Huizhou) Co., Ltd. Huizhou, Guangdong Province**

TCL King Electrical Appliances (Huizhou) Co., Ltd. ("TCL King") is a foreign-owned company founded in 1997 and engaged in CRT, PTV, and LCD manufacture. It has approximately 6,000 employees, and annual sales of RMB 1.46 billion (export: RMB 0.51 billion). It has total assets of RMB 669 million, owners' equity of RMB 83 million, and annual net income of RMB 18 million.

On May 17, 2004, the European Union imposed a definitive antidumping duty (of 44.6%) on imports into the Community of cathode-ray tube (CRT) TVs manufactured by TCL King and six other Chinese producers. The EU had initially adopted antidumping measures on imports of cathode-ray tube (CRT) TVs from China in 1998. In 2002, it accepted a "joint undertaking" with the companies and waived the tariff under the agreement. The EU subsequently requested on-the-spot verification visits on the premises of two of the companies, but was rebuffed by one of them. Because this broke the terms of the 2002 agreement, the EU decided to re-issue the antidumping duty. The impact of the duties is not expected to be large as the penalties are pointed at low- and medium-end CRT TVs. These products only account for a relatively small proportion of exports to the EU.

TCL King is the biggest TV production base of TCL-Thomson Electronics, Ltd., which is the world's biggest TV producer. It is part of TCL-Thomson's GOC (Global Operations Center), as shown below:

**Figure TCL-1. TCL-Thomson Electronics, Ltd. Organization Chart (partial)**



The company's vision is to be the most competitive company in the TV industry. Its mission is to "Create value for customers, opportunities for employees, benefit for Shareholders, and shoulder the responsibility for society." It aims to achieve its vision and mission through cultural transformation and cultural innovation.

Workgroups:

- evaluated based on quality, efficiency, production (vs. targets)

Worker level:

- production (number of pieces), quality, finished units/plan output rate

At the worker level, evaluations are used to encourage the excellent workers, train the medium ones, and to dismiss the worst.

Managers were formerly evaluated by the workers, but this didn't work out well. Now they are evaluated by the stockholders (1 person, 1 vote) and the next level up managers. This reflects a difference in the responsibilities and roles of stockholders and managers with respect to performance evaluation in China versus the West.

**Compensation**

The company employs a benefit contracting system, which entails contracts between higher-level and lower-level managers. High-ranking managers may have a large portion of the wealth invested in the company; lower-level ones will have smaller investments. Company shares can only be held by employees.

**Other**

The Finance Department at the group level assigns accounting staff at all levels of the organization. However, in each factory there is an accounting section that is responsible for the original registration records. Staffs in these sections are not directly controlled by the Accounting Department.

The company utilizes the following techniques, which it believes are very useful: target costing, responsibility accounting, pay for performance, performance evaluation, internal transfer pricing, and activity-based costing. It does not use, and does not think useful, the following: standard costing, variance analysis, and flexible budgeting. In terms of its implementation of activity-based costing, the activities identified are based on its production process, and each workshop is an "activity." Identifying activities at this high a level results in a costing system that is probably more similar to a traditional costing system than what most would consider an ABC system.

Costing information is used to guide daily business operations, set prices, promotion, and long-term plans.

TCL King's strategies include: (1) taking the flat-screen business as its new emphasis and enlarging the investment in that business, and (2) improving the quality of the CRT business and keeping its existing scope through persistent innovation and application of digital technology.

Of TCL King's total production, 40% is exported. It has five factories: TV #1, TV #2, LCD, Plastic #1, and Plastic #2, as shown in the following organization chart.

Figure TCL-2. CMC Organization Chart

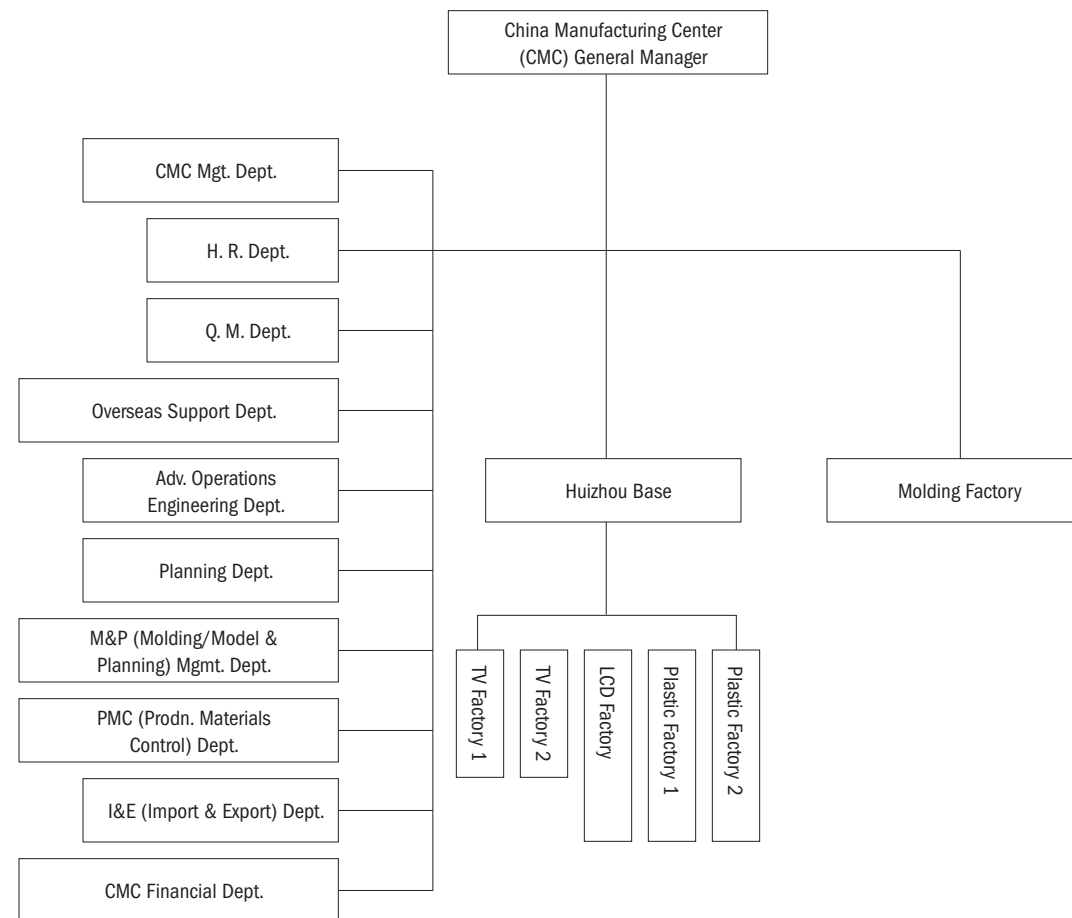
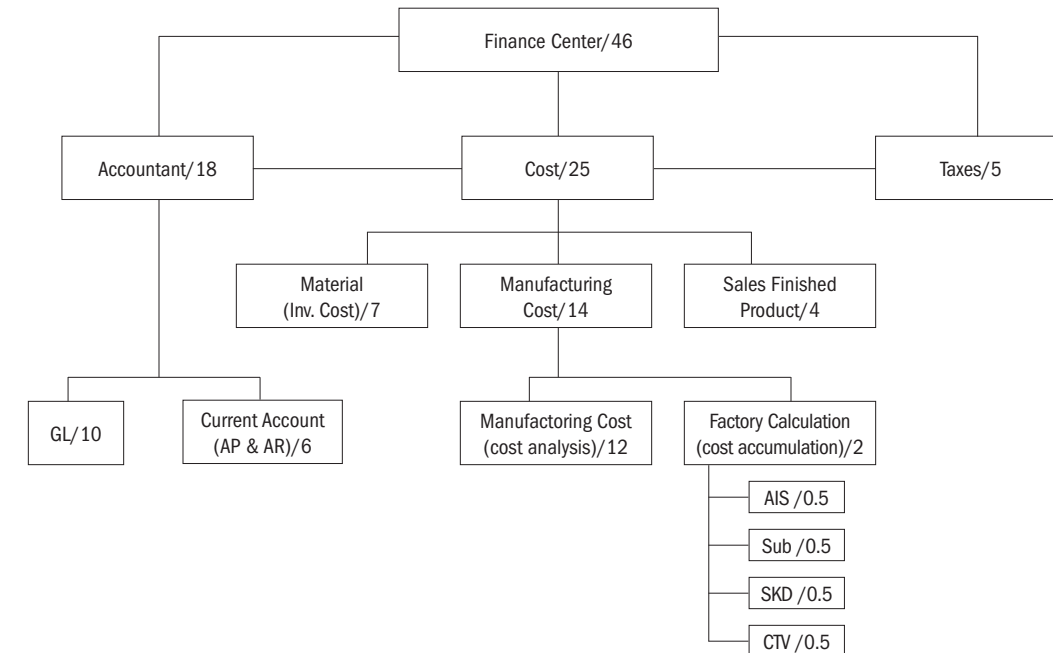


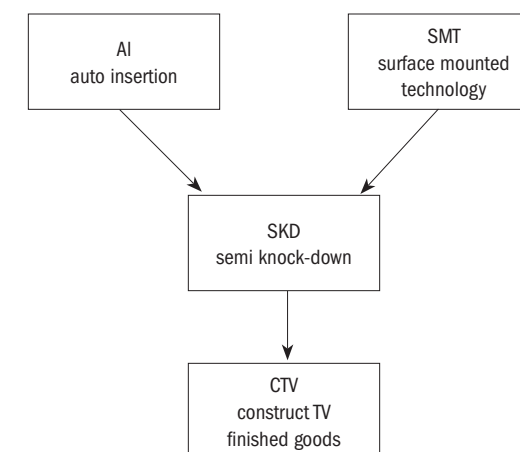
Figure TCL-3. Finance Function Organization



The organization of the finance function is as shown in Figure TCL-3 (numbers indicate numbers of full-time equivalents).

Besides being responsible for data collection and analysis, the finance function assists in the strategic decision-making of the organization. The accountants in the factory ("factory calculation") report directly to the factory managers and are not directly under the supervision of the Finance Department. The Finance Department can check the calculators' performance but has no direct authority over them.

Figure TCL-4. TCL King's Production Processes



The annual plan serves the strategic plan and takes its orientation from the strategic plan. The strategic plan is modified annually and examined quarterly. Any large issues with the plan are reported to the enterprise executive committee, which researches the matter and modifies the strategy to reflect the changing market conditions.

**COST ACCOUNTING**

**Direct Materials**

The basic trend in raw materials is downward, due to declining prices for kinescopes and panels, which account for a large percentage (80%) of total costs. Panel manufacturers have improved their technical and product ability rapidly in recent years. They can supply a larger quantity of panels with much better quality to the market after each model-upgrade, resulting in a lower price paid by TV producers for the panels. As a result, the supply of CRTs is larger than the market demand. Because of these issues, the two main components of TCL King's products are becoming cheaper and cheaper. Aside from these two components, the price of plastic materials has increased due to increasing oil prices, while the cost of electronic metal materials has fluctuated.



The cost of direct materials includes the purchase price of the raw materials. Transportation-in is included in that amount. Salaries and benefits of the Purchasing Department are included in Administrative Expense. Storing (inventory) is the responsibility of the PMC (Production Material Control) Department; the cost of this department are included in overhead and allocated to products.

For a given product, the R&D Department first develops a BOM (bill of materials). The Production Engineering Department makes changes to the BOM; these are included in a product order form made by the Planning Department. When the product order is executed, the unit cost of the raw material maintained by the Purchasing Department in the ERP system is allocated to those items automatically. At the end of each month, the system allocates the difference between actual and allocated costs to arrive at the actual cost of goods produced. The price variance of raw materials is allocated based on the percentage of materials used.

**Direct Labor and Fringe Benefits**

Direct labor cost and the cost of welfare are allocated to products based on actual labor hours or machine hours consumed. Line workers' salaries are included in product cost. The salary of managers, however, is treated as a period cost.

Welfare costs include two parts. One part includes the cost of health insurance, welfare, and housing subsidies. This is paid for by the company and is allocated following the related wage cost. The second part, the welfare fund, provides for collective welfare facilities; its cost amounts to 14% of wages. (For foreign-invested enterprises [FIEs] the welfare fund is treated as a cost for tax purposes but not for financial reporting purposes. For the latter, it is treated as part of FIE's profit distribution, similar to dividends.) In addition, 1% of after-tax profit is paid for collective benefit facilities. In total, welfare cost amounts to 49.9% of salary and wage cost.

**Manufacturing Overhead**

Overhead is aggregated at the factory, workshop, and production-line levels. Direct labor hours and machine hours are used to allocate overhead. It is allocated based on standard cost initially, and then adjusted at the end of each month to actual.

The cost of land use rights is recorded at actual value; it is amortized over a 20-year period on a straight-line basis to Administrative Expense.

The cost of auxiliary departments is allocated to manufacturing overhead; these costs are then allocated to direct cost centers.

Administrative Expense includes R&D (53%), salaries (14%), depreciation (4%), intangible asset amortization (3%), travel expense (2), and other expenses (24%). Administrative Expense comprises 1.91% of total cost.

Selling expense includes advertising expense (29%), after-sale expenses (5%), salary expense (8), finished product store cost (1%), transportation-out (33%), and other (24%). These costs make up 6.26% of total cost.

Internal transfer prices are based on market prices. Trends in market prices are considered as well. Usually the Finance, Planning, R&D, and Purchasing Departments are in charge of the pricing process.

TCL King uses each of the following techniques and believes they are useful: target costing, responsibility accounting, pay for performance, performance evaluation, standard costing, variance analysis, flexible budgeting, internal transfer pricing, and activity-based budgeting.

As mentioned above, for FIEs, 1% of after-tax profit is paid to the Employee Benefit Fund. An additional 10% is reserved for the Enterprise Development Fund (as an appropriation of retained earnings), and another 5% of profit is reserved for future losses.

**COST MANAGEMENT**

TCL King has unified accounting policies company-wide. It uses standard costs for performance evaluation purposes only; it does not use standard costing for inventory costing purposes.

**Budgeting**

The department responsibilities for the budget are as follows:

Item	Department
Sales	Sales
Production	Planning
Technical index	R & D
Standard costing	Finance
Purchase	Sourcing
Labor plan	Human Resources
Direct labor	Finance, H.R., Factory
Profit	Finance
Fixed assets	Power Supply, Factory
Pro forma balance sheet	Finance
Capital expenditures	Capital (Current asset mgmt.)
Cash flow	Capital (Current asset mgmt.)

The budget cycle occurs during the fourth quarter preceding a given year. There are typically four to five budget iterations. The RBC (Regional Business Center) uses a fixed budget; the Manufacturing Center generally uses a fixed budget, but may make an adjustment in the middle of the year if necessary.

A monthly and quarterly analysis of variance to the budget is performed for each department as a means of evaluating performance and for controlling costs. Budgets are prepared for each factory, workshop, and line. The budgets for manufacturing-related areas focus on overhead costs.

**Performance Evaluation and Compensation**

There are two parts of compensation for line workers: their salary and performance bonuses. There are three standard categories of performance (A, B, and C), each of which carries a given percentage (120%, 100%, and 80%) of the base rate of pay. The average monthly bonus is 300 to 400 RMB. (The average workers' pay, including bonus, is 1300 RMB/month.)

There is a monthly performance evaluation for line workers, which includes efficiency (for the line as a whole), quality of production (for the line), worksite fieldwork (i.e., neatness), and other criteria. This evaluation is performed by supervisors, submitted to the factory office, and is the basis for performance bonuses. There is also a yearly performance evaluation, based on the monthly evaluations, which are used in computing workers' annual bonus. Line leaders have some authority to penalize individual workers for poor performance.

Individual managers' performance is evaluated monthly based on departmental KPIs (key performance indicators), which include: efficiency, qualification (quality), cost control, plus other department-specific measures. (For example, the HR Department KPIs also include training hours, error ratio of wages, and the employment situation). Individual performance metrics are linked to overall organizational objectives. Overall organizational objectives are disassembled down to departments and employees.

The operations of the TV manufacturing operations are tracked using a "Daily Operating Performance" report. This report lists the various items of manufacturing overhead, with separate sections of the report for variable (6) and for fixed (8) overhead items. Total costs, the number of standard units produced, and the (total) cost per standard unit are also presented. On this report, the historical proportion of each cost element is presented, along with daily and monthly actual, budget, and variance amounts. Budgeted amounts are based on the monthly targets are based on a flexible budget.

Cost control points for each major cost element are identified for the factory as a whole and for each major process based on the labor- or capital-intensive nature of a given process. For example, for the factory as a whole, labor cost (both variable and fixed) is controlled, while for the auto-insertion process, processing fees (variable) and the cost of depreciation and amortization (long-term) are key performance criteria.

A daily efficiency report tracks the performance for each factory, for each line within a factory, and for the company as a whole. This report indicates target, actual, and variance amounts for total output, hourly output, labor hours, and labor cost, with unfavorable variances being highlighted. Reports are sent to the responsible persons on a daily basis. This helps identify unfavorable performance trends on a timely basis. Other reports address material usage, equipment efficiency and capacity utilization, and the cost of outsourced production. The company plans its mix of self-manufactured and out-sourced production to maintain an optimal cost structure.

### **Selling Prices**

The setting of selling prices involves the RBC, GOC Sourcing Center, GOC Quotation Team, GOC Finance, and GOC factories. The RBC develops a pricing model, which is transmitted to GOC Finance, which, with input from the GOC factories, provides cost/sourcing information. Based on this information, the GOC Quotation Team develops a profit/loss forecast. After bargaining with the RBC on transfer pricing, and confirmation of the price by the GOC's CFO, the selling prices are published.

### **Responsibility Management**

As part of its management control process, TCL King has in place a process of assigning responsibility for issues needing management attention, with issues being assigned progressively higher levels of attention as needed, as indicted in the following exhibit.

**Figure TCL-5. Upgrade Management**

<b>Item</b>	<b>Department</b>
Plant/Department Director	Abnormality on a single day
Factory Director	Abnormality on 2 consecutive days
	Idle assets
	Right is not consistent with responsibility
General Manger	Abnormality on 3 consecutive days
	Accession of employees/asset confirmation
	Outsourcing customer evaluation