

**The Adoption and Usage of Modern Management Control Systems in Chinese State-owned Enterprises: A Field Study**

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## **Abstract**

**The adoption and Usage of Modern Management Control Systems is a hot topic in Chinese managerial accounting research. The management control system is not only technical issues, but also a piece of art which represents the underlying cultural factors. Thus, Chinese firms need to localize the management control tools to tailor them to the firms' specific needs. However, the existing research in Chinese managerial accounting focuses on introduction of theories and cases from US companies, but rarely attempts to do on site research in Chinese firms.**

**This paper examines four big Chinese State-owned Enterprises from different industries, including the biggest metals trading company, the biggest military products manufacturing firm, the second largest oil company, and one very successful diversified Hong Kong company. We try to analyze the adoption of management control systems in Chinese firms and to draw some commonalities among them.**

### **Keywords:**

**Management Control Tools, Budgetary Management, the balanced scorecard**

## **I. Introduction**

The adoption and Usage of Modern Management Control Systems is a hot topic in Chinese managerial accounting research. The management control system is not only technical issues, but also a piece of art which represents the underlying cultural factors. Thus, Chinese firms need to localize the management control tools to tailor them to the firms' specific needs. However, the existing research in Chinese managerial accounting focuses on introduction of theories and cases from US companies, but rarely attempts to do on site research in Chinese firms.

This paper examines four big Chinese State Owned Enterprises from different industries, including the biggest metals trading company, the biggest military products manufacturing firm, the second largest oil company, and one very successful diversified Hong Kong company. We try to analyze the adoption of management control systems in Chinese firms and to draw some commonalities among them. We focus especially on budgetary system, the balanced scorecard, activity based management, and EVA.

## **II. Literature**

When new management control tools emerge, firms adapt to the trend and adopt new techniques, which has been a notable phenomenon. Former studies have discussed whether the management tools have changed, whether they should change, and how they change. Among those studies, the new institutional economics theory constitutes the theoretical background for this paper. The new institutional theory views management accounting as a institution that is embedded in firm hierarchy, and is a tool served for coordination, cooperation and control, which manifests itself as a set of rules, routines and procedures. Management accounting may rebuild the organizational structure, or may

be redesigned based on organizational structure. (Scapens, 1994) Generally speaking, the importance of organizational routines and institutions in shaping the processes of management accounting change is significant. (Burns & Scapens, 2000) Thus, the path dependency predicts that organizations accept those new techniques that relate to existing management tools more easily.

Compared to US firms, Chinese enterprises have apparently different institutional background. The interference from government and incomplete market system are what state-owned enterprises need to deal with, and will influence the overall objective functions of the firm. (Fei Pan, 2006) From the internal perspective, Chinese firms are still at an exploratory stage in adopting management control tools with limited experience and scarce techniques.

Thus, this study tries to investigate the field evidence of Chinese state-owned enterprises in adopting and utilizing modern management control systems, and to analyze the performance effects of those techniques.

### **III. Methodology**

Due to the constraints of single case study (Einsteinhardt, 1989), we select four big state-owned enterprises and try to analyze the process and the result of using the management control systems.

The on-site interview to those firms dates back to October 2005 and is an ongoing process. What's worth noting is that, we focus a lot on those enterprises in their management accounting change in recent years and we keep contact with the management from all those four companies. Beside the on-site formal interviews, we cooperate with the companies in giving consulting advice, in giving lectures and seminars

about management accounting.

Before the on-site interview, we examine some proprietary data set directly from the companies and public disclosures on line. The internal documentation includes corporate budgetary documentation, performance evaluation rules, internal magazines, corporate management reports and etc. The public disclosures include corporate website, the initial public offering report, annual reports, and other articles about the company in media.

During the on-site interview, we deliver questionnaires to division managers and interview them as well as the corporate manager of financial department and strategy planning department. Main questions in the questionnaire include the big picture of using management control systems, the relationship among multiple management control systems, the performance effect of using the control system, the factors that improve or hinder the efficiency of the control systems.

#### **IV. Description**

##### *China Minmetals Corporation*

China Minmetals Corporation established in 1950, is a large-size international producing and trading group of metals, minerals and electrical products. Meanwhile it is also engaged in finance, real estate, shipping, bidding and tendering and investment. In 1992, according to the decision by the State Council, Minmetals was formed as one of the 55 group enterprises as the first trial batch in the whole country and one of the 7 groups with the authorization to operate the state-owned assets. In 2005, Minmetals' total revenue reached over US \$17.78 billion which made it rank NO. 11 among China top 500 enterprises.

With a history of more than 50 years as one of the country's major importers and

exporters, Minmetals enjoys a sound reputation in the business world. Since China launched its programs of economic restructuring, reform and opening to the outside world, Minmetals has been active in competing in the market, adhering resolutely to its strategy of globalization, and investing in different fields both inside and outside the country to strengthen its main business and become diversified in other business areas at the same time. All this has brought about many increases in the Corporation's revenues as well as economic strength, building a strong platform for sustainable development.

Minmetals' sales network is worldwide. The Corporation owns 168 solely or jointly funded ventures in 20 provinces and special zones in China. It holds majority or minority shares in 14 domestic public companies and two red chip companies, Minmetals Resources and ONFEM Holdings listed in the Hong Kong stock market. Minmetals has established 44 overseas companies in the major countries and regions in the world.

The overall description of corporate management accounting practice:

(1) The main management control system of the company is budgetary system and the balanced scorecard; after 6 years' experience, the corporation is in a relative mature stage in using budgetary system, and the planning and controlling function of budgetary system is quite magnificent in the corporation. However, the utilization of the balanced scorecard is still in a preliminary stage. Although the company realizes that the balanced scorecard can be used to communicate the strategy and describe the strategy, but haven't established the corresponding system to put the balanced scorecard into effect.

(2) With respect to budgetary system, the corporation emphasizes detailed annual operating plan to strengthen the link between annual performance and strategy, emphasizes the comprehensive budgetary system which include both the financial and

non-financial performance measures, and emphasizes the process control instead of result control. The corporation also holds regular conferences to analyze and to discuss the budgetary execution and the differences between budget and actual performance. However, the corporation does not use the actual performance as the bench mark in annual performance evaluation, the benchmark is still the historic data from last year.

(3) The balanced scorecard system includes financial performance measures, strategically linked performance measures, operational performance measures and process performance measures. Most of the measures come from the budgetary system. Generally speaking, the non-financial performance measures account for 15% of the whole system.

(4) The relationship between the balanced scorecard and budgetary system and other management control system can be summarized as: Strategy decides annual operating plan, which can be manifested in budgets. The balanced scorecard is use in performance evaluation and rewarding system.

#### *Sinochem Corporation*

Established in 1950, Sinochem Corporation (a.k.a. Sinochem) is a key state-owned enterprise under the direct control of the State-owned Assets Supervision and Administration Commission of the State Council. Its predecessor is China National Chemicals Import & Export Corporation.

Sinochem is one of China's earliest qualifiers of Global 500. In 2006, it was named to the list for the 16th year, ranking the 304th). Sinochem's core business is as follows: petroleum, fertilizer, trade, distribution and logistics of chemicals, crude oil, fuel oil and natural rubber futures; overseas oil & gas exploitation and production, refinery, chemical

mining & washing, fertilizer & chemicals production; hotel & real estate development and operation. Sinochem is one of the four major state-owned oil companies and the largest fertilizer importer and phosphorus and compound fertilizer manufacturer in China. It is also China's major sales and marketing service provider of chemical products. The brand name of Sinochem is accredited as Famous Chinese Brand and enjoys worldwide prestige.

Sinochem operates four overseas business groups: Europe, America, Asia and Hong Kong whose global sales network provides Chinese and foreign customers with quality products and efficient marketing services. Sinochem has two listed branches, i.e. "Sinochem Hong Kong Holding" in Hong Kong (Code: 0297) and "G Sinochem" in Shanghai (Code: 600500).

The overall description of corporate management accounting practice:

(1) The main management control system includes budgetary system and the balanced scorecard, and the company is considering bringing the activity based costing management to further lower the costs.

(2) The company mainly uses the budgetary system in planning and process control. The company uses the annual operating plan to link strategy to annual budgets, and constructs the budgetary system which covers strategy management, risk management, fund management, performance evaluation and etc. In quarterly performance evaluation conferences, the company summarizes the budgetary execution, suggests issues that need to be improved. The benchmark used in performance evaluation is based on a formula in which projected performance, historic data and industrial average all serve as parameters.

(3) The balanced scorecard system in the company is in a very premature process.

The company does complement financial performance measures with non-financial performance measures in the performance evaluation system, however, all the non-financial performance measures are directly extracted from the budgetary system, and the company has no unified rules for weights on different measures.

(4) The relationship between the balanced scorecard and budgetary system and other management control system can be summarized as: Strategy decides annual operating plan, which can be manifested in budgets. The balanced scorecard is use in performance evaluation and rewarding system.

#### *China Resources Corporation*

China Resources began its history in Hong Kong in 1938 as Liow & Company. It was renamed China Resources Company in 1948 and restructured and incorporated under China Resources (Holdings) Co., Ltd. in 1983. In the same year, it relocated to its current headquarters in the China Resources Building on 26 Harbour Road, Wanchai.

In over half a century's business in Hong Kong, China Resources has established a strong reputation based on its proactive business strategies, an open corporate culture and a commitment to fostering a better future. Today, it is one of the leading conglomerates in Hong Kong and the Chinese Mainland, with assets of HK\$100 billion.

China Resources' core businesses cover three fields: the manufacture and distribution of daily consumer goods, properties and related industries, plus infrastructure and public utilities.

The overall description of corporate management accounting practice:

(1) The company uses budgetary system, the balanced scorecard, and the economics value added, although at different hierarchies of the enterprise.

(2) The company began to use comprehensive budgetary management years ago, and is experienced in using budgetary system to integrate the management control systems in the company. The company has a “6s” management systems (business coding system, budgeting system, management report system, internal auditing system, performance evaluation system and rewarding system).

(3) The company emphasizes using budgetary system to improve the interaction in process management. Using the dynamic process of budgeting control, the company improves the efficiency in problem solving and adaptive thinking. That is to say, the company doesn't let the budgeting to restrain the enterprise development, rather use budgeting to adjust to market more promptly.

(4) The company doesn't solely rely on budgeting system to evaluate division performance. The company uses multiple measures from different dimensions including financial ones and non-financial ones.

(5) Beginning in the year 2003, the company brought in the balanced scorecard to improve the “6s system” in the sense that the balanced scorecard is more descriptive of strategy. Plus, the “6s system” now serves more as strategy management system instead of operating control system. The company uses strategy map to describe the precise and detailed strategy, and to construct the causality between multiple measures.

(6) The company uses the economics value added, but to a very limited extent. The company puts some weight on EVA in rewarding managers, but the weight is not much.

(7) The relationship between the balanced scorecard and budgetary system and other management control system can be summarized as: Strategy map and the balanced scorecard decide annual targets, which can be manifested in action plans. Action plan,

together with financial budgets is used in performance evaluation and rewarding system.

*China North Industries Group Corporation*

China North Industries Group Corporation (hereinafter abbreviated as CNGC) is an important mega state-owned key enterprise under the direct administration of the Central Government and a strategic group of China to react to challenges and crises. CNGC brings together the key research and production forces of Chinese ordnance industry, representing the development direction and level of Chinese ordnance industry. The Group owns over 120 research institutes, trading companies and manufacturing enterprises and nearly one hundred overseas affiliates distributed in scores of countries or regions. CNGC has RMB 100 billion of total assets and over 300 thousand employees. CNGC is the largest weaponry-manufacturing group in China. It researches and develops high technological weapons of various areas such as precision striking, amphibious assaulting, long-range suppression, air defense anti-missile, information night vision, high effective destruction, etc. for the army, navy, and air force as well as the arms of other services.

**V. Comparative Analysis**

*Differences in Budgetary Control Systems*

Table 1: Overall Description of Different Companies in Budgeting Control

		China Minmetals	Sinochem	CRC	CNGC
I. Function of budgeting	Description of strategy	√	√		√
	Resource planning and allocation	√	√	√	√
	Process control	√	√	√	√

	Performance evaluation		√	√	√
2. How to add strategy orientation in planning and allocating resources?	Strategy-annual operating plan – budgets and targets; To establish the comprehensive budgeting system that contain financial measures, non-financial measures, and organizational measures;	Strategy-annual operating plan – budgets and targets; To establish the comprehensive budgeting system that contain strategy management measures, risk management measures, fund management measures;	Strategy-annual operating plan – budgets and targets; To establish the comprehensive budgeting system that contain management measures, risk management measures, fund management measures;	Strategy-strategy map – KSFs/KPIs – action plans – budgets; The budgets include strategic budgets and operational budgets, and the monitoring benchmark of them differs.	Strategy-BSC – task budgets – financial budgets
3. How to implement budgetary monitoring?	Quarterly conferences, analyze differences and provide solutions	Quarterly conferences, analyze differences and provide solutions	Quarterly conferences, analyze differences and provide solutions	Quarterly conferences, but not to use budget monitoring to constrain the operation, rather to flexibly adjust to market	Quarterly conferences, analyze differences;
4. What's the relationship between performance evaluation and rewarding system?	No link.	Budget targets are among the measures used in performance measurement.	Emphasize relevant performance measures, do not solely rely on budgets	Budget targets are among the measures used in performance measurement.	
5. Is there any behavioral problem in budgeting?	Yes. Use resource allocation to constrain the bargaining in budgeting; the budgeting is	Yes. Emphasize less on the link between budget targets and benchmarks	Yes. Emphasize less on the link between budget targets and benchmarks	Yes. Emphasize less on the link between budget targets and benchmarks	

	linked to performance evaluation system;	used in rewarding system; Use resource allocation to constrain the bargaining in budgeting; Use corporate culture to alleviate the problem;	used in rewarding system; budgeting is mainly viewed as the resource allocation tool.	used in rewarding system;
6. Does budgeting system lack flexibility? What's the solution ?	Yes. Using rolling budgeting.	Not much.	Yes. Using rolling budgeting.	Yes, using "dynamic" management and exceptional management.

From above we can see that all four companies have accumulated some experience in utilizing the budgeting system. The commonalities of their budgeting system include:

(1) All companies emphasize the linkage of budget to strategy although they use different documentation and mechanisms including annual operation plan, task budgeting or strategy maps; (2) All companies realize that competitiveness in market leads to excellence in financial performance measures. Thus, the budgetary system should supplement financial performance measures with non-financial performance measures and should keep tracking those measures; (3) All companies use budgeting system to reevaluate strategy. Former studies show that budgeting system can be a mechanism to communicate, to learn and to create, which is named "interaction control" in Simons' theory (Simons, 1995). Simons also suggests that the main feature of interaction control is that managers from different hierarchies communicate regularly about the budgeting

execution, discuss the differences between projected numbers and actual performance, and how to adapt to environmental uncertainty. In that way budgeting system can serve as the “database for organizational learning”. Our field evidence shows that, all the four companies use quarterly budgeting conferences to reevaluate strategy and redesign future action plans; (4) All companies notice the behavioral problems exist in budgeting control and use similar solutions to reduce the budgetary slack and other bargaining costs. A primary solution used by those companies is not to rely solely on budgetary execution when evaluating managers. Instead, companies use historical data and industry average as the benchmark, so the motivation to lower budgetary targets is lower. China Minmetals and Sinochem also use resource allocation to reduce budgetary slack, and to increase interest congruency by corporate culture; (5) All four companies realize that the rolling budgeting is necessary in increasing budgeting system’s flexibility; (6) All companies focus on the resource allocation function and the process control function of the budgeting system. However, they rarely rely on budgetary targets as the benchmark for performance evaluation. This suggests the “path dependency” in management accounting change.

Those four companies also have differences, which is consistent with the contingency theory. No company in our investigation rely totally on documentation from consulting companies, instead they adaptively utilize the budgetary techniques and budgetary tools considering environmental factors such as competition level, uncertainty, regulation and customer bargaining power. For example, Chinaminmetal focuses on cash flow budget considering their mine trading business faces high fluctuating market and thus the needs of funds are very sensitive; Sinochem views budgeting as a primary tool to control risk,

and budgets in Sinochem include financial measures as well as risk, cash flows, compensation measures to guarantee that risks are visible, controllable and affordable. What's special about CRC is that budgets are divided into strategic budgets and operational budgets using different benchmarks, and different budgets rank differently in strategic resource allocation list.

*Differences in the balanced scorecard*

Table 2: Overall Description of Different Companies in using the balanced scorecard

		China Minmetal	Sinochem	CRC	CNGC
1. BSC function	(1) describe the strategy			√	
	(2) manage the strategy			√	
	(3) evaluate the strategy	√	√	√	√
2.	Classification of performance measures	Financial measures, operational measures, strategic measures, Organizational measures,	Financial measures, Cash flow measures, Risk control measures, Strategic measures,	Financial measures, customer measures, process measures, learning measures	Financial measures, process measures, organizational measures,
3.	how to select measures?	Mainly from budgeting system	Mainly from budgeting system	Strategy map	Based on strategy and annual performance,
4.	any causal relationship analysis in non-financial performance measures and financial performance measures?	No	No	Yes	No
5.	weights on different measures in performance evaluation system?	No precise description, Non-financial measures account for less than 15%	Based on prior experience, and adjust weights according to different	Based on prior experience, industry average, strategy	Based on prior experience, industry average, strategy

		hierarchies and strategic orientations	execution, no explicit statements about weights on measures	execution, no explicit statements about weights on measures
6. rewarding system based on the balanced scorecard?	Overall score from BSC is one consideration, but not all.	yes	yes	Linked, but not all.
7. the most difficulties in executing the balanced scorecard	Difficult to quantify measures, lack of historic data	Difficult to select the non-financial performance measures that is related to strategies	Difficult to find quantitative measures	Difficult to identify targets and benchmarks

From above we can tell that different companies are in different stages of using the balanced scorecard. Beside CRC, other companies are still in a very preliminary stage of using the balanced scorecard, and the only “balanced” management is that they supplement financial measure with non-financial measures. In contrast, CRC does begin to use the balanced scorecard to describe strategy, measure strategy and evaluate strategy. The core steps of using the balanced scorecard include: (1) to establish the causal relationship between strategy, targets and measures and subject them to rigorous business model testing; (2) to establish the link between evaluation score and managers’ compensation package. These two steps are not present in China Minmetals, Sinochem and CNGC since they never investigated whether some non-financial performance measures are leading indicators of financial performance measures and stock holder value. Then did the balanced scorecard do any good to these three companies? One manager in the interview gives the following comments: “The most important thing is the philosophy

of balanced management and strategy communication, not the detailed technical issues.”

The limited usage of the balanced scorecard can be interpreted using the management accounting change theory: (1) Organizational capability in analyzing strategy and making decisions. The balanced scorecard can describe the strategy precisely, but can not substitute the strategy analysis and decision making itself. The clear strategy positioning is the necessary condition to execute the balanced scorecard system. Without that capability, the company can not effectively use the balance scorecard. (2) Technical constraints. Issues such as how to identify the targets of non-financial performance measures, how to place weights on different measures, , how to report the overall score from evaluation and how to link score to compensation are viewed by all four companies as the bottlenecks in executing the balanced scorecard. Kaplan and Norton (1996) suggest that it takes time to accumulate data to prove that causal relationship exist among different measures in the scorecard. The time period can be fairly long that it takes quite a few years. In the short term managers have to rely on subjective judgment to place weights on different measures. Some manager from the interview argues that “Based on the information system of state-owned firms at current stage, it is impossible to have data to establish causal relationship between measures.”

*Differences in ABM and EVA*

Table 3: Overall Description of Different Companies in using ABM and EVA

	China Minmetal	Sinochem	CRC	CNGC
1. understanding and usage of ABM	No	Discussed about that but is constrained by current information system level	Not on the list	No.

2. understanding and usage of EVA	No	Discussed and company doesn't agree with single measure management, plus the adjustment from EVA to profit is too costly	EVA is considered in rewarding system, but not too much.	No.
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All four companies do not use ABM or EVA as their primary management control tools. In the interview only CRC considers EVA in bonus plan, and only Sinochem mentioned that ABM might be brought in to improve cost management in the future.

*Management Circle of the different tools: how to link budget with the balanced scorecard?*

The management control system of one company should include the organizational objectives, strategy plans, performance measures, performance targets, bonus and punishment and etc. (Otley, 1999) Budgetary control system has been playing very essential role in linking those factors and thus is very important in management control system. What's worth mentioning here is that in recent years, Chinese firms begin to implement the "master budgetary management", which is now viewed as a substitute for the management control system. On the other hand, the balanced scorecard also evolves and can be an integrated control system. Thus, our question is: do we really need the two tools to coexist in our organizations? And when the two tools coexist in one firm, how do we integrate the usage of them?

The answer to the first question is quite obvious. The resource allocation and planning function of budget can not be substituted by the balanced scorecard, but the strategy communication and KPI selection rely more on the balanced scorecard. Thus,

those two tools have overlapping functions and firms should consider how to integrate them.

Table 4: the linkage between budgetary control and the balanced scorecard in management control system

The balanced scorecard	Strategy → strategy map → the balanced scorecard → action plan → budgeting → evaluation and compensation
Traditional budgeting	Strategy planning → annual operation plan → budgeting → evaluation and compensation
China Minmetal	Strategy planning → annual operation plan → budgeting → the balanced scorecard → evaluation and compensation
Sinochem	Strategy planning → annual operation plan → budgeting → the balanced scorecard → evaluation and compensation
CRC	Strategy → strategy map → the balanced scorecard → action plan → budgeting → evaluation and compensation
CNGC	Strategy planning → the balanced scorecard → task budgeting → financial budgeting → evaluation and compensation

The balanced scorecard theory regards the “**strategy map → the balanced scorecard → action plan → budgeting**” as an ideal circle in implementing the balanced scorecard. That is to say, budgeting resource allocation should rely on the action plan based on the balanced scorecard, and the budgeting should be decomposed into operational budgeting and capital budgeting.

*Determinants of adoption of different management control tools in Chinese firms*

The determinants of management accounting change includes two categories of factors, the decision factor and the implementation factor (Innes & Mitchell, 1990; Cobb et al. 1995) In the following analysis we’ll discuss them separately.

(1) Decision factors. Decision factors refer to those factors that will lead to management accounting change, which include environmental factors and firm internal

factors. Decision factors mainly include capability, size, competition level, delegation level, support from management and etc. (Williams & Seaman, 2001; Chenhall et al. 1998). Former research suggest that the reforming economics setting is the primary factor that lead to Chinese enterprises seeking for new management accounting tools.

Table 5 Decision factors of Chinese enterprises' usage of management control systems

	China Minmetals	Sinochem	CRC	CNGC
1. expectation from government				
2. suggestions from consulting companies	*	*		*
3. the change in corporate environment and strategy	***	***	***	***
4. internal needs of corporate management innovation		**	**	
5. idea of CEO	**		**	**
6. proposal of financial department			*	
7. others				

Note: \*\*\* very important; \*\* important; \* not that important

The field evidence suggests that environmental change is the primary determinant of Chinese enterprises seeking for new management control tools. However, our interview also shows that internal factor began to come into place since as hierarchies increase in the firm, without effective management control tools the companies may not even survive. Thus bringing in new management control systems seems more viable.

(2) Implementation factors. The implementation factors refer to those factors that improve or impede the corporate execution of management control systems. Argiris & Kaplan (1994) suggest two guarantees in organization adopting new management tools:

sufficient training and support from management; Shields (1995) emphasize that the behavior factor and the organization executive variables are important in deciding whether the new management control tools can be successful. Shields argues that support from CEO, linkage between the tools and the performance evaluation, training, explicit delegation of decision rights are important, while technical variables such as information system and outside consulting are secondary factors. Adler (2000) suggests that the impeding factors include: cost of change, lack of ability, inertia of management, lack of technical support and etc. Connor et al. (2004) find that the impeding factors of Chinese firms implementing new management tools include: government interference, lack of management capability, workers' inertia and etc.

Table 6 Implementation factors of Chinese enterprises' usage of management control systems

	China Minmeta 1	Sinochem	CRC	CNGC
1. support from management	* * *	* * *	* * *	* * *
2. sufficient training			*	*
3. understanding and acceptance from workers	* *	* *	* *	
4. suggestions from consulting companies	*			
5. related technology support	*		*	* *
6. execution team from multiple departments	* *	* *	*	* *
7. capability of accountants				
8. others				

Note: \* \* \* very important; \* \* important; \* not that important

The most important implementation factors ranked by those four companies include: support from management, execution team from multiple teams and understanding of the workers, which is consistent with former studies. The "human" factor is especially

significant since in China, the management philosophy focuses on “relationship coordination” instead of on “problem solutions”, what’s more, Chinese philosophy emphasizes more on “team value” rather than on “individual value”. Thus, when executing a new management system, it’s fairly important to receive understanding and acceptance from managers and workers.

## **VI. Conclusion and Limits**

Field evidence show that, under the macro reforming economics setting, the increasing level of environmental uncertainty, the lack of ability in management control motivate Chinese state-owned enterprises to seek for new management accounting tools. Those firms are experiencing the exploratory stage of adopting and executing those management accounting techniques. A few commonalities include: (1) The comprehensive usage of management accounting tools including the balanced scorecard. Although some consulting companies may argue that single management accounting tool can be used exclusively in an organization, firms generally use a management accounting tool package which combines and integrates several management accounting tools. Those four companies in our case study use the balanced scorecard together with budgetary control system. However, they are in a very preliminary stage of using the balanced scorecard to communicate and reevaluate strategy. ABM and EVA seem not very prevalent in Chinese firms. (2) Relatively good performance effects. Although interviewees agree that the usage of those management control tools are not ideal, they are positive in that bringing in the modern management control tools can improve the corporate strategy execution ability, risk control ability and to improve the resource allocation efficiency.

The limits of the studies go as follows: (1) the companies included in our study are among the biggest companies which are supervised directly by *the State-owned Assets Supervision and Administration Commission of the State Council*, which have similar sizes, management cultures and institutional backgrounds, thus the generalizability of the study is limited; (2) Due to the corporation policies, the interview mainly focuses on corporate manager level and doesn't further interview division managers, so future studies including more division level interviews can either prove or reject our conclusion.

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