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Contents

Macroeconomic Determinants of Corporate Failures in Malaysia <i>Abd Halim @ Hamilton Ahmad, Siti Nurazira Mohd Daud, Ahmad Rizal Mazlan, Ainulashikin Marzuki</i>	3
A Shopping Model in Agent-mediated Electronic Commerce <i>Ziming Zeng & Liyi Zhang</i>	11
Real-Time Enterprises' Financial Information Integration Based on the Internet Environment <i>Qiwen Jiang & Dongbing Cao</i>	19
Tobin's Q and the Location of Foreign Direct Investment in China <i>Bruce Morley</i>	24
"Dual Different Cultures" Integration: An Integration Performance Measuring Model of Corporate Cross-border M&A <i>Zongrong Ran</i>	30
Building the Organizational Knowledge Networks of SMEs in High-tech Industry <i>Guiqing Qi</i>	35
A Qualitative Decision Trail in the Hermeneutic Analysis Evidence from the Case Study <i>Mohamad Hisyam Selamat & Azizi @ Hamizi Hashim</i>	41
Hypothetical and Theoretical System Framework of Cultivation of Organizational Citizenship Behavior and Validation <i>Hongyan Chen</i>	56
An Analysis on the Knowledge Workers' Turnover: A Psychological Contract Perspective <i>Yumei Wang, Zhen Zhu, Qing Cong</i>	62
Do ISO Certified SME's have Higher Quality Practices? Empirical Insights from the Northern Region of Malaysia <i>Nusrah Samat, T. Ramayah, Yusliza Mohd. Yusoff</i>	66
An Analysis on Chinese Hotel Enterprises' Outsourcing Strategic Modes and Corresponding Development Conception <i>Li Song</i>	76
A Study on Relationship between Shares-proportion of Institutional Investors and Corporation Performance----Based on the Dates of the Chinese listed Company <i>Linjuan Mu</i>	82
Audit Specialisation in Malaysia <i>Azham Md. Ali, Mohd. Hadaifi Sahdan, Mohd. Hadzrami Harun Rasit, Teck Heang Lee</i>	91
Outlets: The New Favorite of Apparel Industry <i>Yanhua Sun</i>	100
Issues about Innovation of Present Theory of Accounting <i>Enzhu Li</i>	103
The Impact of Organizational Goal Setting on the Industrial Munificence-goal Attainment Relationship <i>Zhi Tang, Benjamin C. Powell, Louis Marino, Jintong Tang, Pat Dickson</i>	107
Thinking about the Creativity Based on System Approach <i>Jun Hong & Haifeng Chen</i>	125

Focus Shift and Outsourcing in University Libraries' Acquisition and Cataloguing	129
<i>Chunlan Qiu & Yonglin Xiao</i>	
Theoretical and Practical Review of Capital Structure and its Determinants	133
<i>Xiaoyan Niu</i>	

Macroeconomic Determinants of Corporate Failures in Malaysia

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Abstract

This research investigates the long-run dynamic linkages between the corporate failures in Malaysia and selected macroeconomic variables by employing the Autoregressive Distributed Lag (ARDL) bound test, a robust and recent time series technique which is applicable irrespective of whether the regressors are $I(0)$ or $I(1)$. Corporate failure rate is the ex-ante variable in a linear function model with five explanatory macroeconomic variables. A dummy variable to decipher the corporate failure rates during the Asian financial crisis was also included. The results show that corporate failure rates in Malaysia are significantly and positively associated with the average lending rate, inflation rate and, gross domestic product (GDP) in the long-run.

Keywords: Corporate failures, Macroeconomic, Bound test

1. Introduction

Over the past four decades, economics and finance researchers have shown consistent effort to investigate the causes of corporate failures. Initial studies tend to concentrate on analyzing company ratios in order to discriminate failed firms from non-failed firms. Beaver (1966) started off by performing univariate analysis on 30 selected financial ratios, and found that cash flow to total debt ratio is the best single ratio predictor for corporate failures.

Since then, other researchers have refined the methodologies thus resulted in the multi-discriminant analysis (MDA) (Altman, 1968; Taffler, 1983), logit regression techniques (Ohlson, 1980), and multi-logit models (Keasey & Short, 1990). In addition to improving the statistical methods, recent works have extended this area of study to the definitions of bankruptcy (Gilbert et al., 1990; Poston, et al., 1994) and cover a variety of explanatory variables. Researchers have also incorporated non-financial variables such as management behaviors, age of company and number of directors (Keasey & Watson, 1987), qualified opinion of the auditors (Hopwood et al., 1989; Flagg et al., 1991) and funds flow measures (Gentry et al., 1987) in order to find out the causes of corporate failure. In Malaysia, similar studies have been carried out by Shamsheer et al. (2001); Zulkarnain et al. (2001); Mohamed et al. (2001); and Abdullah and Ahmad (2005). Shamsheer et al. (2001) found that liquidity, profitability and cash flows of the failed firms showed a gradual deterioration, while the leverage of the companies showed a gradual increased. Zulkarnain et al. (2001) focused their study on Malaysian industrial sector companies. By using stepwise multi-discriminant analysis, the findings show that the model accurately and significantly classified 91.1 percent and 89.3 percent of the failed and non-failed companies respectively. In addition, Mohamed et al. (2001) conducted a study by incorporating logistic regression techniques to predict corporate failures. Abdullah and Ahmad's (2005) study was concerned with the comparison of the logistic regression analysis and multi-discriminant analysis by

using Malaysian corporate failure as a sample, and they found that logistic regression techniques were superior to multi-discriminant analysis.

All of these studies concentrated on cross-sectional analysis; therefore they did not take into account the actual changes in the variables of interest over time. Furthermore, the construction of these models centered on microeconomic analysis, therefore they disregard the important general macroeconomic framework in which the companies are operating, and that this may significantly influence the companies' financial health (Liu, 2004).

Many studies have incorporated macroeconomic variables such as interest rate (Desai & Montes, 1982; Hudson, 1986; Turner et al., 1992; Liu & Wilson, 2002), profit (Hudson, 1986; Turner et al., 1992; Cuthbertson & Hudson, 1996), growth of money stock (Desai & Montes, 1982), inflation (Wadhwani, 1986), exchange rate (Goudie & Meeks, 1991), income gearing (Cuthbertson & Hudson, 1996) and legislation (Liu & Wilson, 2002). Although these studies utilized dynamic models to investigate the causes of corporate failures, they are restricted to the description of the short-run relationships among the variables. Therefore, it is quite difficult to separately interpret the long-run and short-run behaviors of corporate failures in relations to macroeconomic activities (Liu, 2004).

To overcome the limitations and shortcomings of these studies, Liu (2004) examined the long-run relationship between corporate failures and macroeconomic variables in the equilibrium while incorporating short-run dynamics. The researcher's main objectives were to explore the determinants of UK corporate failures and also to identify the potential policy variable, which can then be adopted by the relevant policymakers to reduce the incidence of corporate failures. Overall, the econometric results show that corporate failure rates are responsive to the changes in the nominal interest rates, price level, real credit and corporate birth rates over the sample period.

Despite a persistently low inflation rate and an average annual economic growth of 5.5 percent, corporate failure rates in Malaysia fluctuated substantially over the period of 1991Q1 to 2005Q2, although there was a small fluctuation from 1991Q1 to 1997Q2 (see Figure 1). However, the corporate failure rate increased dramatically after that and maintained the high fluctuation. This could be attributed to the Asian financial crisis in 1997. Furthermore, the increase in the failure rate was exacerbated by the mismatch between the substantial increments in the number of insolvent companies against the decrease in the total number of registered companies. In addition, for the period 1997Q2 until 2005Q2, the high fluctuation of the corporate failure rates was reflected mainly by a substantial increase in the total number of insolvent companies. To understand the reason behind this tremendous change, this paper examines the macroeconomic factors that may influence and cointegrate with the variability of corporate failure rates. (See Figure 1)

This study is based mainly on Liu and Wilson (2002) and Liu (2004), whereby it is designed to investigate the macroeconomic determinants of corporate failures in Malaysia. Specifically, the objective of this study is to use the Autoregressive Distributed Lag (ARDL thereafter) modeling approach in examining several macroeconomic variables selected from prior studies that are hypothesized to determine corporate failures in Malaysia.

We expect this research to be of interest to both financial academicians and practitioners. The finding of the study is expected to assist policymakers understand the short-run and long-run behaviors of corporate failure rates as far as the macroeconomic variables are concerned. For example, it will answer questions such as: "Do high interest-rate regimes consistently cause more corporate failures?" This, in turn, may shed some light into the effectiveness of our monetary policy. Furthermore, the analysis of structural breaks (if any) will reveal if certain incidents (such as the 1997 Asian financial crisis) have any significant role in either mitigating or exacerbating the overall level of corporate failures.

We employ quarterly data over the period 1991:1 to 2005:4 by using a robust and recently developed ARDL cointegration method which is applicable whether the regressors are $I(1)$ or $I(0)$. This paper is organized as follows: Section 2 reports the data and the ARDL cointegration methodology. The empirical results are presented in Section 3, and Section 4 concludes the paper.

2. Data and Methodology

2.1 Data

Over the past decade or so, several efforts have been made to ferret out the possible factors that may influence firms' performance. Competition in the global capitalist economy becomes stiffer and it poses huge risks to firms. Based on previous studies, there is an abundant amount of literature which has attempted to determine the factors that may influence corporate failures. However, most of the studies focused only on the micro point of view or firm level analysis. To the best of our knowledge, there is no study in Malaysia which presents the macroeconomic explanations of corporate failures and at the same time incorporates the ARDL methodology, a robust and recent time series cointegration technique. Therefore, in this empirical study, a linear function model is estimated by

employing ARDL methodology to determine the long-run dynamic linkages between the macroeconomics variables and the corporate failures. In addition, a dummy variable of the 1997 Asian Financial Crisis has been included in the model to represent the unstable condition period during the crisis.

The hypothesis of this study is to test whether the corporate failure in Malaysia could be explained by the movement of macroeconomic variables that consist of credit liquidity condition, inflation, income and competition. In this study domestic credit represents credit liquidity and Gross Domestic Product (GDP) has been chosen as a proxy of income as well as economic growth condition in Malaysia. Consumer Price Index (CPI) signifies purchasing power by the consumers and the uncertainty in the cost of borrowing is represented by the average lending rate. Furthermore, corporate birth rate could represent the competition that occurs among the firms to achieve the ultimate goal (profit) in the market.

In this study, a linear function model is estimated by employing explanatory variables to determine the long-run dynamic linkages.

Corporate failure = f (Credit liquidity, Uncertainty, Income, Competition, Asian Financial Crisis)

$$\ln (CFR)_t = \alpha_0 + \beta_1 \ln (DCR)_t + \beta_2 \ln (ALR)_t + \beta_3 \ln (CPI)_t + \beta_4 \ln (GDP)_t + \beta_5 \ln (CBR)_t + \beta_6 (Dummy)_t + e_t$$

where CFR is the natural log of corporate failure rate; DCR is the natural log of domestic credit aggregate; ALR is the natural log of average lending rate; CPI is the natural log of consumer pricing index; GDP is the natural log of real gross domestic product; CBR is the natural log of corporate birth rate; and Dummy represents the Asian Financial Crisis, which started in 1997:Q3 and continued until 1998:Q3 when the recovery process is suggested to have begun. It is still questionable when the financial crisis was over, or even whether it really has ended.

However, according to a study on exchange rate volatility by Kawai and Shinji (2001), the values of East Asian currencies began to show relative stability from November 1998, which indicates the end of the East Asian turmoil. The parameter of α_0 is the intercept and $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are coefficients of the variables; e_t is the error term. The data span used in this study is from 1991:Q1 to 2005:Q4. Data were collected from *International Financial Statistics* Data Stream published by International Monetary Fund (IMF) and *Thomson Data Stream*. Since the observations are on a quarterly basis, we choose lags of 4 to represent the maximum order of the lags in the ARDL model.

2.2 Econometric Model

The ARDL bound test (Pesaran et al., 2001) is being employed for cointegration analysis since it can be applied irrespective of whether the regressors are purely I(0), purely I(1), or mutually cointegrated. Moreover, the order of integration of the underlying regressors is not required to be ascertained prior to testing the existence of a level relationship between two variables (Pesaran et al., 2001). Moreover, the bounds testing procedure (Pesaran et al., 2001) employed in this study is robust for a small sample study (Pattichis, 1999; Mah, 2000; Tang & Nair, 2002) and is possible even when the explanatory variables are endogenous (Alam & Quazi, 2003). The ARDL cointegration test assumed that only one long-run relationship exists between the dependent variable and the exogenous variables (Pesaran et al., 2001). Following Pesaran et al. (2001), the ARDL model can be presented as below:

$$\phi(L, p)y_t = \sum_{i=1}^k \beta_i(L, q_i)x_{it} + \delta'w_t + \mu_t$$

where

$$\phi(L, p) = 1 - \phi_1 L - \phi_2 L^2 - \dots - \phi_p L^p$$

$$\beta_i(L, q_i) = 1 - \beta_{i1}L - \beta_{i2}L^2 - \dots - \beta_{iq}L^{q_i}, i = 1, 2, \dots, k.$$

L is a lag operator of $Ly_t = y_{t-1}$, and w_t is a $s \times 1$ vector of deterministic variables, such as the intercept term, seasonal dummies, time trends or exogenous variables with fixed lags. All possible values of $p = 0, 1, 2, \dots, m$; $i = 1, 2, \dots, k$ with a total of $(m+1)^{k+1}$. ARDL models can be estimated by using the Ordinary Least Square (OLS). The long-run coefficients for the response of y_t to a unit change in x_{it} are estimated by:

$$\hat{\theta}_i = \frac{\hat{\beta}_i \left(1, \hat{q}_i \right)}{\hat{\phi} \left(1, \hat{p} \right)} = \frac{\hat{\beta}_{i0} + \hat{\beta}_{i1} + \dots + \hat{\beta}_{i\hat{q}_i}}{1 - \hat{\phi}_1 - \hat{\phi}_2 \dots - \hat{\phi}_{\hat{p}}}, i = 1, 2, \dots, k.$$

where \hat{p} and \hat{q}_i , $i = 1, 2, \dots, k$ are the estimated values of p and q_i , $i = 1, 2, \dots, k$. The related unrestricted error correction model is given by:

$$\Delta y_t = -\phi(1, \hat{p})EC_{t-1} + \sum_{i=1}^k \beta_{i0} \Delta x_{it} + \delta' \Delta w_t - \sum_{j=1}^{\hat{p}-1} \phi_j^* \Delta y_{t-j} - \sum_{i=1}^k \sum_{j=1}^{\hat{q}_i-1} \beta_{ij}^* \Delta x_{i,t-j} + \mu_t \text{ where}$$

$$EC_t = y_t - \sum_{i=1}^k \hat{\theta}_i x_{it} - \hat{\Psi}' w_t$$

Basically, the bound test developed by Pesaran et al. (2001) is the Wald test (F-statistic version of the bound testing approaches) for the lagged level variables in the right-hand side of unrestricted error correction models. That is, we test the null hypothesis of non-cointegrating relation ($H_0: \delta_1 = \delta_2 = \delta_3 = \dots = \delta_n = 0$) by performing a joint significance test on the lagged level variables. The asymptotic distribution of the F-statistic is non-standard under the null hypothesis of no cointegrating relation between the examined variables, irrespective of whether the explanatory variables are purely $I(0)$ or $I(1)$.

Under the conventionally used level of significance such as 10 percent, 5 percent and 1 percent, if the statistic from the Wald test falls outside the critical bounds value (lower and upper values), a conclusive inference can be made without considering the order of integration of the explanatory variables. If the F-statistic exceeds the upper critical bound, then the null hypothesis of no cointegrating relation can be rejected. If the test statistic (F-statistic) falls below the lower critical bound, we cannot reject the null of non-cointegration. In the case of the F-statistic falling between the upper and lower bounds, a conclusive inference cannot be made. Here, the order of integration $I(d)$ for the explanatory variables must be known before any conclusion can be drawn (Pesaran et al., 2001).

The second stage of ARDL approach is to estimate the coefficients of the long-run cointegrating relationship and the corresponding Error Correction Model (ECM). Since the data are quarterly, we choose four for the maximum order of the lags in ARDL model. A specification of unrestricted error correction version of the ARDL is given by:

$$\Delta \ln(CFR)_t = \alpha_0 + \sum_{i=1}^4 a_i \Delta \ln(CFR)_{t-i} + \sum_{i=1}^4 b_i \Delta \ln(DCR)_{t-i} +$$

$$\sum_{i=1}^4 c_i \Delta \ln(ALR)_{t-i} + \sum_{i=1}^4 d_i \Delta \ln(CPI)_{t-i} + \sum_{i=1}^4 e_i \Delta \ln(GDP)_{t-i} +$$

$$\sum_{i=1}^4 f_i \Delta \ln(CBR)_{t-i} + \delta_1 \ln(CFR)_{t-1} + \delta_2 \ln(DCR)_{t-1} + \delta_3 \ln(ALR)_{t-1} +$$

$$\delta_4 \ln(CPI)_{t-1} + \delta_5 \ln(GDP)_{t-1} + \delta_6 \ln(CBR)_{t-1} + \alpha \text{ Dummy} + e_t$$

The lagged error correction term (e_{t-1}) derived from the Error Correction Model (ECM) is an important element in the dynamic of cointegrated system as it allows for adjustment back to the long-term equilibrium relationship given a deviation in the last quarter.

3. Results and Discussion

Table 1 show that the computed F-statistics value of 4.903 exceeds the critical bound (2.476 – 3.646) at 5 percent significance level when the lag order of 4 is imposed. This implies that the null hypothesis of no cointegrating long-run relationship can be rejected. Thus, these results reveal the existence of a long-run relationship between macroeconomic variables and corporate failures in Malaysia. The error correction model representation for the ARDL model is selected using the AIC.

Table 2 provides the estimates of the ARDL long-run coefficient for the model; and results of the estimated optimal ARDL model based on the AIC are reported in Table 3. Of the three macroeconomics variables, the average lending rate and gross domestic product are found to be statistically significant at 10 percent critical levels with the expected signs, while the rate of inflation is significant at 5 percent. The result implies that any movement in the average lending rate, gross domestic product and the rate of inflation are found to be cointegrated or co-moving with the changes in corporate failure rates. Furthermore, our results also revealed that the recent Asian Financial Crisis makes a significant contribution to the corporate failure rates in Malaysia.

Gross domestic product (GDP) significantly influenced the corporate failure rates in a negative direction. The opposite relationship between GDP and corporate failures can be explained as follows: the increasing GDP indicates the higher profitability of the firms in the economy with the assumption of *ceteris paribus*, which in turn lowers the rate of corporate failures. As expected, an increase in the average lending rate increased the numbers of corporate failure since it contributed to the higher cost of borrowing which indirectly affected the company's profitability (Liu, 2004). Higher cost of borrowing may lower the degree of profitability of the company and thus put it under financial pressure which consequently may increase the possibility of the company going into bankruptcy. The findings also demonstrate that an increase in the rate of inflation will cause a rise in the corporate failures in our model. One plausible reason for this relationship is that, as the inflation rate is increasing, the purchasing power is decreasing. Hence, the ability of the consumers to buy goods or services that are supplied by the company is declining and it may give negative impact to the company's revenue as well as to the total turnover. (See Table 1 and Table 2)

The error correction term estimated at -0.646 (0.00) is statistically significant and has the correct sign, making certain that the long-run equilibrium is attainable. Thus, ECT_{t-1} coefficient of -0.646 suggests that corporate failure rate is adjusting rapidly to the changes in the explanatory variables before reaching its equilibrium. The regression for the underlying ARDL equation fits very well with $R^2 = 85\%$ and passes the diagnostic tests against the serial correlation, non-normality errors and functional form misspecification of the model (Table 4). Nevertheless, it failed the heteroscedasticity test at 5 percent level. According to Shrestha and Chowdhury (2005), since the ARDL equation is potentially of mixed order of integration, i.e. I(0) and I(1), it is natural to detect heteroscedasticity. (See Table 3 and Table 4)

4. Concluding Remarks

Initial studies on determinants of corporate failures tend to investigate this behavior from the micro point of view. Therefore, this paper is believed to be the first study on the corporate failures for the case of Malaysia from the macro standpoint. In this study, we employ a robust and recent time series cointegration ARDL method to determine the long-run dynamic linkages between the macroeconomics variables and the corporate failures. The period of analysis is from 1991Q1 to 2005Q4. The results of bound test reveal a long-run relationship between average lending rate and inflation rate with the corporate failure in Malaysia. These findings have important implications for the efficient conduct of monetary policy management with regard to the survival of the firms in financially distressed and financially driven business cycles.

Acting as one of the monetary policy's mechanisms, interest rate is used by the Central Bank to control the fluctuation in the economy. Base lending rate (BLR), which is set by the Central Bank, is a benchmark for the commercial banks and financial institutions to determine their lending and saving rates, after taking into account their profit margin.

It is noted that any movement in the lending rate by the commercial banks and financial institutions are based on the BLR. Since any movement in lending rate by commercial banks and financial institutions is associated with corporate failure, it is suggested that the Central Bank should take into consideration this positive relationship before deciding to increase the BLR. In addition, commercial banks and financial institutions should also be cautious when fixing their margin. If the margin is too high, it tends to increase the lending rate and consequently may increase the possibility of a company incurring higher cost of borrowing, and it will increase the probability of the company defaulting on its debt repayment. Eventually, it will increase the Non Performing Loan (NPL) held by the banks.

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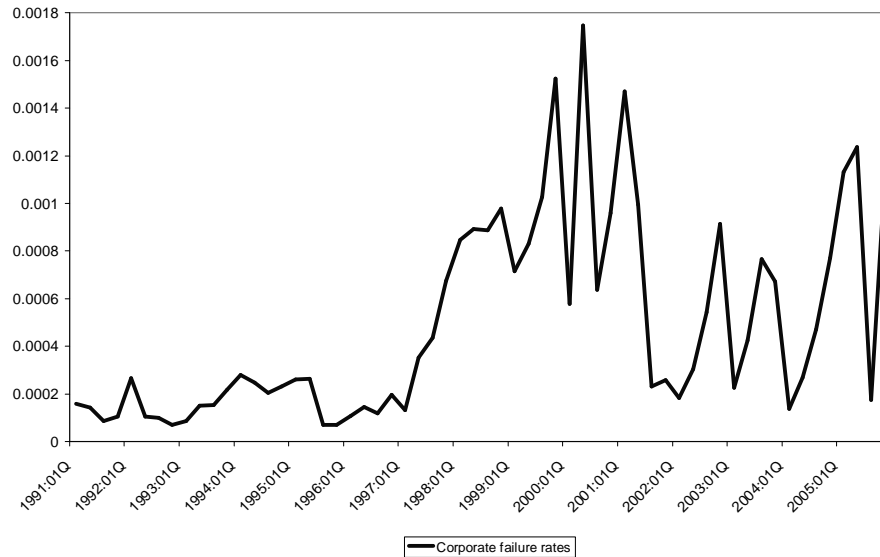


Figure 1. Malaysia's corporate failure rates

Table 1. F-Statistics for testing the existence of long-run relationship

Lag Order	2	3	4	5	6
Computed F-Statistic	3.391	2.569	4.903*	1.858	1.626
Critical Values at 5 percent level	<i>Lower; upper</i>				
	2.476; 3.646				

The critical values are taken from Pesaran et al. (2001), unrestricted intercept and no trend with six regressors. * denotes rejecting the null at 5 percent level. The range of the critical value at 1 percent and 10 percent are 3.267 – 4.540 and 2.141 – 3.250 respectively.

Table 2. Estimated long-run coefficients based on Akaike Information Criterion (AIC)

ARDL (1,1,1,4,1,1,0) selected based on AIC. Dependent variable is corporate failure rates.			
<i>Independent Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>T-Statistics</i>
CBR	0.210	1.288	0.163
DCR	-3.635	2.669	-1.362
GDP	-8.379	4.933	-1.699*
ALR	55.603	31.724	1.753*
CPI	46.569	19.584	2.378**
DUMMY	1.364	0.780	1.748*
INTERCEPT	-137.716	67.055	-2.054**

Note: **, * denotes significant at 5 percent and 10 percent respectively. CBR is the natural log of corporate birth rate; DCR is the natural log of domestic credit aggregate; GDP is the natural log of real gross domestic product; ALR is the natural log of average lending rate; CPI is the natural log of consumer pricing index; and Dummy represents the Asian Financial Crisis, starting from 1997:Q3 to 1998:Q3.

Table 3. Error correction model for the selected ARDL model

ARDL (1,1,1,4,1,1,0) selected based on AIC. Dependent variable is corporate failure rates.			
<i>Independent Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>T-Statistics</i>
ΔCBR_t	-2.863	0.997	-2.873**
ΔDCR_t	1.376	1.738	0.792
ΔGDP_t	7.984	4.206	1.898*
ΔGDP_{t-1}	1.344	3.683	0.365
ΔGDP_{t-2}	11.688	3.393	3.445**
ΔGDP_{t-3}	7.312	3.807	1.921*
ΔALR_t	-29.677	30.303	-0.979
ΔCPI_t	-8.318	24.181	-0.344
$\Delta DUMMY_t$	0.881	0.524	1.683*
INTERCEPT	-88.972	39.554	-2.249**
Ecm(-1)	-0.646	0.132	-4.890**

Note: **, * denotes significant at 5 percent and 10 percent respectively. CBR is the natural log of corporate birth rate; DCR is the natural log of domestic credit aggregate; GDP is the natural log of real gross domestic product; ALR is the natural log of average lending rate; CPI is the natural log of consumer pricing index; and Dummy represents the Asian Financial Crisis, starting from 1997:Q3 to 1998:Q3.

Table 4. ARDL-VECM model diagnostic tests

LM Test Statistics	
Serial Correlation $\chi^2(4) = 7.396[0.116]$	Normality $\chi^2(2) = 1.283[0.527]$
Functional Form $\chi^2(1) = 0.258[0.611]$	Heteroscedasticity $\chi^2(1) = 3.741[0.053]$

A Shopping Model in Agent-mediated Electronic Commerce

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Abstract

As the development of Internet, electronic commerce technology in which agent takes the role of medium is becoming more and more popular recently. It accentuates how to make use of agent technology to enhance the automation and efficiency of shopping in the Internet and businessman's selling process. However, today's first generation shopping agent systems are limited to comparing product usually on price instead of their full range of attribute and don't reflect the customer's actual purchase preference. For these limitations, we propose a new shopping model for electronic commerce based on the agent technology and elaborate how to analyze and design the agent system. Based on the agent technology, the combination of a multi-attribute evaluation model and preference evaluation model is presented. Finally, an experimental prototype system for car shopping on IBM's Aglets is developed for demonstrating the proposed shopping model above.

Keywords: Agent, Electronic commerce, Multi-attribute evaluation, Preference evaluation

1. Introduction

There are more and more electronic commerce websites with the development of the Internet and it is not easy for the customers to select the most desirable products. Therefore, it is inevitable for us to compare the shopping pattern and develop the shopping websites. Through a shopping website, a customer can search for his or her interesting products and select the suitable one in the Internet.

Agent-based systems technology have provided lots of exciting applications for electronic commerce in recent years (Guttman R.H., 1998, pp. 147-159). because of its promise as a new paradigm for creating software that operates in environments that are distributed and open, such as the Internet Currently. So the researches of electronic commerce based on agent are expanding for the intelligence and automation of shopping. The purpose of agent technology in the shopping websites is to stand for buyers to search for suitable products and bargain with the suppliers.

The main purpose of shopping agent systems is to help customers to have information retrieval and information comparison in the massive information environment of the Internet. It is responsible to search for massive information on behalf of customers and select the preference information that is fit for the demands of the customers.

The paper is organized as follows. In section 2, we first give an overview of related work. Then in section 3, we analyze the intelligent shopping system and propose a solution about it. Following that, in section 4 we implement the shopping model based on multi-agent and in section 5, we develop an experiment prototype System on IBM's Aglets. Finally, we present the conclusions in section 6.

2. Related Work

Agents are intelligent software entities that possess the properties of autonomy, social ability, reactivity, pro-activeness and even mobility that mean they are able to migrate across different executions in the Internet (Wooldridge and Jennings, 1994). Recently, agent technology has been applied to various applications of electronic commerce (EC), such as information searching data filtering, electronic marketplace, bargaining and etc., to reduce the cost of transaction and promote enormous economic benefits.

The SICS MarketSpace (Eriksson, 1998, pp. 41-53) prototype was developed in Intelligent Systems Lab, Swedish Institute of Computer Science using Java. And it consists of a personal assistant allowing the user to describe his or her interests. Two agents augmented web shops. It provides a directory service that allows user and service agents to register interests and find agents with matching interests.

AuctionBot (Wurman, 1998, pp. 301-308) is general purpose internet auction server at University of Michigan where users create new auctions to buy products by choosing from a selection of auction types and specifying its parameters. And a buyer can bid with a seller according to the bilateral distributive negotiation protocols of the created auction. In a typical scenario, a seller would bid a reservation price after creating an auction and let AuctionBot manage and enforce a buyer bidding according to the auction protocols and parameters.

Magnet (Steinmetz, 1998, pp. 105-125) was developed by University of Minnesota. The goal of the Magnet project was to develop a semantic model for the integration of planning, contracting, scheduling, and execution in an agent-mediated market domain.

However, these shopping agent systems are limited to comparing products usually on price instead of their full range of attributes. Since the criteria for evaluating products has several attributes, Multi-attribute decision-making is required for the intelligent shopping systems.

3. The Analysis of Intelligent Shopping System

3.1 Relevant Problem

The main purpose in the paper is to design an intelligent shopping system and help a customer to search for his or her interesting products in the Internet. In the system, agents will search for the massive shopping information in real time and select the suitable product automatically based on the customer's preference on behalf of the customer.

The problems that intelligent shopping system will solve include:

- (1) How to search for the suitable products automatically in the Internet; and build a decision-making model to calculate the evaluation result of each product.
- (2) How to improve the candidate product and negotiate with the suppliers until the customer obtains the desirable product.
- (3) How to study and imitate the customer's individual purchase preference automatically from the previous shopping records of the customer.

3.2 Solution

In order to solve the problem above, the combination of a multi-attribute evaluation model and preference evaluation model is presented in this paper (Wang, 1986). The shopping process is listed as follows and its workflow is shown in figure 1.

- (1) First, intelligent agent system performs searching task, and it can be implemented in detail by a group of Purchase Agent that search for the quotations of products from the suppliers distributed in the Internet.
- (2) After receiving the quotations of products from the suppliers, intelligent agent system computes the utility value of each product based on the multi-attribute decision-making model and selects the product that has max utility value as the candidate product.
- (3) Then intelligent agent system submits the candidate product to the customer. If the customer is satisfactory to the candidate product, go to step (6).
- (4) If the customer is still not satisfactory to the candidate product, the intelligent agent system will acquire the buyer's individual preference storing in the preference knowledge database at once and perform the preference analyzing.
- (5) The intelligent agent system asks for a further quotation of the candidate product from its supplier and improves the quotation, then goes to step (3).
- (6) The intelligent agent system stands for the customer to carry out the electronic transaction, and the process of shopping is completed.

4. Implementation Model of the Shopping Based on Multi-agent

In the intelligent agent system, the concept of horizontal hierarchy is introduced in the paper. It means that the whole system consists of the following agents interacting with each other. They are Interface Agent, Search Agent, Purchase Agent, Evaluation Agent and Preference Agent. These agents cooperate with each other and make the whole system works together. The structure of system is shown in Figure 2.

This partition method makes each agent module relatively independent, promotes the reuse of each agent component, and each agent can execute simultaneously, so the whole performance of the system can be increased. For example, when Search Agent receives the quotation of a new product sent from Purchase Agent, Evaluation Agent can evaluate the former sent products at the same time, while Interface Agent is responding the request of a customer. Therefore, the system can perform efficiently.

In fact, multi-agent system originates from the development of the distributed artificial intelligence. It is the great advantage of multi-agent systems that cooperate with each other and solve the problems in the parallel computing pattern. The detailed functions of each agent in the system are described as follows.

4.1 Interface Agent

Interface Agent provides a friendly operating interface to the customers. It is responsible to exchange the information with the customers: on the one hand, it receives the purchase requirements of the customers and sends the requirements to the other agents in the system to proceed, on the other hand, the purchase result that other agents submit is displayed to the customers through the Interface Agent. So Interface Agent is the interface between the customers and the intelligent shopping Agent system.

4.2 Search Agent

Search Agent responds the purchase requirements of the customers and it is responsible for the whole searching task of the products. In order to promote the efficiency of searching, Search Agent creates a group of Purchase Agent and dispatches each Purchase Agent to search for a supplier side in the Internet. These Purchase Agents perform parallel searching, so Search Agent must manage the running state of all Purchase Agents and coordinate task distribution among them. The process of Search Agent is described in Figure 3.

4.3 Purchase Agent

When Purchase Agents is created, they will be dispatched to search for the suppliers distributed in the Internet. After they find respective supplier, each Purchase Agent negotiates with the supplier and asks for a quotation about the product from supplier. After Purchase Agents get the quotations, they return the searching results to Evaluation Agent. The process of Purchase Agent is described in the Figure 4.

4.4 Evaluation Agent

Evaluation Agent is the indispensable part of the whole intelligent system. After receiving the quotations of all products from the suppliers, Evaluation Agent will decide which product is the best among all the submitted products. Since the criteria for comparing quotation of products has several attributes such as price, quality, reliability, appearance and supplier credit etc, multi-attribute decision-making method is required for computing the utility value of each product. Its mathematical model can be described:

Considering $X = \{x_1, x_2, \dots, x_m\}$ as the product set searched in the Internet, $Y = \{y_1, y_2, \dots, y_n\}$ as the attribute set, the utility value of product $X_i (1 \leq i \leq m)$ about the attribute $Y_j (1 \leq j \leq n)$ can be expressed as $f_{ij} = f_j(x_{ij})$. Therefore, the evaluation matrix which consists of $m \times n$ f_{ij} can be expressed as:

$$F = \begin{bmatrix} f_{11} & f_{12} & \dots & f_{1n} \\ f_{21} & f_{22} & \dots & f_{2n} \\ \dots & \dots & \dots & \dots \\ f_{m1} & f_{m2} & \dots & f_{mn} \end{bmatrix} = (f_{ij})_{m \times n} \quad (1)$$

For easy mutual reference to the attributes that have different dimensions, the evaluation matrix should be normalized and can be followed by:

$$f'_{ij} = \frac{f_{ij}}{\sqrt{\sum_{i=1}^m (f_{ij})^2}} \quad (2)$$

After normalizing the evaluation matrix, $F' = (f'_{ij})_{m \times n}$ is figured out and f'_{ij} is limited in $[0,1]$. Evaluation Agent calculates the utility value of each product $x_i \in X = (x_1, x_2, \dots, x_m)$ based on the equation (3):

$$U(x_i) = \sum_{j=1}^n \omega_j f'_{ij} \quad (3)$$

In the equation (3), $U(x_i)$ is the utility value of the product $x_i (1 \leq i \leq m)$; $\omega_j \in [0,1]$ is the weight of the attribute $j (1 \leq j \leq n)$, and $\sum_{j=1}^n \omega_j = 1$.

After calculating the utility value of all the products, Evaluation Agent will select the product that has the max utility

value as the candidate product. The candidate product can be expressed as: $A^* = \{x_i \mid \max_{1 \leq i \leq m} [U(x_i)]\}$. Finally, Evaluation Agent submits the candidate product to the customer through Interface Agent. All the computing processes are carried out by Evaluation Agent automatically. The process of Evaluation Agent is described in Figure 5.

4.5 Preference Agent

If the customer is still not satisfactory to the candidate product, Preference Agent will acquire the customer's individual preference from the preference knowledge database at once and perform the preference analyzing. Because the inference and analyze of Preference Agent is based on the rules, relevant rules must be stored in the preference knowledge database. Here we illustrate some rules as examples:

R_1 : If (attribute y_i is more preferential than y_j) when a buyer asking for a new quotation

Then (y_i is improved first).

R_2 : If (reference quotation is X_i) and (the concession of supplier is x)

Then (concession of buyer is y)

R_3 : If (the preference is determined) AND (the quotation is modified)

Then If (the buyer and supplier are both satisfied with the quotation)

Then negotiation is terminated with success

Else asking for a further quotation.

The rule R_1 indicates the rule of attribute preference of the customer when he or she modifies the quotation of the candidate product; R_2 is the rule about the negotiation strategy: a new quotation must be superior to the reference quotation and when the concession of supplier is x , the concession of the buyer can be y accordingly; R_3 is the rule about negotiation control.

Preference Agent will modify the quotation of the candidate product according to the customer's individual preference and obtain a more satisfactory quotation for the customer. In the whole process of the shopping, Preference Agent will study and imitate the customer's individual preference automatically from the purchasing behavior of the customer and store it in the preference knowledge database after the shopping process is completed with success.

5. The Experiment about the System

We utilize IBM's Aglet to develop a website for car shopping. IBM's Aglet is a Java-based tool for developing mobile agents (Aglets, 2002). It includes the Aglet API, documentation, sample aglets, and Tahiti aglet server. The Aglet API, created and operated aglets, is a Java package consisting of classes and interfaces. The basic functionality and runtime properties of aglets are Aglet, AgletProxy and AgletContext classes. The Aglet class defines the fundamental methods to control the mobility and life cycle of an aglet. The AgletContext class provides the runtime environment for aglets with the Tahiti server. The AgletProxy class provides a common way of the aglet. It provides location transparency and acts as a shield object that protects an aglet from direct access by other malicious aglet. All communication with other aglets must occur through this interface.

In the experimental work, we create four Aglet servers. One stands for the agent server of the shopping website in order to simulate the processes of electronic shopping. The other three stands for the suppliers. Figure 6 illustrates the experimental architecture. In Figure 6, Server A is the web server of shopping website, the suppliers are located at server B, server C, and server D. Server A, server B and server C are located on the same local-area network, while Server D is located in the different remote network.

In the shopping Server A, a customer can set the demand of purchasing, including price, brand, quality, reliability and supplier credit etc. The agent system of the shopping website will search for the suitable suppliers according to the demands. After receiving the quotations of different cars from the suppliers, the agent system will utilize multi-attribute evaluation model to select the most desirable car for the customer. Then, the agent system is able to study and simulate the customer's preference automatically and modify the quotation of the candidate product until the quotation is satisfactory to the customer.

In the intelligent agent system, Purchase Agent is a mobile aglet, while other agents are stationary aglets including Interface Agent, Search Agent, Evaluation Agent and Preference Agent. In the experiment, the round-trip time associated with Purchase Agents traversing the Internet between Aglet servers is measured. When a Purchase Agent is created and dispatched on a round-trip between Shopping Server A and some Supplier Server (either server B,

server C or Server D), it registers timestamps corresponding to its departure from Server A and to its subsequent return. The average round trip time t_{avg} can be computed as

$$t_{avg} = \left(\sum_{i=1}^n t(a)_i - t(d)_i \right) / n \quad (4)$$

In the equation (4), i is for the i th trial run, $t(a)_i$ is the timestamp registered by Purchase Agent before departing from Shopping Server A; $t(d)_i$ is the timestamp computed by Purchase Agent immediately upon returning to Shopping Server A; n is the number of trial runs made by Purchase Agent between the same pair of servers. In the experiment, the number of trial runs is $n = 100$. Search Agent creates three Purchase Agents and dispatches each Purchase Agent to search for its respective supplier in the Internet simultaneously.

As expected, t_{avg} for Supplier Server B is least (123 ms) on the same local-area network and t_{avg} for Supplier Server D is most (864 ms) because D is located in the different remote network from Shopping Server A.

6. Conclusion

To enhance the automation of shopping in the Internet and help the customers to purchase the desirable products from the websites quickly, a shopping model for electronic commerce based on agent technology is designed and implemented in this paper. In the intelligent agent system, we have utilized the multi-attribute evaluation model and preference evaluation model to select the most suitable product for the customers. And we also develop a car shopping website on Aglet platform as an application example for the proposed intelligent agent system. The experimental results show that the system performed efficiently and effectively. This paper has done some available attempts in the intelligent electronic commerce fields. Future research of this work will include how to study and imitate the customer's individual preference more actively and introducing the negotiation mechanism in Purchase Agent.

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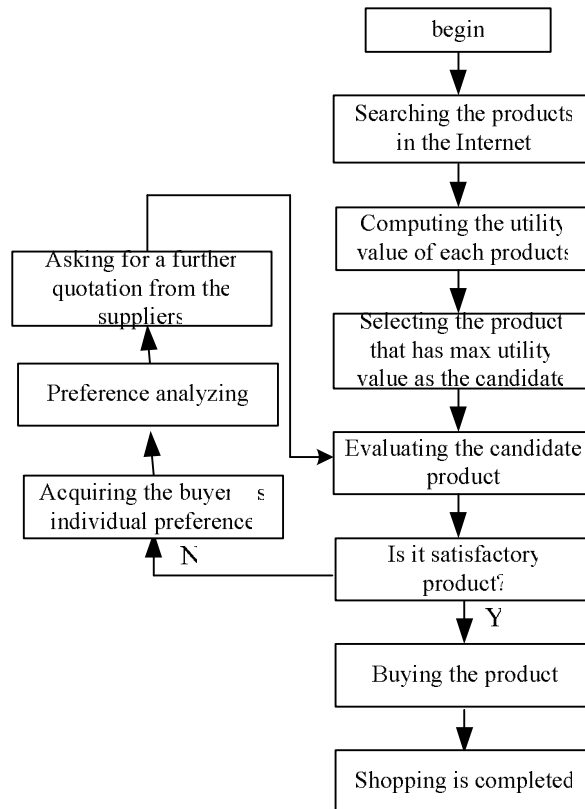


Figure 1. the combination model of a multi-attribute evaluation and preference evaluation

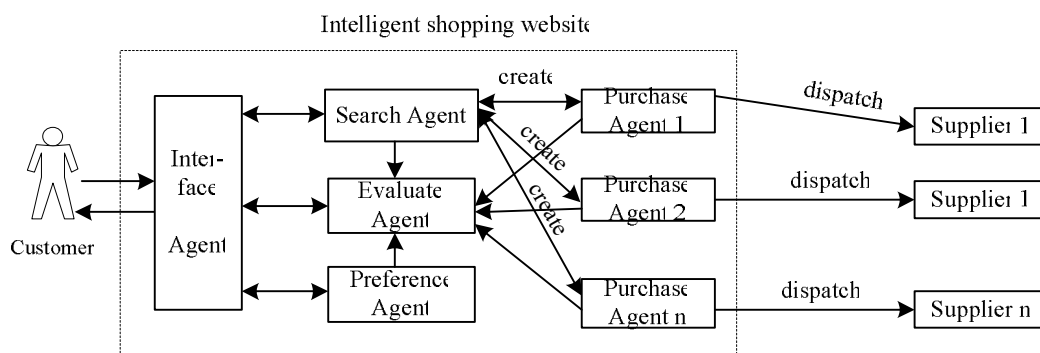


Figure 2. The structure of intelligent agent system

```

//class for Search Agent
import com.ibm.aglet.*;
public class Search Agent extends Agelet{
    public void onCreate(Object init){
        create the operative window;
    }
    public void createPurchaseAgent(){
        create a group of Purchase Agents;
    }
    public void dispatchPurchaseAgent(){
        dispatch Purchase Agents to find the suppliers;
        send the proxy of all Purchase Agents to each
        dispatched Purchase Agent;
    }
    public void sendCommand(String command){
        send the command message to each Purchase Agent;
    }
    public Boolean handleMessage(Message msg){
        if Purchase Agents send the current status
            record and show the status;
        if Purchase Agents send supplier's quotations of cars
            record and show the quotation;
    }
}

```

Figure 3. Implementation for Search Agent

```

//Class for Purchase Agent
import com.ibm.aglet.*;
public class PurchaseAgent extends Agelet {
    public void onCreate(Object init){
        extract the information of supplier product
        from Search Agent
    }
    public boolean onArrival() {
        obtain the proxy of supplier agent
        modify the current location
    }
    public void run() {
        if current location is at the respective side{
            ask for contact
            if the supplier permit contact{
                ask for a quotation about the product
                get the quotation
                send the searching result to Evaluation Agent
            }
            send the current status to Search Agent
            dispose oneself
        }
    }
    public Boolean handleMessage(Message msg){
        if Search Agent send the Suspend command
            suspend oneself
        if Search Agent send the Resume command
            resume oneself
        if Search Agent send the Stop command
            dispose oneself
    }
}

```

Figure 4. Implementation for Purchase Agent

```

//Class for the EvaluationAgent
import com.ibm.aglet.*;
public class EvaluationAgent extends Aglet {
    public void onCreate(object ini) {
        initialize oneself using multi-attribute decision model
        create the operative window
    }
    public Boolean handleMessage(Message msg) {
        if PurchaseAgents send supplier's quotations about products
        record and show the quotations
    }
    public void evaluation() {
        if all the PurchaseAgents send quotations {
            compute utility value of each product
            select the product that has max utility value as the
            candidate
        }
    }
    public void sendMessage(Message msg) {
        send the quotation of the candidate car to InterfaceAgent
    }
}

```

Figure 5. Implementation for Evaluation Agent

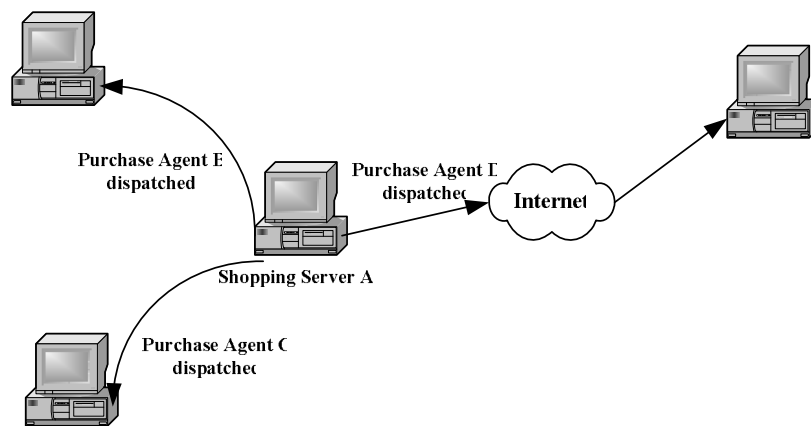


Figure 6. The experimental architecture of this system

Real-Time Enterprises' Financial Information Integration Based on the Internet Environment

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Abstract

With the development of IT, Internet has been applied to every field of enterprises' financial information management. The computer network and the database technologies are the basis of the achievement of the RTE. The RTE integrates the financial information of enterprise and utterly reconstruct the business process. Moreover, it converts the key part of financial process from measurement to management and provides accurate data for executives' decisions of the enterprise.

Keywords: Internet Environment, Real-Time Enterprise, Financial Information Integration

1. Introduction

A Real-Time Enterprise (RTE) needs to be a highly integrated enterprise to make the dream of "real time" a reality. On the whole, it contains four levels of integration: hardware integration, business and application integration, enterprise interior integration and enterprise exterior integration. To gradually realize and carry out a higher level of enterprise integration, it is essential to make the business process of the enterprise be fairly flexible in the network environment and under the dynamically changing demands of the market. That is to say, the RTE can be able to adjust its business process in real time according to the change of situation.

When the business process reengineering, it's important to adjust the existing information systems, integrate the raw data that is accumulated and separated mostly, fully integrate the multi-application and the multi-function, so that achieving a high degree of integration at different levels is possible. For 70% of the integrated information in an enterprise is financial information, the integration of financial information are apparently more important.

In recent years, the theoretical fields have paid attentions on the enterprises' financial information management in the Internet environment and researches have been done. However, the related deep research is still few. At present, the research of the construction of RTE, the integration of resource internal and external, and the integration of financial information in the Internet environment are all in primary stage in our country. And this paper will research the enterprises' financial information reintegration, and put forward an integration model from a new angle.

2. The concept of RTE

The Gartner Group Enterprise in America defines the RTE as a kind of enterprises that by using the latest information can actively avoid the delay in management and execute of the crucial business process so that the enterprises can compete with others. The concept of RTE is borrowed from the concept of real-time operation and time-sharing operation in computer field. It means that the enterprises can respond to the clients' real-time request dynamically and providing productions or service.

In short, RTE is not a kind of technology, it is a kind of business ability, which can solve the delay in enterprises' crucial business process, and just by which the enterprises can improve their efficiency and realize the business value. RTE is a sort of enterprises that take fast response as the management idea, which integrates the financial information of enterprise, and use reasonable database management system based on the network technology, database warehouse technology and a series of other modern computer technologies.

In the Internet environment, the management and the personnel in enterprises can be aware of the competition

situation of the enterprises at any time, and can know the changing of logistics, capital flow, information flow, manpower resource and others in the enterprises. They can react to these changes as soon as possible. Also, they can make full use of enterprises' resource, adjust business process in time, and even adjust the strategy of the enterprises. And in key operation process, they can shorten the period of business circle and avoid the time lag in management and promote the competition advantage of the enterprises.

3. The character of the RTE's financial information

The character of an enterprise determines the character of the enterprise's financial information. No matter the traditional enterprise or the RTE, their financial information have some basic characters, which are born with the financial information, such as the opposition and the unification of reliability and relativity; evident, dynamicity; interiority, materiality, confidentiality, standardization and etc. Apart from these traditional characters, the RTE's financial information also have some new characters as below.

3.1 The real-time

Real-time is a main character that distinguishes real-time enterprises' finance from traditional enterprises' finance. The accounting measurement of RTE will make account work from calculate afterwards to real time, turns static calculating to dynamic calculating, and makes financial management realize online management, which will easily output every kind of dynamic information that reflects managing and financing status. The financial data can be processed in time. Once businesses occurred and been confirmed, they will be recorded in corresponded servers and be put into financial information systems immediately, and then be checked. The business information can be transmitted into financial information automatically in real time.

3.2 Integration

The integration of information is the foundation of the RTEs. In generally, the integration of information is the integration on four levels as mentioned in the introduction part. In narrow sense, it means that any data inputted into systems by one of the personnel in a department will be stored in appointed database immediately and be automatically appeared in all relative notes and reports, and won't need a second department or any other personnel to input it again anymore.

Since the management of a RTE will turn into the management that focuses on knowledge and information, it requires highly integration of enterprises' information and highly sharing of financial information resource. The development of network information technology will make this highly integration possible.

Meanwhile, the Internet environment makes finance and business consistent, and utterly achieves the principle of "one source, all shares". And through this integrated management of network information, enterprises can integrate their financial resource, and increase their competition advantage

3.3 The combination of universal and complication

When the RTEs are in the Internet environment, the users focus more on the value of intangible assets and future information. In the Internet environment, the enterprises' information of management and administration is all run by an electrical way, and the object and the process of enterprises' management are all digitized, so that management becomes a calculable activity. As a tool to reflect enterprises' activities, finance can reflect some uncountable information in traditional finance digitally, so as to reflect the enterprises' relative activities from all angles.

The area that RTEs' financial information covers include the supply chain which they're in and all the currency and non-currency information that the relative systems can offer. The timeline that information covers includes historical, current and future information. That will ensure the information used for reference and prediction. Each department in enterprises will provide all the information through its computer client windows to data warehouse. Then the information will be processed into the information that is needed by the users'. The complication of computer systems, the complication of information processing methods and all-around of financial information all result in the complication of financial information.

3.4 The unification of unique and sharing

In the Internet environment, the financial information will be opened and published more than before. A great deal of data is collected directly through enterprises' relative systems inside and outside through network. Moreover each department internal and external the enterprises will get the information from the web according to authorization.

As all of the RTEs' information is processed by the enterprises' data warehouse, the computers carry out the management process from accounting vouchers to financial reports. When a deal happens, the business data can be downloaded into financial systems directly. And financial information disposing process can be accomplished by itself according to operation order. The integration of information makes sharing of information widely possible.

The clients' get information is not passive but active. Clients can select financial information according to their own specific needs. And the computers deal with that select information automatically. The sharing of information reduces the information time-lag in main business process to the greatest extent and improves the efficiency of enterprises' business process.

Yet not all departments have the access to financial information. The financial information can also be divided into different levels of confidentiality. Some information can be shared commonly; some are only available to higher level managers of the enterprise. The RTEs' financial information is shareable, that only means RTEs is able to make this happen. But in practical application, the sharing is limited in a certain area. The unique of information cannot be neglected. The new features and new technology of RTEs determine that RTEs' financial information must have new characters to meet the challenge of the internal and external transformation of the enterprises. In order to meet the requirements of these new features, need integrate the enterprises' financial information all-around.

4. RTEs' financial information integration model in Internet environment

4.1 Set up of RTEs' financial information integration model in the Internet environment

The purpose of integrating RTEs' financial information in the Internet environment is to provide the real-time expense information, marketing information, product cost information, cash flow information, and etc. to financial information users. so as further to provide the real-time profit statement, balance sheet, cash flow table and other all kinds of financial information for enterprises' leaders to make decisions correctly and in time in the changing market economy.

In the Internet environment, integrating the RTEs' financial information must ensure that the information process synchronizes with the business process. And this includes the real-time of collecting data, the real-time of maintaining data and the real-time of information reporting. The real-time property of collecting data is that we must record and deal with relative data in accordance with business disposing rules and information disposing rules when business activities occur; the real-time property of maintaining data is that we can change relative system related reference data in time after enterprise management situation and business activities change; the real-time property of reporting information is that we can provide the information users with the latest enterprises' management status and administration information at any time with the support of data collecting and processing .

The RTEs' financial information integrating model in the Internet environment is shown in Figure 1.

Thus in the Internet environment, the RTEs' financial information integrating should adopt a variety of terminal equipments to collect voice, image, figure, file and etc. directly on the business level, so that all the needs have direct corresponding terminals. The collected information needs to integrate with Client Relation Management (CRM), Decision Sustaining System (DSS) and some other appliance systems according to business flow. From the depth of information using and managing, the original production plan and OLTP needed to be extended to cover OA, non-paper disposing downwards, to be extended to OLAP upwards, to be extended broadly to designing and engineering field. And all the software functions have corresponding hardware operation platform and network communications platform.

4.2 The illustration of RTEs' financial information integration model in the Internet environment

The web-based integration of the RTEs' financial information is business process-oriented integration. Business processing rules will be embedded into systems. Therefore, real-time information processing models are badly needed. That is to say, financial data collection, storage, process and transmission are all required to be embedded into business process systems.

EDI automatically transfers business information into standard format between different business organizations' computer systems, relatively connects each business process such as ordering, production, transportation, sales, and balance, accomplishes wholly digital and automatic in business process including transportation, banking, tax departments, so that we can collect financial and non-financial information in real time, and execute to process, and control rules when businesses occur.

The RTEs' financial information integration model in the Internet environment has three basic bases: database, method-base and model-base. These three bases integrate data by the middle real-time information processor to achieve the aim of processing data in real time.

In this model, business event database is used to record basic business information in economic activities. When business events occur, all the original data is properly processed into standard coded source-data which records the individual character and property of business events, then is integrated into a business event data warehouse, but not some low coupled systems in which data is dispersed and stored repeated. Business event data warehouse not only records business affairs in compliance with accounting proceeding definition, but also records all the business events

that managers want to plan, control and evaluate, and stores all kinds of detailed information of business activities. Any authorized client can define and obtain useful information through data that stored in business event data warehouse. While, classification, gathering, and balancing measurement disposals are all belong to report inquiring output process.

The model-base is used to store all kinds of models that clients question related, such as special models, general models and temporary models that established when problems are being figured out, such as management control model, financing decision-making model, investment decision-making model, enterprise's economic value evaluation model, cost analyzing model, profit analyzing model and etc. and some math models used in decision-making of science and technology, economy, and society development

The method-base is used to store information sampling, processing and operational control rules, and different rules for the confirmation and measurement (including accounting rules and non-accounting rules, accounting rules are one of the methods in rules). The method-base also contains some basic math method, statistic method, economy math method, predicting method, evaluating method, optimizing method, simulation method, decision-making method, invest-output method and etc.

So the accomplishment of network technology and database technology can be used to achieve real-time financial information and non-financial information collection, centralized storage, processing in-time, completely sharing and random visiting. The focus is integration. That is, the integration of business processing and information processing, the integration of financial information and non-financial information, and the integration of measurement and management.

5. Conclusion

Once RTEs' financial information integration in the Internet environment is achieved, can offer data and information to managers in all levels with fastest speed, help to analyze, evaluate and decide enterprises' financial situation and management situation, innovating financial methods, analyzing financial data in a deeper level, can enhance the quality of financial decision-making such as investing and financing, can build the controlling ability and resisting risks ability. The essence of the RTEs' apperceiving and responding in time requires the integration of financial information to be controlled at real time.

The financial real-time controlling means that financial personnel use modernized technologies to compare and analyze the enterprises' management activities process in real time, and interfere in enterprises' management by directing, adjusting, restricting, promoting and etc. to improve enterprises' profit and finally achieve the ultimate goal of value adding. The real-time financial control problem awaits further study in the future.

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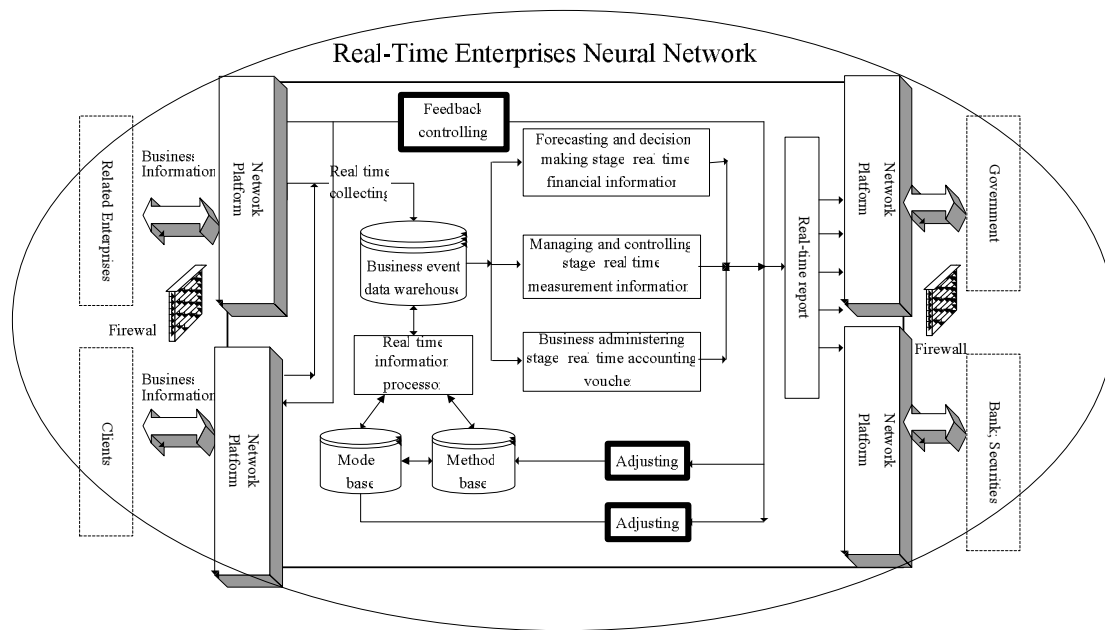


Figure 1. the RTEs' financial information integrating model in the Internet environment

Tobin's Q and the Location of Foreign Direct Investment in China

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Abstract

The aim of this paper is to examine the effects of the Chinese and Hong Kong stock markets on the levels of foreign direct investment into China's regions, utilising dynamic panel estimation techniques. Using a Tobin's Q measure, the results indicate that the effect is significant for both the Chinese and Hong Kong stock markets, but negatively signed, suggesting that FDI into China acts as a substitute for domestic investment. In addition we show that the Arellano-Bovver approach to dynamic panels produces an improvement into the modelling of FDI in China.

Keywords: FDI, Tobin's Q, Dynamic panel, Stock market, China, Hong Kong

1. Introduction

During the last ten years China has had one of the fastest growing economies in the world, with a corresponding increase in the levels of foreign direct investment (FDI), becoming the second highest recipient of FDI in the world. It is also an illustrative example of a successful transition economy, as over recent years a process of economic liberalisation has been implemented, as China moves to a more market orientated economy with the subsequent development of the instruments of a market economy, such as financial markets and institutions. The main aim of this paper is to evaluate the effect that both the Chinese and Hong Kong stock markets have had in determining levels of FDI across the Chinese regions. In addition I employ two alternative dynamic panel techniques to account for some of the agglomeration effects that are a characteristic of FDI in China.

Since 1997, following the return of Hong Kong to Chinese rule, China has been able to make use of the traditional strength of Hong Kong as one of the world's leading financial centres as a contributing factor to the growth of their economy. In addition China has sought to develop its own domestic stock markets, to further enhance their economy. As Alfaro *et al.* (2004) have demonstrated, financial markets have an important effect on FDI and the extent to which FDI affects growth and prosperity in the domestic economy.

Since Tobin (1969) there has been an extensive body of research into the relationship between domestic investment and the domestic stock market, using Tobin's Q theory. However there is little consensus on whether this relationship holds, using domestic data only. Recently attention has turned to the relationship between Tobin's Q and foreign direct investment (FDI), where Tobin's Q is a measure of the domestic stock market in the source country of the FDI. Blonigen (1997) finds that the Japanese stock market affects Japanese FDI to the USA and De Santis *et al.* (2004) find a positive and significant relationship between the Euro area stock markets and their corresponding FDI flows to the United States, as well as a significant and positive relationship between the US market index and FDI inflows from the Euro area to the USA.

Alfaro *et al.* (2004) have attempted to link a measure of the stock market with FDI flows to determine their effects on economic growth, finding that they had a significant effect on growth, when included as an interaction term with various financial market measures, including ones relating to stock markets. However they also show when included individually, the stock market measures had an insignificant effect on growth. In this study we attempt to build on the existing literature by the inclusion of both Chinese and Hong Kong measures of Tobin's Q into a conventional model of FDI flows into China.

Following the introduction the model specification is discussed in section 2 along with the dynamic panel approach to estimation. In section 3 the data is described and the results discussed, then in the final section we conclude and suggest some policy implications.

2. Model and Methodology

As with Cheng and Kwan (2000), the empirical model is based on the partial equilibrium theory to account for any agglomeration effects, which characterise FDI in China:

$$y_{it} - y_{it-1} = \lambda(y_{it}^* - y_{it-1}) \quad (1)$$

This indicates that the change in the level of FDI (y_{it}) is proportional to the gap between its desired level (y^*_{it}) and actual level. This can be rearranged to form:

$$y_{it} = (1 - \lambda)y_{it-1} + \lambda y^*_{it} \quad (2)$$

Where the term $(1 - \lambda)$ measures the adjustment and is assumed to be positive, as the adjustment process should be both stable and non-fluctuating. Finally the model requires the determinants of the desired levels of FDI to be specified. In this model, apart from the Tobin's Q variables, we include the conventional determinants of FDI, used extensively in the literature as in Cheng and Kwan. (2000) and Wei *et al.* (1999) among others. The determinants of the desired level of FDI (Note 1) consist of the real per capita GNP, average real wages and expenditure on education per person in each region, the standard of the region's infrastructure, as measured by the length of highways relative to the population of each region and the Tobin's Q measures for the Chinese and Hong Kong stock markets, which are the ratio between the respective stock market indices and the regional industrial price indices. Any agglomeration effects are accounted for by the inclusion of a lagged dependent variable arising from the dynamic panel model.

The per capita GNP is included to account for the wealth of a particular region, in effect the higher the wealth, the greater the level of FDI as the greater the domestic demand for the goods and services provided by the firm receiving the FDI. This has been used as a measure for the development and wealth of a region in other similar studies, such as Fung *et al.* (2002) and Coughlin and Segev (2000). The length of roads measures the level of infrastructure within a particular region. The more developed a region's infrastructure, the more attractive it will be as a target for any FDI, as the lower will be its transport costs. It is expected that the average wage will have a negative impact on FDI flows as noted in Fung *et al.* (2002) and Cheng and Kwan (2000), as the FDI is aimed at the cheapest labour and finally we expect the education or labour quality variable measuring the amount of human capital in each region to also have a positive effect on FDI flows, as found by studies from Broadman and Sun (1997), Coughlin and Segev (2000) and Fung *et al.* (1997), as this produces a skilled and attractive workforce for the foreign investor.

The use of the lagged dependent variable should pick up the agglomeration effects, whereby FDI tends to be attracted to areas that have already been the recipient of FDI. Again we would expect this variable to have a positive effect on FDI. The positive relationship is expected because not only can foreign firms take advantage of economies of scale, but the existence of foreign firms already in a region acts as a positive signal to other firms when considering where to invest. However on the other hand, the Chinese Government has recently used fiscal inducements to attract FDI to other locations, outside the established areas for FDI in China, if this has been successful, then the agglomeration effects would not be expected to be significant.

2.1 Tobin's Q and FDI in China

The relationship between the domestic Tobin's Q and FDI inflows is less certain, as it depends on whether FDI compliments domestic investment or acts as a substitute. In theory it is argued that FDI inflows would have a positive relationship with the domestic stock market. For instance De Santis *et al.* (2004) argue that the domestic stock market is a proxy for levels of technology. Countries with high levels of technology are more likely to receive FDI, as the investors seek to benefit from the accompanying positive spill-over effects from the technology. However it could also be the case that in some countries, particularly less developed countries with low levels of technology, the FDI has a negative relationship with domestic stock prices (Note 2). For instance a fall in the domestic stock market could in theory lead to a reduction in domestic investment, requiring the authorities to seek investment funds from overseas by offering incentives (Note 3) and reducing barriers to FDI. So although theory suggests a complimentary relationship between FDI and the domestic economy, the FDI could be a substitute for domestic investment. The empirical evidence however suggests that FDI acts as both a substitute and compliment (De Mello, 1999), depending on how technologically and economically advanced the recipient country or region is. The main model takes the following form:

$$fdi_{i,t} = \alpha_0 + \alpha_1 gnp_{i,t} + \alpha_2 fdi_{i,t-1} + \alpha_3 e_{i,t} + \alpha_4 rl_{i,t} + \alpha_5 tq_{it} + \alpha_6 w_{i,t} + u_t \quad (3)$$

Where i and t stand for the region and time period respectively. The fdi is real foreign direct investment into a specific Chinese region, gnp is real per capita GNP for each region, w is the average real wage, e is the education expenditure per person in each region, rl is the per capita length of roads and tq is the respective Tobin's q for the Chinese and Hong Kong stock markets (All variables in logarithms). The Tobin's q variables are formed from the ratio between the main stock market index and the price index of investments in fixed assets by region. Although the stock market indexes are common to all regions, the price indexes are specific to each region, hence providing a reasonable amount of variation for this variable across the regions.

2.2 The dynamic panel approach

The use of the Arellano-Bond (1991) approach to dynamic panel estimation has been used before to account for agglomeration effects (Cheng and Kwan, 2000) and is also used to estimate the model including the Tobin's q effect. In addition the Arellano-Bover (1995) approach to dynamic panel estimation is also used, as it potentially has some benefits over the former approach, with respect to the dataset used in this study. The dynamic panel approach captures the agglomeration effects through the lagged dependent variable, as discussed and which Cheng and Kwan (2000) found to have a highly significant effect. A further reason for using a dynamic panel is to remove the individual effects in the panel as well as to account for the potential endogeneity of the explanatory variables. Generalised Method of Moments (GMM) is used to estimate both dynamic panel approaches, sometimes using different numbers of instruments for each period. These instruments can not only include strictly exogenous variables, but in addition period specific instruments such as lagged values of the dependent variable and other pre-determined variables.

The essential difference between the Arellano-Bond and Arellano-Bover approaches is that the former differences the variables to remove the individual effects, whereas the latter keeps the variables in their original level form using orthogonal deviations to remove these effects. Bond (2002) suggests the Arellano-Bover approach may have advantages over the Arellano-Bond method, as it has better small-sample properties, providing more accurate estimation in small samples and as long as the time series component is small, as in this case, the estimator does not require time stationarity.

3. Data and Results

The data covers 28 regions of China, from 1997 to 2003 using annual data. We begin the data in 1997 to account for the effect of Hong Kong passing into China's control and the subsequent influence of its stock market. We included all the regions in China except Tibet, Qinghui and Chongqing, which were excluded due to lack of data. All the data is taken from the *National Bureau of Statistics of China*, the FDI data is total foreign direct investment, wages are the average wage, GNP is per capita GNP, the length of roads is simply the total length of the highways in each region and educational attainment is measured by the amount spent on education per person in a region. The stock market indices are the main market indices for the Shanghai, Shenzhen and Hong Kong stock markets, China having two main stock markets. The replacement (Note 4) cost of capital is represented by the regional price index of investment in fixed assets. The Hong Kong stock market is the dominant market in East Asia during the time period tested and has a market capitalisation of roughly four times that of the Shanghai and Shenzhen markets combined throughout this time.

3.1 The Chinese and Hong Kong stock markets

Even before 1997, there were some tentative relations between the Chinese and Hong Kong markets, since 1993 Chinese enterprises were able to raise capital in the Hong Kong markets, but after 1997 these relationships have steadily increased. However the Chinese and Hong Kong economies have retained many of their differences since 1997, in particular Hong Kong retains its distinctive market economy and remains the most open economy in the world, having had the highest index of economic freedom in the world since 1995. So despite the unification of China and Hong Kong, the economies and stock markets are still fundamentally different in many important respects.

3.2 The model estimated using Arellano-Bond approach

The results in Table 1 have been estimated using the Arellano-Bond (Note 5) (1991) 2-step estimation technique, which uses a panel generalised method of moments (GMM) approach, with White period standard errors and covariances to ensure the error term is Gaussian. The results generally follow the standard pattern in that in all the models, per capita real regional income is positive and significant, as is the length of roads variable, suggesting FDI is attracted to wealthy regions with developed infrastructure. Although the per capita income coefficients are higher than Cheng and Kwan (2000), they are similar to those in Wei *et al.* (1999). The agglomeration effect is also positive and significant, indicating that FDI follows areas that have already attracted large amounts of it in the past. The coefficient is about 0.1 in all three tests, indicating a reasonable self-reinforcing effect of the FDI past values on the current value.

The real wages tend to be negative and significant, whereas levels of education are generally insignificant and with a mix of signs. This is perhaps a surprising result as other studies have found that the worker quality and levels of education are an important determinant of FDI, such as in Fung *et al.* (2002). Although this finding coincides with other studies, such as Cheng and Kwan (2000), who despite using a slightly different measure of regional education levels, find little evidence that it has a significant effect on FDI.

The stock market variables however are all negative and significant, suggesting that on the whole FDI has been a substitute for domestic investment, regardless of which stock market measure is used. This lends further support to other studies that have found that FDI tends not always to compliment domestic investment (De Mello, 1999) and can produce a negative relationship with domestic stock markets (Klein and Rosengren, 1994). The Hong Kong stock market result produces a more significant Q variable than the other Chinese markets, this could be due to the greater importance of the Hong Kong stock market to the Chinese and international economies as a whole, particularly with regard to FDI as Hong Kong has historically had an important role in facilitating China's FDI flows. The Sargan tests of the over-identifying restrictions indicate acceptance of the null hypothesis that the restrictions are valid.

3.3 The model estimated using the Arellano-Bover approach

Table 2 contains the results from the models estimated with the Arellano-Bover approach to dynamic panel models. In all three sets of results there is a marked improvement in terms of the significance of the variables. The variables are now significant and correctly signed, with some slight changes in the magnitude of the coefficients. In particular the education variable is now significant, which is a more intuitively acceptable result, suggesting that FDI is attracted to areas where the population is more skilled, which was not found in the Cheng and Kwan (2000) study. This result may suggest that the use of the Arellano-Bover approach has some advantages over the Arellano-Bond approach, when examining FDI in China and using dynamic panel methods to account for agglomeration effects in general.

4. Conclusion

The results from this study into FDI in China tend to support previous studies, with respect to the main determinants of FDI, as they are mostly significant and correctly signed, with the initial exception of the education measure variable. However the inclusion of a measure of the domestic stock markets, using a Tobin's Q variable appears to suggest that they have a significantly negative effect on FDI in China and thus FDI acts indirectly as a substitute for domestic Chinese investment. This could be due to China encouraging FDI as a means of improving the technological base and thus productivity of its economy at the expense of domestic investment or alternatively reflect the economic downturn in the Far East following the financial crisis of 1997 and consequent decline in stock markets and domestic investment in the area, facilitating a greater reliance on FDI.

The policy implications of these results are that they emphasise a possible financial dimension to the debate over factors attracting FDI to transition economies such as China and the inter-relationship between FDI and domestic investment. They possibly also suggest that FDI can crowd out the less productive domestic investment, which in turn affects domestic company earnings and thus their stock market value. In addition these results suggest the use of the Arellano-Bover approach to dynamic panel estimation, to account for agglomeration effects, can produce an overall improvement in the way FDI is modelled. In this study this method has produced a significant education variable, which is correctly signed in all models, as well as improving the significance of the other variables.

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Notes

Note 1. Other determinants of FDI in China have been suggested in other studies such as Blonigen (2005), including the real exchange rate, but in general those included here (excluding the Tobin's Q variable) have been found to be the most successful (Also the Chinese exchange rate against the US dollar was fixed during this time span and both had low inflation levels.) In addition other proxies for the levels of education and infrastructure have been used, but it tends to make little difference which proxy is adopted, which was also the case in these tests when other proxies were tried.

Note 2. Klein and Rosengren (1994) suggest a different reason for the theoretical relationship between stock prices and FDI being negative, arguing stock prices act as a measure of wealth. According to the imperfect-capital-market-theory, the negative relationship between FDI and relative wealth, as well as the real exchange rate, is because when domestic wealth levels are lower than abroad, it is easier to obtain investment funds from abroad where wealth is relatively more abundant, resulting in an increase in FDI.

Note 3. Fiscal incentives have been used in a number of Chinese regions to attract FDI, particularly investment in technological sectors, although how they affect levels of FDI is open to debate, as discussed by Wei *et al.* (1999).

Note 4. This specific price index was not complete for two provinces, which were Guangdong and Hainan, for these two cases the main cpi was used as a proxy. As both regions have been important recipients of FDI, they were included despite the lack of this data series. When the models were estimated with and without these two regions, the results were not materially different.

Note 5. A further disadvantage of the Arellano-Bond approach is that it does not allow for the inclusion of time-invariant variables, such as specific dummy variables for individual regions, in the model. See Arellano and Bond (1991) and Bond (2002) for further discussion on dynamic panel models.

Table 1. Determinants of FDI in China using the Arellano-Bond Approach

Variables	Shanghai SM	Shenzen SM	Hong Kong SM
GNP	1.541** (0.307)	1.290** (0.295)	1.348** (0.314)
E	-0.876 (0.503)	-0.414 (0.433)	0.011* (0.356)
W	-0.374 (0.629)	-0.837 (0.558)	-1.486** (0.396)
RL	0.488* (0.241)	0.605** (0.198)	0.772** (0.102)
TQ	-0.364** (0.079)	-0.244** (0.064)	-0.242** (0.041)
FDI(-1)	0.082* (0.044)	0.103** (0.044)	0.110** (0.040)
OIR	0.485	0.387	0.383

Notes: Where GNP is per capita GNP, E is per capita expenditure on education, W are real wages, RL is length of highway per capita, TQ is Tobin's Q, FDI is foreign direct investment. The three tests use the stock markets in the Tobin's Q variable listed at the top. OIR is the Sargan test of overidentifying restrictions (p-values reported), where the instruments used, include lagged values of the variables. Standard errors in parentheses, ** (*) indicates significance at the 1% (5%) significance level.

Table 2. Determinants of FDI in China using the Arellano-Bover Approach.

Variables	Shanghai SM	Shenzen SM	Hong Kong SM
GNP	0.917* (0.348)	0.857* (0.328)	1.025** (0.394)
E	0.912* (0.332)	1.00* (0.354)	0.754** (0.378)
W	-1.972* (0.384)	-2.077* (0.404)	-2.017* (0.400)
RL	0.329* (0.104)	0.321* (0.110)	0.369* (0.112)
TQ	-0.219* (0.050)	-0.169* (0.052)	-0.261* (0.058)
FDI(-1)	0.079** (0.036)	0.082** (0.038)	0.061 (0.037)
OIR	0.388	0.373	0.457

Notes: See Table 1.

“Dual Different Cultures” Integration: An Integration Performance Measuring Model of Corporate Cross-border M&A

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Abstract

The practice of corporate Cross-border M&A (Merger and Acquisition) indicates that the merger is the key of Chinese corporate Cross-border M&A and the cultural integration is the core proposition. The Cross-border M&A integration of Chinese enterprise not only faces competitions among differential corporate enterprises, but also suffers the obstacles of different national cultures, i.e. the obstacle of “dual different cultures”. At the same time, in the collision process, “dual different cultures” identify and mingle each other and gestate the interior mechanism of new enterprise culture. This article empirically studies the Cross-border cultural integration performance and cooperative mechanism by the combined method of theoretic analysis and modeling.

Keywords: Cross-border M&A, Dual different cultures integration, Performance model

1. Introduction

Economist George J. Stigler had pointed out, it was a prominent phenomenon to become huge-sized enterprise through merger with competitors in modern economic history. In recent years, the fifth M&A wave is coming all over the world. However, the achievement of M&A trade doesn't mean the success of M&A. According to statistic of relative materials, in past twenty years, 65% of big Cross-border M&A cases couldn't obtain cooperative effect and finance anticipation. In China, though Legend and Hair Group successfully actualized abroad Cross-border M&A, but most enterprises failed. According to uncompleted statistic, only one tenth of Chinese enterprise M&A succeeded, which was far lower than the international level, because most enterprises “emphasize M&A and ignore integration”, which always induces the “seven-seven” phenomenon (it means that through researches on global M&A phenomena, the KPMG global M&A integration business partner Jack Prouty found 70% of main merged enterprises couldn't realized their anticipated business values and 70% of failures came from bad integrations after M&A.) summarized by Jack Prouty. For this problem, the cultural integration is the first difficult issue for the Cross-border M&A integration. For example, how do these main merged enterprises manage employees with different cultural backgrounds? How do senior managers effectively communicate with governors with different cultural concepts? How to avoid strange bedfellows for leaders of two parties? i.e., how to scientifically and organically integrate “dual different cultures (national culture and enterprise culture)” and create a sort of new enterprise culture and make integration produce anticipated cooperative effect and finance effect as soon as possible. It is not only a single trans-cultural integration problem, but an important strategic task for enterprise management.

2. Review of relative literature

The developments of modern enterprise generally start from occupancy of domestic market to Cross-border management and further develop to be international enterprise. In this process, one important approach is to merge competitors without restraint. Through the world corporate M&A history, so many problems confused people. Why do enterprises be wild about M&A? Why are failures of Cross-border M&A more than successes? Why does cultural integration become a lion in the way in so many integration variables of M&A integration? Whether are there scientific approaches and methods to solve the problem of “dual different cultures” integration? It should be say that Chinese and foreign scholars has tried to discussed this problems from theory, but these researches are only “in the starting step” (G. Hofstede, 1983). Netherlander Geert Hofstede (1983, 1984, 1991, 1999) thought that “the culture was not a sort of individual character, but a sort of mutual psychological procedure possessed by the colony with same educational and life experiences” (H.E. Schein, 1992). Therefore, this “concealed hypothesis” can display its own specialty only when it compares with other cultures (Meschi, P. Roger, A., 1994, p.198). Hofstede divided cultures of different countries into five dimensionalities, i.e. individualism vs. collectivism, power distance, uncertainty, masculinity vs. femininity and long-term orientation. Hofstede's cultural value theory discussed influences of different national cultures to the difference of organization and management, but it didn't come down to enterprise culture and Cross-border cultural integration. In researches from 1980s to 1990s, Lutatkin found that the cultural difference would fully influence the implementation of potential values of M&A (Lubatkin, 1983). In the investigation of 55 cases, Larsson found that different national cultures would bring extra obstacle to cultural integration (Larsson, 1993). David and Singh analyzed cultural risks on four layers existed in M&A, i.e.

environmental culture, trans-organization, organizational culture and management culture. And after Cartwright and Cooper studied some cultural adaptive cases with transverse M&A in 1992, they put forward four sorts of enterprise culture including power type, function type, mission type and personality type, and thought enterprise cultural M&A integration with different types would produce different effects (Cartwright, 1992). Berry (1982) called the integration of enterprise culture as “acculturation”, and he thought Cross-border integration might be four modes including integration, assimilation, separation and enculturation. Nahavandi and Malekzadeh extended Berry’s “acculturation” mode, analyzed selective factors influencing acculturation mode from merging enterprise and merged enterprise, and put forward four modes, i.e. assimilation, integration, separation and cultural damage (Nahavandi, 1998). Chinese scholars Huang Weiwen (2001) firstly put forward that Chinese enterprises should prepare cultural base when they wanted to “go out”. Zhao Shuming (2005) referred practices of Chinese enterprise Cross-border M&A integrations and put forward relative integration strategies according to Hofstede’s cultural value theory. Li Guifang (2006) thought it should adopt the C-F mode to implement trans-cultural integration. From the layer of enterprise management, Pan Ailing put forward the flow and mode of trans-cultural integration. Above literatures discussed influences of culture and different cultures to economy, enterprise performance and Cross-border M&A integration from different views and layers, which possesses certain theoretical reference meanings for us to further study this problem.

However, above researches have some obvious disadvantages. First, researches on influences of enterprise culture to enterprise management performance are more than influences of national culture to enterprise management performance. Second, the research on “dual different cultures” still stays on the strategic layer and lacks theoretical depth. Third, the review of “dual different cultures” integration performance lacks quantitative modeling researches. Therefore, this article attempts to exert the combined methods of theoretical analysis and modeling to discuss the integration performance of “dual different cultures” and cooperative effect mechanism.

3. Establishment and analysis of “dual different cultures” integration performance model

3.1 Cultural integration performance model of Chinese corporate Cross-border M&A

The success of Cross-border M&A and integration is decided by whether “new” enterprise after Cross-border M&A integration obtains profits and how much profits it can obtain, i.e. whether the profit maximization of Cross-border management can be realized. However, the profit maximization of Cross-border M&A must be influenced by trans-cultural integration performance. Supposing that under Cross-border management conditions, the cultural factor vector devoted by the enterprise is $\mathbf{x} = \{x_1, \Lambda, x_m\}$, where, x_i represents the i th sort of cultural factor, and the national culture and enterprise culture are called MQ for short. The cooperative effect vector of integration is $\mathbf{y} = \{y_1, \Lambda, y_n\}$, where $y_j = f_j\{x_1, \Lambda, x_m\}$, $j = 1, 2, \Lambda, n$. So the cultural integration performance function of Chinese enterprise Cross-border M&A can be defined as:

$$z = z\{\mathbf{x}, \mathbf{y}, M_1, \Lambda, M_n, Q_1, \Lambda, Q_m\} = \sum_{j=1}^n M_j y_j - \sum_{i=1}^m Q_i x_i = \sum_{j=1}^n M_j f_j(x_1, \Lambda, x_m) - \sum_{i=1}^m Q_i x_i \quad (1)$$

Where, M_j is the integration performance index of the j th sort of devoted factor of national culture, and r_i is the integration performance index of the i th sort of devoted factor of enterprise culture.

In the culture integration of Chinese enterprise Cross-border M&A, except for two variables, national culture and enterprise culture which influence enterprise integration function, there are other factors to influence integration function which is called parameter. Supposing that the parameter of national culture is M_a and $a \in A$, and the parameter of enterprise culture is Q_β and $\beta \in B$. The change directions, values and time of these parameters change at random, which influences cooperative effect of integration through influencing the deployment of enterprise cultural integration factors. Therefore, these parameters are risk factors in fact, which will fully influence cultural integration cooperative effect of Chinese enterprise Cross-border M&A. So its relation function is:

$$\varphi = \varphi(x_i, Q_i, y_j, M_j, M_a, Q_\beta; i \in J, a \in A, \beta \in B, y \in \Lambda) \quad (2)$$

Where, $x_i = x_i(Q_i, M_a, Q_\beta)$, $Q_i = Q_i(M_a, Q_\beta)$, $y_i = f_i(M_j, x_i, M_a, Q_\beta)$, and $M_j = M_j(M_a, Q_\beta)$.

$(M_a, Q_\beta) \in MQ$ is the random variable of national culture and enterprise culture, i.e. risk factors. The integration function (2) of the “New” enterprise denotes the cultural integration situation of enterprise. When $\varphi > 0$, it denotes good cultural integration performance of the “new” enterprise and the integration is successful. When $\varphi < 0$, it denotes bad cultural integration and the “new” enterprise will face failing integration. When $\varphi = 0$, it denotes the “new” cultural integration is on the balanced point. According to the integration function of the “new” enterprise (2),

the cultural integration performance of the enterprise is to select the value of cultural factor variable x_i and make the integration function φ realize its maximization under the condition that the parameter variables M_a, Q_β are fixed, i.e. $\max \varphi(x_i, Q_i; y_j, M_j; M_a, Q_\beta)$ and

$$\begin{cases} x_i = x_i(Q_i, M_a, Q_\beta) \\ y_j = y_j(M_j, x_i, M_a, Q_\beta) \\ M_j = M_j(M_a, Q_\beta) \\ Q_i = Q_i(M_a, Q_\beta) \\ M_a, Q_\beta \in MQ \end{cases}$$

When the cultural integration cooperative effects function of Chinese enterprise Cross-border M&A is confirmed, several questions should be noticed. First, regulate the definition of cultural integration function of Chinese enterprise Cross-border M&A. When $\varphi < 0$, the integration is successful, and when $\varphi_{\max} < 0$, the integration is failing, and the integration time is longer, the probability of failure is higher. When the cultural integration function of Chinese enterprise Cross-border M&A acquires maximization, there may be $\varphi_{\max} \geq 0$, or $\varphi_{\max} < 0$. Therefore, when we judge that the M&A integration of Chinese enterprise can not be successful, i.e. it may be failing, $\varphi_{\max} < 0$ should be treated as a sort of long-term tendency. Second, the maximization of φ may be not only one but many, and we should the maximal one when we use it. Third, the solution of the cultural integration model of Chinese Cross-border M&A $x_i = x_i(Q_i, M_j, M_a, Q_\beta)$ is the function of national cultural factor integration performance M_j , enterprise cultural factor integration performance Q_i and variables M_a, Q_β , when the integration function achieves the maximization φ_{\max} .

3.2 Measurement of cultural integration cooperative effect of Chinese corporate Cross-border M&A

Integration and cooperation are two sorts of action existed together after two different enterprises merges. Integration is the management process that two or several systems are integrated into one system under certain mechanism. And the cooperative effect is the situation that different factors or parts produce one sort of multiple effects through cooperative actions and mutual harmonies under the governance and driver of certain mechanism in one system. In the above paragraphs, we discuss the mechanism of Cross-border cultural integration performance of Chinese enterprise, and based on that, to further demonstrate the trans-cultural integration performance, we need to further study the structure and performance of its cooperative mechanism.

Supposing that the cultural integration function of Chinese enterprise after Cross-border M&A is

$$\Phi(t) = \Phi[x_i(t), Q_i(t), y_j(t), M_j(t), DM_a(t), DQ_\beta(t), u_\eta(t), v_\theta(t), BZ(t), ZY(t), XT(t), MW(t), QW(t)] \quad (3)$$

Where, $BZ(t)$ is the M&A strategic variable, $ZY(t)$ is the integration restriction variable, $XT(t)$ is the cooperative effect variable, $MW(t)$ is the national cultural variable, $QW(t)$ is the enterprise cultural variable, $DM_a(t)$ and DQ_β are the parameter variables of national culture and enterprise culture. In the Cross-border M&A of Chinese enterprise, the cultural advantage of Chinese enterprise is denoted as du, and the cultural advantage of objective enterprise is denoted as dv. So the value of the cultural integration cooperative effect function of Chinese enterprise is

$$\Phi[x_i^*(t), Q_i^\theta(t), y_i^*(t), M_j^\theta(t), DM_a^\theta(t), DQ_\beta^\theta(t), u_\eta^\theta(t), v_\theta(t), BZ^*(t), ZY(t), XT^*(t), MW^*(t), QW^*(t)] = \Phi_{\max} \quad (4)$$

and the cooperative effect value produced by cultural integration after M&A through other exterior factors is

$$DM_a^\theta(t), \Delta DM_a(t); DQ_\beta^\theta(t), \Delta DQ_\beta(t).$$

Supposing that cultural integration cooperative effect of Chinese enterprise Cross-border M&A is

$$\Phi[x_i^*, Q_i^\theta(t), y_i^*(t), M_j^\theta(t), DM_a^\theta(t), DQ_\beta^\theta(t), u_\eta^\theta(t), v_\theta(t), BZ^*(t), ZY(t), XT^*(t), MW^*(t), QW^*(t)] = \Phi_{\max} \quad (5)$$

solve complete differential coefficient to variables in equation (5), we have

$$\frac{\partial \varphi}{\partial x^*} \left(\frac{\partial x^*}{\partial Q} dQ + \frac{\partial x^*}{\partial c} dc + \frac{\partial x^*}{\partial u} du + \frac{\partial x^*}{\partial D} dD + \frac{\partial x^*}{\partial v} dv \right)$$

$$\begin{aligned}
& + \frac{\partial \varphi}{\partial y^*} \left(\frac{\partial y^*}{\partial M} dM + \frac{\partial y^*}{\partial C} dC + \frac{\partial y^*}{\partial u} du + \frac{\partial y^*}{\partial D} dD + \frac{\partial y^*}{\partial v} dv \right. \\
& \left. + \frac{\partial y^*}{\partial x} dx^* \right) = 0.
\end{aligned} \quad (6)$$

Where, dc is the cultural integration cooperative effect vector, du is the cultural advantage change vector of Chinese enterprises, dv is the cultural advantage change vector of objective enterprise, dD is the exterior factor change vector, dM is the national cultural factor change vector, and dQ is the enterprise cultural factor change vector.

$$\text{Supposing that } \frac{\partial \varphi}{\partial x^*} \neq 0, \frac{\partial \varphi}{\partial y^*} \neq 0, \text{ so } dx^* = \frac{\partial x^*}{\partial M} dM + \frac{\partial x^*}{\partial c} dc + \frac{\partial x^*}{\partial u} du + \frac{\partial x^*}{\partial D} dD + \frac{\partial x^*}{\partial v} dv = 0 \quad (7)$$

$$, \text{ and } dy^* = \frac{\partial y^*}{\partial Q} dQ + \frac{\partial y^*}{\partial c} dc + \frac{\partial y^*}{\partial u} du + \frac{\partial y^*}{\partial D} dD + \frac{\partial y^*}{\partial v} dv = 0 \quad (8)$$

, and we can get

$$\begin{cases} \frac{\partial x^*}{\partial c} dc + \frac{\partial x^*}{\partial u} du = - \left(\frac{\partial x^*}{\partial M} dM + \frac{\partial x^*}{\partial D} dD + \frac{\partial x^*}{\partial v} dv \right) \\ \frac{\partial y^*}{\partial c} dc + \frac{\partial y^*}{\partial u} du = - \left(\frac{\partial y^*}{\partial Q} dQ + \frac{\partial y^*}{\partial D} dD + \frac{\partial y^*}{\partial v} dv \right) \end{cases} \quad (9)$$

, and the matrix form is

$$\begin{bmatrix} \frac{\partial x^*}{\partial c} dc & \frac{\partial x^*}{\partial u} du \\ \frac{\partial y^*}{\partial c} dc & \frac{\partial y^*}{\partial u} du \end{bmatrix} \begin{bmatrix} dc \\ du \end{bmatrix} = - \begin{bmatrix} \frac{\partial x^*}{\partial M} dM & \frac{\partial x^*}{\partial D} dD & \frac{\partial x^*}{\partial v} dv \\ \frac{\partial y^*}{\partial Q} dQ & \frac{\partial y^*}{\partial D} dD & \frac{\partial y^*}{\partial v} dv \end{bmatrix} \begin{bmatrix} dM & dQ \\ dD & dD \\ dv & dV \end{bmatrix} \quad (10)$$

$$\text{If } \begin{bmatrix} \frac{\partial x^*}{\partial c} & \frac{\partial x^*}{\partial u} \\ \frac{\partial y^*}{\partial c} & \frac{\partial y^*}{\partial u} \end{bmatrix} \neq 0, \begin{bmatrix} \frac{\partial x^*}{\partial c} & \frac{\partial x^*}{\partial u} \\ \frac{\partial y^*}{\partial c} & \frac{\partial y^*}{\partial u} \end{bmatrix}^{-1} \text{ exists, so}$$

$$\begin{bmatrix} dc \\ du \end{bmatrix} = - \begin{bmatrix} \frac{\partial x^*}{\partial c} & \frac{\partial x^*}{\partial u} \\ \frac{\partial y^*}{\partial c} & \frac{\partial y^*}{\partial u} \end{bmatrix}^{-1} \begin{bmatrix} \frac{\partial x^*}{\partial M} & \frac{\partial x^*}{\partial D} & \frac{\partial x^*}{\partial v} \\ \frac{\partial y^*}{\partial Q} & \frac{\partial y^*}{\partial D} & \frac{\partial y^*}{\partial v} \end{bmatrix} \begin{bmatrix} dM & dQ \\ dD & dD \\ dv & dV \end{bmatrix} \quad (11)$$

In equation (11), dM represents the national cultural factor change vector, dQ is the enterprise cultural factor change vector, and both will be influenced by dD and dV , i.e. the cultural integration cooperative effect of Chinese enterprise Cross-border M&A is influenced by not only the integration time, but also enterprise interior and exterior environment, conditional attributive variables and self cultural advantage variables.

4. Conclusions and policy meanings

Through above theoretical analysis and model induction, we empirically study the cultural integration performance and cooperative effect mechanism of Chinese enterprise Cross-border M&A and can obtain following conclusions and policy meanings.

4.1 Conclusions

4.1.1 The transfer and innovation of “dual different cultures” decide the Cross-border culture possesses the characters of obstacle and integration.

The transfer and innovation of “dual different cultures” decide the Cross-border culture possesses the characters of obstacle and integration. These special “traditions with potential values” are difficult to be exchanged and simulated. Even if other enterprises realize their values, they can not simply copy them, because they have no same historical developmental approach and system environment (Barney, 1991). Therefore, they usually compose core specialty and skill resource of enterprise, and become the basic driver of sustainable development for enterprise (Barney, 1986 & 1991). According to Heskett, Morosini, Shane and Singh’s empirical investigation, cultural difference can

enhance the performance of Cross-border M&A. At the same time, it also needs to enhance its own survival chance, spread speed and range and keep its own powerful status in the communication with different cultures. So in the cultural integration of Cross-border M&A, Chinese enterprise shouldn't only see the obstacle of "dual different culture", but should see its interior character of integration, study the method of integration, strengthen the power of integration and strive for maximum cooperative effects.

4.1.2 The emphasis and difficulty of "dual different cultures" are the integration of national culture.

Though the enterprise culture is limited by the national culture, but under the condition of market economy, their communications are stronger. Enterprises in the environment of any country and system all develop their economical activities with benefit maximization, and their management concepts, action regulations, management patterns are almost same. Therefore, the cultural integration of different enterprises is easier. But the national culture is influenced by variables such as local politics, ideology and accumulated time, and composes its own system, and especially the value view possesses special and exclusive characters. So the "potential values" should be integrated and transformed into the "notable" value of enterprise management in the integration of the Cross-border M&A.

4.1.3 The cooperative effect of Cross-border culture is limited by the attributive variables such as time, environment and conditions.

The integration performance and cooperative effect of "dual different cultures" are not only decided by the function exertions of integration nature, integration mode, integration condition matching and leading culture of main merging enterprise, but influenced by attributive variables such as time value of integration, exterior environment and so on. Under certain condition, the integration time will become the main variable to influence the integration performance and cooperative effect.

4.2 Policy meanings

According to Mirvis and Marks's opinion, in Cross-border management, the integration of enterprise culture should solve three problems including emphasizing both cultures, confirming both cultures and promoting mutual adaptation. In the Cross-border cultural integration, Chinese enterprises should bring world culture into their global management strategy with open heart and world view. They should highly emphasize the difference of enterprise leaders between Chinese enterprises with western development countries and developing countries in the cultural aspects such as style, accomplishment, enterprise management mode, business pattern, human resource, salary appraisal, award and punishment system and human relation. In the process of integration, we should strengthen opening and cooperation, reduce and decrease the drumbeating and system construction of collectivism and uncertainty, fully develop Cross-border cultural training of all employees, and establish high effective feedback system to effectively control Cross-border cultural management.

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Building the Organizational Knowledge Networks of SMEs in High-tech Industry

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Abstract

Prior research has primarily viewed firms as autonomous entities striving for competitive advantage from either external industry sources or from internal resources and capabilities. However, the networks of relationships in which firms are embedded profoundly influence their conduct and performance. This paper developed a comprehensive theoretical framework to explore knowledge management business practices among SMEs. Drawing on resources-based theories, the relational-based views, industry structure and ecosystem theories about sources of competitive advantage, this paper presents the organizational knowledge network of the SMEs in high-tech industry, and analyses the approaches through which SMEs can create competitive advantages on knowledge-based review (KBV).

Keywords: Knowledge networks, Knowledge management, SMEs, Competitive advantage

1. Introduction

There is increasing consensus among academic scholars, policy makers, and industry practitioners alike that the present and future secret of business survival and prosperity lies in strategic partnering and co-opeting successfully rather outright competition. In various countries, it can be seen that originally independent enterprises have merged to or cooperate in order to provide integrated products and services. This is particularly so in knowledge-intensive, highly complex, and dynamic environments such as all high technology industries (semiconductors, aerospace, software, telecommunications, etc.), where collaborating to compete in knowledge generation and exchange has become so pervasive it often hard to notice having become the standard *modus operandi* (from cross-licensing agreements to strategic complement in products and services). When knowledge is used as a medium of sharing and exchange as well as a tool for competition, it can create a positive-sum environment where firms are rewarded for coordinated and simultaneous cooperative and competitive relationships at multiple levels of the business environment.

Knowledge has certain characteristics that distinguish it from other media of exchange, such as financial capital or physical capital (eg. land). Knowledge can be transferred between firms or individuals, like other forms of currency. But unlike money or land, knowledge once transferred, is held by both the donor and the recipient. Hence, knowledge is not transferred in a formal, linear sense; it is shared and also transformed while being transferred, becoming more valuable through incorporating the lessons learned during, after, and possibly even in anticipation of the knowledge transfer process. The advent of internet-related information technology such as intranets, extranets, and intelligent agents has contributed significantly to the increased interest in knowledge management.

Interest in the area of knowledge management (KM) has grown dramatically over the last decade. In particular, KM has become the focal point for debates on mechanisms to facilitate firms acquiring greater competitive edge in the emerging global information economy. In these debates, a firm's competitive advantage is considered to result from its unique knowledge and how it manages that knowledge. It has argued that in the post-industrial global information economy it is "knowledge" that will replace natural resources, capital and labor as the basic resource from which to generate economic wealth. In studying KM, the dominant perspective adopted by writers from with the management and information system (IS) literature is referred to as knowledge based view (KBV). The KBV has itself been derived from the resource based view (RBV) on sources of competitive advantage developed within the strategic management literature. Both the KBV and RBV approaches have relied almost exclusively on research conducted on large organizations. The question of how firms, especially the SMEs achieve these co-opetitive values have received less attention, while it is important.

In this paper we try to provide a conceptual framework on how SMEs in high-technology build their organizational knowledge management network and get competitive advantage through it. This framework can be perceived in its totality as an organizational knowledge network with both real and virtual components at the individual, intra-, inter-organizational, industrial and ecosystem levels. The organizational knowledge management network in question relies both on knowledge and meta-knowledge, or knowledge about the knowledge within the network.

2. The Organizational knowledge (OK) network

Recognizing that some rivals may at times function as temporary allies in a competitive situation, Brandenburger and Nalebuff (1996) developed a framework which they called the “value net” for analyzing the structure of a firm’s market and competitive situation. The value net has two axes: one which represents the vertical flow of Porter’s value chain from suppliers through the firm to its customers; and one which represents the horizontal dimension of interaction between pure rivals competitors and rivals with whom a firm can form alliances for mutual gain termed complementors. Carayannis and Alexander (1999) proposed a framework that may help us better comprehend and manage this emerging form of organizations, called the “bull’s eye” model, which outlines an extended network of co-opetitive relationships linking the firm to its environment at the market, political, and ecosystem levels. It showed how a dynamic approach based on knowledge, learning and coopetition enables firms to adjust to complex changes at all these levels. Clarke and Turner (2004) highlight potential limitations to the RBV of KM and present a conceptual model that maybe deployed by SMEs, drawing on strategic management theories of relational and industry-based sources of competitive advantage.

Based on these works, we present the model of the networks to be used for SMEs in order to get competitive advantages. The set of intelligent that would constitute the backbone of the OK net lies in different levels of the network. In the firm-level, it is the enterprise’s valuable and unique resources knowledge-related that are costly to imitate, which have been studied by RBV and KBV. In the inter-firm level, it is the inter-firm linkages, which build between the competitors, the suppliers, the complementors, and the customers. These collaborations involve substantial knowledge exchanges and the combination of complementary resources or capabilities, which have been studied by relational-based view. In the industry level, it is the industry structure whose characters may include relative bargaining power, barriers to entry, lowering cost and tying in supplier and customers. The studies in this field are relative few. In the ecosystem level, it is the political and social capitals through enterprises could capture significantly larger private and social rates of return in an economically and environmentally sustainable manner, which has been studied recently.

This model would comprise subscribing agents that would match individual competences and research interests with upcoming conferences, trade conventions, product announcements and other external events, scheduling agents that would match individual’s schedules to facilitate meeting either as residents or visitors, research enhancing agents that would inform researchers of announced request for proposals, publications, and conferences, Government-University-Industry partnerships agents that would enable collaborations across academia, government, and industry, etc. This model may help capture more fully and clearly the dynamics, nature, and potential of co-opetitive, knowledge-driven linkages among profit and not-for-profit, private and public, research, policy analysis and education-focused institutions. The OK net would be flexible and adaptive, endowed with the capacity to learn, learn how-to-learn, and learn to learn-how-to-learn from system users and stakeholders, team and organization customers, suppliers, complementors, and competitors in a co-opetitive manner through explicit and tacit, active and passive interactions (questionnaires, intelligent agent performance gauged, compared, and recorded, tracking of the evolutionary paths of user profiles and preferences, etc.).

3. Approaches to competitive advantage in-house

In order to develop and maintain a strong competitive position it is important for an organization to have adequate knowledge available. As Powell (1998) states: “ the core capabilities of organizations are based increasingly on knowledge-seeking and knowledge-creation”. Knowledge-based resources generally refer to ways in which more tangible input resources are manipulated and transformed to add value.

The high-technology industry is the representative of an example of knowledge-based industry with its main function being research and development and its primary asset being its intellectual property (IP). IP, in particular patents and trade secrets, has become a key element of competition in all high-technology industries. Its product-development process (from research activity to commercialization) is very long, research intensive and protracted. This situation demands a particular collection of resources and competencies (finance, knowledge assets, commercial skills) that usually isolate firms do not have completely. The Chinese high-tech industry is small by international standards. In this market, there are intrusive government officials, along with a lack of codified laws, well-developed rules, and commercial conventions, all of which add to the expenses for firms operating in China compared with the market in developed countries. The SMEs in this industry exhibit distinct characteristics that differentiate them from conventional SMEs. These characteristics include: (1) No or little resource poverty; (2) Highly specialized and skilled workforce aware of the important of IT/IP; (3) Tendency to have explicit strategies, with particular foci on the strategic management of IP. These business plans are frequently the only way that these start-up SMEs gain access to finance.

In terms of KM strategies, it is evident that a high-tech firm's scientific knowledge base forms a critical component of its competitive position. IP, especially the high level workers and the patents, have become a key element of competition in high –technology industries. High-tech firms are noted for their high level of intellectual work, the nature of the work is often cutting edge or a “fresh from the lab” approach. High-tech employees are highly educated, many with advanced degrees in science, engineering, or computers. SMEs in these industries have a large proportion of their assets tied up in intellectual human assets, ie., they often don't own much in the way of equipment or property.

Three characteristics stand out from work describing the high-tech workers: high level of education, a strong preference for independence, and a professional orientation rather than an organization focus. Zucker (1994) found that star scientists are the limiting factor in the founding of biotech enterprises near universities. The presence of highly educated people is common to high-technology industry.

Knowledge is a higher order concept than either data or information. People who are knowledgeable not only possess certain information itself but also the ability to integrate and frame the information at hand within the context of their experience, expertise, and judgment. Thus they can apply their knowledge in sophisticated fashion or even create new knowledge. Similar reasoning can be applied to organizational knowledge. At the same time, it stem from the people working in the organization.

The management of knowledge is complex because of the distinction between tacit and documented knowledge. When knowledge is documented, an individual can learn by studying procedure. With tacit knowledge, there is a need to learn as apprentice by imitating observed behavior of one or more masters in a community of practice. In small and medium firms, knowledge tends to remain tacit. This enables these firms to be flexible and to offer relatively high level of motivation. Small, but intensively cooperative firms, can, in this fashion, out perform larger, merged institutions.

Patents have become another key element of competition in high-technology industries because they are the most tangible IP resources available and provide the strongest legal protection. The use of patents can be extended beyond the initial intentions of preventing competitors from copying a firm's innovations. Knowledge-intensive industries are generating attractive revenue streams through licensing their technology patents. As with other organizational resources, it is increasingly common practice for firms to conduct audits, analysis and even patent mining. High-tech firms employ these techniques to ensure they have freedom to operate in the global markets, to identify patents from which the firm can obtain revenue, and to stimulate the development of new ideas. A firm's potential earnings and competitive prospects are often evaluated on the basis of its IP capabilities. Furthermore, small high-tech firms often rely on patent as evident of their expertise to attract research partners or investment.

The adoption of KBV and resource-based view (RBV) approaches, such as core competencies, offers much to high-tech SMEs in developing IP strategies. IP forms the core of a high-tech firms start-up. For many of these firms, as they have no product to market, their IP is the only way they are able to acquire finance. R&D priorities are determined by the strength of patents and high-tech business plans seek to optimize IP asset potential. The adoption of RBV approaches to manage IP assists high-tech SMEs in developing their strategic direction.

4. Approaches to competitive advantage inter-firms

Additionally, focusing on their core competencies, organizations seem to have grown more dependent on each other. In particular, they are dependent on each other's knowledge and capabilities. Because organizations are more knowledge intensive and dependent on each other, an important way to survive is through co-operation. The relational-based view developed in parallel with the RBV. The relational view refers to competitive advantage sourced through idiosyncratic inter-firm linkages, advantage which cannot be generated by either firm in isolation but only through collaboration. These collaborations involve substantial knowledge exchange and the combination of complementary resources or capabilities. This enables firms to create unique products, services and technologies and lower transaction cost compared to their competitors.

Much research has studied knowledge sharing and learning in alliances, focused on organizational and inter-organizational learning, especially from a strategic perspective. That means enterprises can build competitive advantages through inter-firm network by knowledge sharing and learning.

Industries intensive in technological knowledge usually are motivated to develop alliance with related agents. The need for rapid new product development often precludes internal development of critical technologies, evaluating the attractiveness of external technology acquisition by means of alliance among other methods. The high number of alliance and extent of industrial clustering occurs within the high-tech industry is evidence of prominence the competitive advantage inter-firms. High-tech industry is a complex and multidisciplinary process requiring new ventures to access a broad range of knowledge. Knowledge is accumulated both through internal development and

assimilation of external knowledge. Collaborative relationships help to access, survey and exploit emerging technological opportunities, because inter-firm cooperation accelerates the rate of technological innovation and firms can compete more effectively in high-speed learning races. So SMEs in high-tech industry usually keep close ties with universities, venture capitalists and end-users, building upstream and downstream linkages. Some scholars have demonstrated that a biotechnology firm's internal stock of knowledge as well as its ability to access new, external knowledge flows contribute equally to a firm's success.

Recent alliance research has highlighted the existence, and importance, of interpersonal relationships and trust in alliance or exchange situations. This work develops the notion of relational capital, which refers to the level of mutual trust, respect, and friendship that arises out of close interaction at the individual level between alliance partners. The relational capital can help companies successfully balance the acquisition of new capabilities with the protection of existing proprietary assets in alliance situations. Relational capital, which is seen so important at the dyadic level in alliance, can be equally important in the context of alliance networks.

The utilization of the acquired knowledge requires the transfer of routines in addition to the codified knowledge. In this instance, it was seen that only collaboration in research was able to provide the access to the knowledge that could confer competitive advantage.

Alliances and inter-firm relationships are used to connect firms to both the information and capabilities necessary to support them through costly patent races and time-consuming product development and testing. Vertical alliances, more so than horizontal alliances, provide firms with access to scientific input and research knowledge. Alliances can assist firms in overcoming market-entry barriers. Furthermore, these external linkages may evolve into important sources of new product ideas.

Industry clustering is another example of relational view. A cluster is a group of firms from the same or related industries located geographically near to each other. Scholars predict that in the cluster should be more innovative than others at least two reasons. First, firms in the cluster benefit from agglomeration economies such as nearby suppliers attaining scale, direct observation of competitors, and ability to exploit collective knowledge. Second, firms in clusters benefit from network-based effects, especially benefit from social interaction. Clustering in high-tech industry is a trend occurring worldwide and assisting start-up in overcoming geographic isolation. These clusters include research geographic organizations, companies involved in development and application of high technology, companies providing specialized input, equipment and services, and supporting legal, financial, business services organizations. Powell (1998) found that in the biotechnology industry innovation was result of networks, not individual firms. Therefore, it was concluded that high-tech firms are competitive disadvantaged if they are unable to create or be positioned in these learning networks.

5. Approaches to competitive advantage through industry structure

Rather than conforming to the environments, high-technology SMEs in China have found they may need to develop and promote new explanations to what can be accepted within existing environments. This can entail aggressive promotions of business, its technology, or its procedures to regulatory bodies and policymakers, including its contribution to society in general. Many environments contain formal gatekeepers and institutions that limit access. Cultural legitimacy can be established in the selected environment if the enterprise enters a setting where the certification already possessed is seen as appropriated and validated.

Industry structure competitive advantage was the dominant view in 1980s and refers to the competitive advantage an organization acquires through its participation in an industry with favorable characteristics. Associated with the work of Porter (1998), characteristics may include relative bargaining power, barriers to entry, lowering cost and tying in suppliers and customers. The focus of this perspective has primarily been the favorable industry structure.

High-tech SMEs can adopt Porter's industry structure model strategies in varying forms. They may develop strong patent portfolios to use as bargaining power in cross-licensing agreements. A quality of portfolio is a powerful lever in negotiating required technology. Tying in customers and supplies is achieved through supply-chain linkages, in particular vertical linkages with upstream/downstream companies. Furthermore, these linkages can help lower costs. For example, upstream linkages are a way to acquire access to knowledge without having to hire a large and costly staff of scientists. Downstream linkages highlight ways to commercialize a product without having to invest in costly assets distribution networks, marketing departments or sales forces. However, the most dominant source of industry structure competitive advantage is creating barriers to entry through the formulation of patent blocks. Reid (2001) suggests that blocking rivals (barrier to entry), may be motivation for firms to enter into inter-firm alliances, a form of relational advantage.

A number of high-tech firms use their IP, especially patents, to create blocks to further R&D in specific areas. Although patenting is necessary to ensure that companies are able to recoup substantial research and development

expenditure, some trends in IP management are resulting in the creation of barriers to entry. Blocking patents arise where the exercise of one patent would infringe the claims of another. Patent blocks further downstream. Given that most biotechnology firms are downstream companies, it is clear that blocking patents and stacking licenses could well be a barrier against entry to the high-tech industry. In Australia, this issue of patent blocking is a significant issue to SMEs, particularly as non-Australian companies and institutions hold most of the biotechnology patents granted in Australia (Clarke and Turner, 2004). It is suggested that patents held by foreign companies, are for blocking purposes and will lie dormant. In fact, a study by Cohen (2000) revealed that preventing rivals through patenting related inventions was the most pervasive motive for patenting after prevention of copying.

6. Approaches to competitive advantage through ecosystem

The shortcoming of traditional approaches to strategic management in high-technology industries can be seen through the study of government-university-industry strategic partnerships for research and technology development (GUISP RTDs), such partnerships include the Microelectronics Advanced Research Corporation in the United States, the Faraday Partnerships in the United Kingdom, the Joint Research Centre of the European Union, CANARIE in Canada, and the Storage Research Consortium in Japan. For firms engaged in knowledge-based competences, collaborations involving GUISP RTDs occupy a central role in developing new core competences in the firm, and in fostering better understanding about the management of complex, co-opetitive inter-organizational arrangements.

A comprehensive theory of strategic management must address not only the sources of a firm's existing competitive advantage, but also how firms change their position relative to their competitors. In the view of Teece et al. (1997), firms increase their competitiveness by deploying dynamic capabilities. "...The term capabilities emphasize the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and external organizational skills, resources, and functional competences to match the requirement of a changing environment". Therefore, a critical dynamic capability for any firms is its capacity to learn how to manage its relationships with other players and thus architect intelligent organizational interfaces across the spectrum of R&D performers, including government, university, and industry entities.

Conclusion

The high-technology industry is the representative of an example of knowledge-based industry. How can the SMEs in this industry capture the competitive advantages, especially like Chinese high-tech firms? By reconfigure the co-opetitive networks, this paper extend the research field on knowledge management. Drawing on adding the inter-firm level, the industry level, and the ecosystem level analysis, we propose that SMEs competitive advantages in high-tech industry can seek competitive advantage through its special knowledge-related resources such as the IP, high level of employee; through inter-firm collaboration, such strategic alliances and clustering; through industry structure, such as creating barriers to entry the market; through ecosystem, such as its political capitals and social capitals which match the requirement.

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A Qualitative Decision Trail in the Hermeneutic Analysis Evidence from the Case Study

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Abstract

Qualitative analysis is often reported as an intuitive, personal journey for the researcher. In this case, qualitative research texts are long on discussions of data collection and research experiences but short on analysis. This paper aims to reduce the tension in the qualitative analysis by adopting a decision making trail that is proposed by Clarke (1999). The reason behind this is that a decision trail does provide a clear and agreed analysis processes in qualitative analysis. The case that is utilised to achieve the aims of this paper is that the impact of meta-abilities (cognitive-skills, self-knowledge, emotional resilience and personal drive) in the externalisation and sharing of tacit knowledge. It is found that a decision making trail supports the principles of academic rigour in qualitative research.

Keywords: Qualitative Analysis, Hermeneutic, Analysis Decision Trail, Meta-Abilities, Tacit Knowledge Externalisation

1. Introduction

Qualitative research approaches are designed to help researchers understand people and the social and cultural contexts within which they live (Myers and Avison, 2002). In other words, qualitative researchers seek answers to questions that stress how social experience is created and given meaning (ibid). However, this lead to the view that qualitative analysis is often reported as an intuitive, personal journey for the researcher (Clarke, 1999). In other words, qualitative analysis lack of clear and agreed analysis processes which can be found in the quantitative domain. This thinking remains dominant despite the growth of systematic qualitative analysis that is supported by computer analysis systems (Tesch quoted from Clarke, 1999).

Pollock (1991) summarises how qualitative research texts are long on discussions of data collection and research experiences but short on analysis. Nevertheless, she acknowledges the contributions of Miles and Huberman (1984) and Strauss (1987) in the research data analysis. In addition, she opines that there is a definite need for the researchers to make explicit the methods that they use to facilitate the management of a large amount of qualitative data. Clarke (1999) presents an analysis process with the illustrations from the analysis trail in order to challenge Pollock's (1991) critiques. This paper aims to reduce the tension in the qualitative analysis by adopting a decision making trail that is proposed by Clarke (1999). The reason behind this is that a decision trail does provide a clear and agreed analysis processes in qualitative analysis. The case that is utilised to achieve the aims of this paper is that the impact of meta-abilities (cognitive-skills, self-knowledge, emotional resilience and personal drive) on the externalisation and sharing of tacit knowledge. Meta-abilities in turn are developed through the elements of understanding organisational goals, internal strengths, formal and informal discussions and rational discourse. The case is considered appropriate because it is humanistic in nature.

A theoretical overview of the research questions, study design, tacit knowledge externalisation and meta-abilities are firstly dealt with. The analysis process and the analysis trail from the post-training evidence of respondents are then presented. In the final section, the conclusions and suggestions for further research are dealt with.

2. Research Questions and Study Design

The evidence used to illustrate this paper is taken from a hermeneutic study. To contextualise the evidence it is useful to consider the research question: "How do we include individuals in the learning-based systems development? Why use meta-abilities in order to include individuals in the learning-based systems development?"

The research activity consisted of three stages: (1) understanding the organisation's operational background; (2) the implementation of the training programme and (3) data collection for the research analysis. After completing the process of understanding an organisation's operational background, the process of preparing a training module,

presentation slides and programme outline were commenced. The preparation was undertaken by referring to the inputs from the literature review and practical experience. Thereafter, the training programme was undertaken at the premises determined by the involved organisations. The number of training days was limited to six days due to the policy of the company on industrial training. The participants consisted of 31 engineers and 8 system officers. The engineers were selected as they were the critical group in the plant; therefore the learning process was emphasised on them. Alternatively, the system officers were selected because they provided a platform to evaluate the impact of the framework in IS development.

On the final day of the training programme, the research participants constructed a comprehensive 60 days action plan covering personal development and organisational change issues. This formed the basis of the progress review. For the progress review, the researcher met the research participants individually in order to further develop the elements of understanding organisational roles, internal strengths, formal and informal discussions and rational discourse by discussing their achievements on the targeted actions. This session normally took more than one hour. This was due to the need to discuss the level of development in-depth. Any problems that arose during the developmental period were discussed and tackled in a face-to-face meeting. This meeting was held at the research site in one of the meeting rooms. The data collection commenced one month after the progress review session. A one-month period was given to the participants to enable them to apply the six competency sets in their daily tasks.

The thirty-nine participants were invited to engage in two guided conversations, which were audio-taped and transcribed. The analysis process was designed and tested in an in-depth case study. This paper presents part of the study: the analysis process leading to the generation of major group categories but is not intended to offer the complete findings from the research study.

To understand an organisation's operational background, senior management were interviewed. Senior management were considered to be the most suitable people to be interviewed because they were more familiar with the company's operations. During this stage, a semi-structured interview was employed. This was because this approach allows a great deal of flexibility in asking a pre-determined set of questions or issues that were related to the organisation's operations (Gubrium and Holstein, 2002). An informal conversational interview was utilised during the implementation of the training programme. This is to cope with the activities of the training programme, which required a spontaneous generation of questions in the natural flow of an interaction. This is a strategy similar to that adopted by Zuboff (1988). The feedback also provided relevant data that supported the research analysis.

For the post-training interview, this research employed the open-ended interview method. Open-ended interviews consist of a set of open-ended questions carefully worded and arranged in advance (Gubrium and Holstein, 2002). This type of interview is appropriate for this research because the researcher wanted to collect detailed data systematically and facilitate comparability among all respondents (ibid). The researcher also undertook a second open-ended interview session, which was undertaken four weeks after the first interview session. The aim of the second open-ended interview session was to explore the themes of the first interview in the context of the following questions: "This is what I am understanding, can I confirm this with you?"

3. Analysis Process

This research used the hermeneutics analysis method. Hermeneutics can be treated as both an underlying philosophy and a specific mode of analysis (Bleicher, 1980; Myers and Avison, 2002). As a philosophical approach to human understanding, it provides the philosophical grounding for interpretivism. As a mode of analysis, it suggests a way of understanding textual data.

Hermeneutics is an approach to the analysis of texts that stresses how prior understandings and prejudices shape the iterative process (Denzin and Lincoln, 1994). Hermeneutics is primarily concerned with the meaning of a text or text-analogue (an example of a text-analogue is an organisation which the researcher comes to understand through oral or written text) (Myers, 1997). The basic question in hermeneutics is "what is the meaning of this text?" (Radnitzky, 1970). Taylor (1976) says that:

Interpretation, in the sense relevant to hermeneutics, is an attempt to make clear, to make sense of an object of study. This object must, therefore, be a text, or text-analogue, which in some way is confused, incomplete, cloudy, seemingly contradictory – in one way or another, unclear. The interpretation aims to bring to light an underlying coherence or sense.

The aim of hermeneutic analysis becomes one of trying to make sense of the whole, and the relationship between people, the organisation and the externalisation and sharing of tacit knowledge. For example, when the research participants mentioned that their meta-abilities were improved, it was learnt that the elements of understanding organisational roles, internal strengths, formal and informal discussions and rational discourse could be used to develop other members' meta-abilities. To achieve this, the following research activities were undertaken.

From the above discussions, the first process in the hermeneutics analysis is obtaining a text or text-analogue (Gadamer, 1976). As noted above, to obtain a text or text-analogue, the researcher undertook interviews, observations and document reviews. This process involves hearing and writing the participants' stories. For example, when the participants were asked about the impact of the elements of understanding organisational roles, internal strengths, formal and informal discussions and rational discourse on the development of meta-abilities, the researcher recorded their answers using a Dictaphone. As soon as the aforementioned interviews were completed, the recordings were transcribed. The transcription represented the text that will be analysed in depth. For analysis illustrative purposes, the following text is utilised:

From an active communication programme that I promoted in my unit after the programme, my staff were not hesitant to meet me for any technical or non-technical assistance. I tried my best to assist them and if I thought that it was not under my expertise, I referred them to the right person, but still under my supervision. So...yeah...through asking activities, the work could be undertaken smoothly. Furthermore, we should learn from many experts, not only ones specific to the nature of the problem.

After obtaining the participants' stories, the researcher interpreted them in order to develop their meaning. The stories or texts were interpreted by eliciting the significant statements that could be detected in them. Identifying significant statements was a strategy taken from Colaizzi (1978) and Van Manen (1990). In other words, the researcher produced the themes of the collected data by using personal reflection. For example, the significant statements of the above text are as follows:

- (1) Gain confidence to express a problem to the top people
- (2) Promote a communication culture in the unit
- (3) Remind about late project
- (4) Share work-related information actively

After determining the significant statements for meta-abilities, influencing skills and sharing attitudes, the researcher developed the generic themes for them. For example, the generic themes for the above significant statements are as follows:

- (1) Highlight an issue in the formal or informal discussion
- (2) Interact with others for task improvement

The above generic themes are termed as the first level theme (Clarke, 1999). This is because this research intended to further examine the validity of the first level theme by using second conversation. From the second interview session, the researcher was able to learn the themes through dialogue. At this stage, the first level themes were presented to the research participants to validate their reliability and relevancy. For example, the theme that the participants interacted with others for task improvement was presented to the participants and they were asked whether the developed theme was relevant or not.

As was practised in the first interview, the responses from the participants were tape-recorded. The researcher then transcribed the audio-taped information and transformed them into text. The researcher then elicited the significant statements that can be detected from the second conversation text. The themes that are developed from the significant statements of the second conversation text are termed as the second level themes (Clarke, 1999). This is because they are obtained from the second interview. The summary of this process is illustrated in Table 1. Once the second level themes were identified, the researcher developed the generic themes that represent the first and second level themes. In this case, the researcher identified the common concepts that were shared by both themes. As this category represented one participant, it is termed as an individual category (ibid).

In the search for the categories, however, Frank (1997, p. 85) suggests that categories "are not an end in themselves", rather they show the willingness of the researcher to "stay tuned" to the participants and they also aid the researcher to "observe how they adapt and transform new situations, reinventing the meaning of their activities and lives."

The completion of determining individual categories is followed by the construction of major categories. This process involves the incorporation of several individual categories into the major category (Clarke, 1999). The example for the construction of a major category from the three individual categories is illustrated in Table 2.

The major category becomes the basis for the researchers to reflect and consequently validate the theoretical information that is obtained in the literature review. The way in which the above analysis activities relate to each other are illustrated in Figure 1.

4. The Analysis Trail from the Post-Training Evidence of Respondents

As noted above, there were 39 respondents, which resulted in 39 transcriptions (texts) from their one-guided conversations. A total of 461 pages of A4 transcriptions were generated, which represented approximately 100 hours of respondent-researcher contact time (including the training programme).

It is not possible to offer a trail of all the responses in detail. This is because it will lengthen this paper. For illustrative purposes, a brief story of the impacts of the programme on one person, identified as Mr. Yaakop, is presented to allow the reader to appreciate the style and approach taken. He was 40 years old and had more than 15 years of experiences in the field of engineering.

Examples of the text are given to illustrate each stage of the process. Every attempt is made to explicate the impact trail, such that the readers can appreciate how intrinsic values are challenging when reporting a linear approach.

4.1 Hearing and Writing the Story

As mentioned in section 3, the first stage of the hermeneutic analysis process of this research is hearing and writing the story. To undertake this process, each audio-recorded conversation was transcribed to gain a sense of each respondent's story. These actions encourage entry "into the hermeneutic circle properly" (Bleicher, 1980). This is further enhanced through writing the story in one's own words as it encourages a deeper engagement with the research. It also enables researchers to further appreciate their own prejudices. The written story needs to include personal reflections of the event to illuminate the experience and re-capture the conversation. The writing process offers an act of projection; that is, the gaining of a sense of the whole before the detailed analysis, which involves further reflection, assimilation and questioning (Clarke, 1999). Anticipation of the whole may well occur before it is reached but analysing the parts permits checking the prejudices of the whole. The summary of the written stories follows.

4.1.1 The Story of Mr. Yaakop

4.1.1.1 The Story prior to Engaging with Mr. Yaakop

Before a visit to the research sites for the data collection, the researcher called the appointed liaison for this research. The liaison was the company's training officer. The liaisons were the same people who assisted in organising the training programme. The researcher requested the training officers to arrange a meeting with all the respondents. At the research sites, the researcher was given a room to undertake the interview session. The researcher asked the training officer to ask the respondents to come to the interview room. This process was undertaken by using a telephone to ensure that the respondents were prepared for the meeting and could be met at a specified time and without disturbing their daily activities.

4.1.1.2 The First Guided Conversation

When Mr. Yaakop came to the room, the researcher greeted him and asked him to have a seat. The response that was received from Mr. Yaakop was very encouraging, whereby a warm and friendly welcome to the researcher or his facilitator was provided. Normally, the first 10 – 15 minutes were spent discussing the personal affairs and experiences of the study. This was to create a warm environment of mutual respect and trust.

Thereafter, the researcher explained the purpose of this research, which was to conduct interviews regarding the impact of the training programme on his daily activities. Mr. Yaakop was eager to begin narrating his story. After a hot drink was served, the researcher and Mr. Yaakop began the narration process. Before the conversations began, the researcher informed Mr. Yaakop that the conversation was being tape recorded. While the tape recorder was on, the researcher and Mr. Yaakop began to settle into a conversation. For example, the researcher said that "the aim of this interview is to obtain the information regarding the impact of the training programme on the daily operations. For your information, the interview is being tape recorded. However, the information is highly confidential and, for the research purposes only, could you please share with me the impact of the programme on the development of cognitive skills?" Combined with hand signals, body language and researcher's anticipatory or retrospective interjections of words of encouragement for the respondents to accept or reject, both parties progressed forward. For example, Mr. Yaakop said "I am not very happy with my manager." The researcher then stopped the conversation by raising his hand and asked the participant to elaborate: "What are the factors that make you feel dissatisfied with your manager?" Mr. Yaakop elaborated by giving the factors that make him dissatisfied with the manager, such as one-way communication, unfair performance evaluation and others.

Based on the responses, the interview sessions took at least four weeks to complete. In average, each interview took around two hours. However, there were instances when the researcher needed to visit the research sites again. This was to meet the respondents who could not be interviewed during the first visit. The respondents told their story with laughter, determination, patience and humour. More importantly, it was an open, direct account. For example,

Mr. Yaakop said: "My subordinates bypass me and report directly to the boss. This was very annoying." Then the researcher replied: "I face the same problem in the workplace. My research group members did not inform their problems to me. Instead, they expressed their problems to someone else and this tarnished my image. However, I calmed down and had a meeting with them to resolve the issue. So this scenario is normal in the workplace." By conducting an open, direct account interview session, both parties progressed forward. Mr. Yaakop's story is dealt with in the following subsection.

4.1.1.3 Mr. Yaakop's Story

The first time the researcher met Mr. Yaakop, he was very happy and eager to be interviewed. He was not like the other respondents that had been met before. After having a nice chat with him, the researcher began to ask about the impact of the programme on his daily activities. The first and foremost aspect that he highlighted was the confidence to talk to or communicate with others. According to him, before the programme he was very shy and timid and had no interest in interacting with others. In other words, he just did his own work. However, after the programme he gained the willingness and confidence to interact with others and started to participate in the department's activities. This was evident from the following text:

"Before the course, I was reluctant to talk to anybody in the workplace. But after the course, I had the self-confidence to talk to everybody. I admitted to myself that in whatever condition I have to talk and express my views. Without communicating with the others, the organisational task cannot be undertaken easily. In the beginning, I was quite nervous. But it is improving day by day. I shared the ideas in the training module with my staff and colleagues. The elements that were discussed in the programme assisted me with improving my communication skills. By talking to others, I began delegating tasks and persuading others to follow my way more effectively. All this really helped me in coordinating organisational tasks in my unit. The responses from my staff were so positive and everybody started to work together. The values that were shared included good perception to others, self-confidence, best practice application and others. Everybody must put an effort in improving his knowledge and skills."

In addition, Mr. Yaakop said that he experienced a profound development of the ability to consider a range of options in his own behaviour and to make better judgements of what to do. These skills allow him to use other skills and knowledge more flexibly. The ability to communicate with others enabled Mr. Yaakop to improve his decision making skills. Before the programme he was afraid of making decisions due to the risk of making mistakes. This was based on this statement: "Before the course, I did not know how to solve problems in an effective manner. After the course, my mind began to consider planning for the unit, the approach to integrate all members in the decision making process such as through discussion, face-to-face meetings, dialogues and meeting with the senior management. The meeting discussed the problems, their causes and the actions to solve them. In other words, the course gave me smooth guidance on how to tackle problematic situations effectively and efficiently." This value, according to Mr. Yaakop, resulted in the capability to organise tasks more systematic and efficient.

After the course, Mr. Yaakop was also able to control his emotions when dealing with others in the workplace. The largest problem that he faced in the workplace was that other departments always blamed his department when there was no electricity. Other departments always said that the people in the instrumentation department did not do their jobs. However, during the interview session he said "I was able to control my emotions in whatever situations were encountered in the workplace. In addition, I became more open in discussions, where we had to find the best solution to particular problems." In this case, after the programme, Mr. Yaakop was able to control his emotions by calming down and tackling the problem through the medium of discussion. He was also motivated to improve his knowledge and skills in the electrical services area after the course. He stated, "When I now get available time, I read all the mechanical drawings and try to understand them. So, when somebody informs me about any machine breakdown, I can easily determine what part of the drawing I should refer to."

The course also gave Mr. Yaakop valuable inputs on how to effectively manage people and tasks. Before the programme, he was shy when interacting with others, especially with his subordinates and manager. Therefore, his staff were doing what they only wished to do. For example, when he instructed his staff to repair part A of a machine first, they just ignored the instructions and worked on part B. This was annoying to Mr. Yaakop. However, the programme gave him the strength to manage his people effectively. This was evident from this statement: "After the course, I said to myself "How should I manage my staff, improve my relationship with superiors and obtain good planning?" All these thoughts kept circling in my mind." As was stated by Mr. Yaakop, he obtained the feeling of responsibility to manage his unit properly as a result of the programme. By interacting with his subordinates and manager, Mr Yaakop can determine the best solutions to particular problems.

4.2 Hermeneutic Interpretation – Developing Meaning

The hermeneutic interpretation intends to appreciate what has been understood and learnt through writing a story (interpretation) and trying to present the entire narrative through its parts. This involves identifying clusters of significant statements in relation to the impact of the programme on the development of the seven competency sets and, in turn, its impact on tacit knowledge externalisation. The outcome is to discover what is being meant, learnt or misunderstood, and then verified with the respondents. A questioning process is paramount before and during the guided conversations, reading the transcription of the audio recording and during the writing of respondents' stories. Questions included: "What am I learning from them?", "What do they mean, what are they trying to say?", "What are my prejudices in my learning/interpretation?", "How do their stories help me to understand the seven competency sets, tacit knowledge externalisation and OL better?", "Do the themes I have developed reflect the seven competency sets, tacit knowledge externalisation and OL?", "What is still puzzling me?"

As these questions were considered, certain phrases became obvious from the text and offered some answers. The first elements that need to be understood are the development of meta-abilities (cognitive skills, self-knowledge, emotional resilience and personal drive). Therefore, the questions that were posed included: "Could you please share with me the impact of the learning that you gained after the programme? Are you able to experience the development of cognitive skills? What is the level of self-knowledge after the programme? How about the impact of the programme on emotional resilience? What is the impact of the programme on the development of personal drive?" For every meta-ability's term, the definition and examples were provided.

The responses from the research participants were tape-recorded. The researcher then transcribed the audio-taped information and transformed them into text. As part of the hermeneutic analysis, the researcher then elicited the significant statements that can be detected from the text. For illustrative purposes, this dissertation illustrates the significant statements that were elicited from the abovementioned text of Mr. Yaakop. The significant statements of the above text are as follows: (1) solve problems collectively and (2) receptive to any ideas. The summary of the significant statements of the respondents is illustrated in the column cognitive skills, self-knowledge, emotional resilience and personal drive of Table 3.

The themes illustrated in Table 3 show that the respondents experienced significant developments in their meta-abilities. These findings, in turn, show that the elements of understanding organisational roles, internal strengths, formal and informal discussion and rational discourse are relevant to develop meta-abilities. The question that could be raised from these findings is "What are the impacts of these changes?"

For the purpose of this research, the impact and development of meta-abilities will be linked to influencing skills, sharing attitudes and inquisitive tendencies activities. This is due to the development of meta-abilities that resulted in individuals implementing significant change within their organisations (Butcher *et al.*, 1997). Therefore, after being questioned about post-training meta-abilities, respondents were asked about their impact on the post-training influencing skills, sharing attitudes and inquisitive tendencies. Questions included: "What can you say about the level of influencing skills after the programme? How do meta-abilities assist you in improving influencing skills? Do you experience an improvement in the sharing attitudes after the programme? What is the role of meta-abilities in improving your sharing attitudes? How about the level of inquisitive tendencies after the programme? Do meta-abilities play an important role in developing your inquisitive tendencies?"

The responses from the research participants were tape-recorded. The researcher then transcribed the audio-taped information and transformed them into text. As part of the hermeneutic analysis, the researcher then elicited the significant statements that can be detected from the text. In the case of Mr. Yaakop, the following text was obtained:

The course has changed my behaviour from timid to friendly. Before this I was not very sociable. After delegating the tasks to my subordinates, I would concentrate on my own work. But after the course I always met my subordinates to ask about work progress, problems and internal feeling due to heavy work burdens. In addition, I became confident in facing my colleagues in the meeting and expressed my views if necessary.

The significant statements of the above text are as follows: (1) gain confidence to undertake formal or informal discussion with others and (2) gain knowledge to improve skills. The summary of the significant statements of the respondents is illustrated in the column influencing skills, sharing attitudes and inquisitive tendencies of Table 4. Once these significant statements were identified, the researcher developed the generic themes that represent all the significant statements. In this case, the researcher determined the common concepts that were shared by influencing skills, sharing attitudes and inquisitive tendencies. This theme is termed as the first level theme (Clarke, 1999). This was because this research intended to further examine the validity of the first level theme by using a second conversation.

The interpreted themes (first level theme column of Table 4) are activities that enable the externalisation of tacit knowledge through the medium of ideas, actions, reactions and reflections. However, the validity of the interpreted themes is questionable, since the respondents' actions would be contrary to the researcher's behaviour or prejudices. This broadened the researcher's experience and understanding of a respondent's approach to such tacit knowledge externalisation. This dissonance challenged the researcher into trying to "find common sense between the strange and the familiar" (Weinsheimer, 1985, p. 184). If the researcher encountered meanings that are outside his known prejudice, then he needs to question these meanings and his prejudices to deepen his understanding to widen "one's own horizon so that it can integrate the other" (Bleicher, 1980, p. 112). The researcher needed to further discuss this first level with the respondents during the second conversation, in order to confirm the interpretation through his expanded horizons.

4.3 Learning through Dialogue

Returning to the respondents for the second conversation enabled further dialogue to question the first level themes (first level theme column of Table 4). These themes were still specific to each respondent and had not yet been aggregated or clustered with the other individuals. This dialogical process in hermeneutic research would usually be between interpreter and text but the theoretical justification for returning to the participant is offered by Bleicher (1980). He states that in the dialogical process, "the concepts used by the Other, be it a text or a thou, are regained by being contained within the interpreter's comprehension. In understanding the question posed by the text we have already posed questions ourselves and, therefore, open up possibilities of meaning" (Bleicher, 1980, p. 144).

Therefore, the first level themes can be viewed as questions about the seven competency sets, which the researcher believes are helping to understand the externalisation and sharing of tacit knowledge. Verifying these themes with the respondents allowed for confirmation of meaning or refutation and dialogue for a further possible meaning to be agreed. Usually the researcher returned to the respondents within a three-week period in order to enable transcriptions of the conversation, to send a copy of the transcript for the respondents (through Human Resource Division), to develop questions and construct first level themes for discussion at the second meeting.

To summarise, the aim of the second set of questions was the researcher's exploration of the first level themes in the context of the following questions: "This is what I am understanding, can I confirm this with you? This is what I have learnt about influencing skills, sharing attitudes and inquisitive tendencies from you, can I determine whether this is what you meant? Can you identify the meaning behind this theme as explaining ideas/actions/reactions/reflections expression, there may be multiple realities from the language of the respondents, is expressing ideas/actions/reactions/reflections the key process in this theme? Does something else arise?" The content and context of an extract from a second conversation follows.

4.3.1 Extract from the Second Guided Conversation with Respondents

Four weeks later, the second conversations took place. As usual, the training officers at both research sites had an important role in arranging the meeting with the respondents. The same rooms in the research sites were used to undertake the second conversation. This meeting, in comparison to previous ones, was a more intimate affair. In this case, the researcher and participants had sessions consisting of laughter, humour, a friendly manner and open-mindedness. At one point, some of the respondents made a cup of coffee, which did not occur in the first meeting. However, the researcher maintained the structured methodology that is described above to ensure that the important information is not lost.

The respondents had read the first transcript of our conversation and agreed with its accuracy, which was an important point due to the challenges posed in the transcribing. The researcher offered the respondents a synopsis of the first level themes he had developed. The respondents expressed their thoughts verbally in order to confirm or refute the themes.

The researcher checked whether the respondents had been "externalising tacit knowledge" in the workplace. This was undertaken by asking the research participants whether they gained strength from actively expressing ideas or views in the workplace. From the feedback, it was evident that the respondents experienced a significant improvement in the ability to externalise their tacit knowledge actively through the medium of ideas, actions, reactions and reflections.

For illustrative purposes, this dissertation illustrates the process that was undertaken on Mr. Yaakop. As noted in the column 'First Level Themes' of Table 4, it was found that Mr. Yaakop had been "highlighting issues in the formal or informal discussions" and had experienced "interacting with staff to develop them and the unit;" both to colleagues and staff. In this case, Mr. Yaakop said that, after the course, he always met his subordinates to ask about work progress, problems and internal feelings, due to heavy work burdens. Mr. Yaakop agreed that he was highlighting these issues in the meeting and interacting with staff for unit development. He elaborated that it was a

significant impact that he gained from the discussion in the research programme. In suggesting that he was trying to externalise the ideas, both of us were able to fuse our horizons of understanding. This led to several first level themes merging into one second level theme of “becoming confident enough to express ideas.”

In every case, the researcher and respondents discussed the first level themes, which arose from the respondents’ text. Then the two groups met in similar situations where the respondents could determine how the interpreted themes had been arrived at, although they had not always reflected on them in that way. For example, Mr. Yaakop’s horizon of understanding was heightened in the researcher’s interpretation of his actions in interacting with staff without hesitation. The tentative theme was “Interact with staff to develop them and the unit.” He had stated that “I set in my mind that everything that I did was my duty and therefore it is my responsibility to accomplish it for the sake of the company. I should not become so arrogant, annoyed and sensitive to any instruction if it has been agreed in the meeting or is beneficial to my staff and company.” In other words, Mr. Yaakop did not want the unit “to face havoc in the operation” and he considered the staff would not be able to “work in a conducive environment.” As a result, he had “forced himself to talk to others” and had “given instructions as to what approach should be applied.” By comparing the researcher’s interpretation with the participant’s statement, it can be learnt that both of them were able to fuse their horizons of understanding. Therefore, the researcher’s interpretation was able to be verified from the second meeting.

Upon questioning of the respondents’ actions, it was concluded from the researcher’s point of view that, if a similar situation had occurred, the researcher would be forced to interact with others and utilise the best approach to undertake a task. These actions, in turn, enable the individual to actively externalise ideas in the workplace. For example, Mr. Yaakop’s action of interacting with others in the unit suggested to the researcher that he was externalising his ideas for the sake of the company.

Whilst this action described the extract from the second guided conversation with the respondents (through one example), the next subsection will cluster the themes into the constructed individual categories.

4.4 Construction

Once the individual second level themes were established through dialogue, the next stage was to decide what themes could be clustered to construct individual categories. In the search for categories, however, Frank (1997, p. 85) suggests that “categories are not an end in themselves” and aid the willingness of the researcher to “stay tuned” to the respondents and to “observe how they adapt and transform new situations, reinventing the meaning of their activities and lives.” The second conversation served to assist this process.

From the aforementioned discussion, it can be learnt that the researcher and respondents discussed the first level themes, which arose from the respondents’ text. As being practised in the first interview, the responses from the participants were tape-recorded. The researcher then transcribed the audio-taped information and transformed them into text. The researcher then elicited the significant statements that can be detected from the second conversation text. The summary of the significant statements of the respondents is illustrated in the column second level themes of Table 5. Once the second level themes were identified, the researcher developed the generic themes that represent the first and second level themes. In this case, the researcher identified the common concepts that were shared by both themes. This type of generic theme is termed as an individual category (Clarke, 1999). This is because the developed generic themes represent the themes for a research participant. The individual category for every research participant is illustrated in the column individual category of Table 5.

Individual categories were completed for all 39 respondents and then examined collectively to construct three main categories. This process is illustrated in Table 6. From Table 6, it is shown that there are three constructed major categories, which are as follows: (1) the confidence to express ideas; (2) the ability to determine and define actions and reactions and (3) the ability to reflect a problem.

5. Conclusion

Qualitative analysis is a challenging, time consuming and complex undertaking. It demands that the researcher make many decisions concerning copious amounts of evidence that usually begins as dialogue.

This paper has presented one approach to analysing evidence and offered illustrations for clarity of process. The paper began with a man’s story relating to his experience of gaining meta-abilities and concluded with the example of a major category related to the externalisation of tacit knowledge. Although only a sample from the whole study has been presented, a decision trail has been established.

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Table 1. The illustration of respondents' themes to categories

First Level Themes	Second Level Themes	Individual Category
Highlight issue in the formal or informal discussion	Became confident to highlight issue in the meeting for unit development	Gain confidence to express ideas for unit development
Interact with others for task improvement	Willingness to face problem acutely and collectively for the sake of the company	Determine action acutely and collectively

Table 2. The illustration of the construction of major category

Major Category	Individual Category
The confidence to express ideas	Participant A: Gain confidence to express ideas in the workplace Participant B: Feel responsible to express ideas and concerns for unit development Participant C: Gain confidence to express ideas for unit development

Table 3. The development of meta-abilities

Respondent	Cognitive Skills	Self-Knowledge	Emotional Resilience	Personal Drive
Yaakop	Solve problems collectively Receptive to any ideas	Undertake tasks according to the consensus	Confident to talk to others Reduce nervous when dealing with others More patient Not jump into conclusion easily Ignore what people said Console heart and calm down No backbiting	Positive thinking Openhearted feeling Feel responsible to develop the company

Table 4. The development of influencing skills, sharing attitudes and inquisitive tendencies

Respondent	Influencing Skills	Sharing Attitudes	Inquisitive Tendencies	First Level Themes
Yaakop	Reduce timidity or shyness to communicate with others Develop others actively Persuade others Delegate and coordinate tasks smoothly Give advices to staff to improve performance individually Motivate staff to reduce talking silly things Develop trust value amongst staff	Express views in the workplace actively Create cohesion in the unit Talk to others nicely Gain confidence to express workers' issues Share work-related information actively	Gain feedback to improve knowledge Solve problems through the medium of discussion Gain inputs from other units for improving task Do not hesitate to refer to the boss	Interact with staff to develop them and unit Interact with others for task improvement Express views in the workplace actively Gain motivation for learning Interact with others for task improvement Act according to systematic and collective approach Delegate tasks in an effective manner Obtain operational inputs before making decision Refer unsolved problem to the expert Evaluate causal relationship before action Visualise the risk of making mistakes

Table 5. Respondent's themes to categories

Respondent	First Level Themes	Second Level Themes	Individual Category
Yaakop	Interact with staff to develop them and unit Interact with others for task improvement Express views in the workplace actively Gain motivation for learning	Gain confidence to externalise and internalise idea in the workplace actively	Gain confidence to express and internalise idea in the workplace actively
	Interact with others for task improvement Act according to systematic and collective approach	Act according to systematic and collective approach	Determine action collectively and systematically
	Delegate tasks in an effective manner Obtain operational inputs before making decision Refer unsolved problem to the expert Evaluate causal relationship before action Visualise the risk of making mistakes	Evaluate task according to its impact on and risk to the company in a collective manner	Evaluate task according to its impact on and risk to the company in a collective manner

Table 6. The construction of major categories

Major Category	Individual Category
The confidence to express ideas	<p>Abdul Halim: Gain confidence to express ideas for unit development in the meeting</p> <p>Abdul Rahim: Gain confidence to express and internalise ideas through collective discussion</p> <p>Amran: Gain confidence to express and internalise ideas through collective discussion</p> <p>Anuar: Gain confidence to express ideas in the workplace</p> <p>Azahari: Feel responsible to express ideas and concerns for unit development</p> <p>Azize: Gain confidence to express ideas for unit development</p> <p>Azmi: Gain confidence to influence others through sharing idea in the meeting</p> <p>Fakhrurazi: Gain confidence to express ideas for unit development</p> <p>Hazis: Gain confidence to express ideas for unit development</p> <p>Herlina: Gain confidence to express ideas for unit development collectively and rationally</p> <p>Ishak: Feel responsible to express ideas for unit development</p> <p>Kamal: Gain confidence to express and internalise ideas or concerns for unit development</p> <p>Mazalan: Gain confidence to express ideas for unit development</p> <p>Md Isa: Gain confidence to express ideas and concerns for unit development</p> <p>Mohamed Ridzuan: Experience marginal impact</p> <p>Mohd Adi: Gain confidence to express ideas for unit development</p> <p>Mohd Azmi: Gain confidence to express ideas and concerns in the meeting for unit development</p>

	<p>Mohd Rahmat: Gain confidence to express ideas for argument in the meeting</p> <p>Mohd Syafawi: Establish two ways communication to express or gain ideas for unit development</p> <p>Mohd Syukri: Gain confidence to express ideas for unit development</p> <p>Mohd Wahyudi: Gain confidence to express ideas and concerns rationally for convincing others</p> <p>Mohd Yazi: Gain confidence to express ideas for unit development</p> <p>Mohd Zulmahri: Gain confidence to express ideas and concerns rationally for convincing others</p> <p>Norazlan: Gain confidence to express ideas or issues to the right people for unit development</p> <p>Nordin: Gain confidence to express ideas actively for unit development</p> <p>Rosli: Express ideas after understanding causal relationship for unit development</p> <p>Ruzuan: Gain confidence to express ideas or highlight issues for unit development</p> <p>Samsulislam: Gain confidence to express and internalise ideas through collective discussion for unit development</p> <p>Shaarin: Gain confidence to express ideas or convince others in the meeting for unit development</p> <p>Susi: Gain confidence to express ideas or convince others in the meeting for unit development</p> <p>Tg Mahathir: Gain confidence to express ideas or convince others in the meeting for unit development</p> <p>Yaakop: Gain confidence to express and internalise idea in the workplace actively</p> <p>Yumas: Gain confidence to externalise ideas through discussion for unit development</p> <p>Zaini: Gain confidence to express ideas for unit development</p> <p>Zainizam: Gain confidence to express ideas or convince others in the meeting for unit development</p> <p>Zainol: Gain confidence to express ideas and concerns actively for unit development</p> <p>Zakaria: Gain confidence to express and internalise ideas or concerns for unit development</p> <p>Zulkipli: Gain confidence to express ideas and issues in the meeting actively for unit development</p> <p>Zuriana: Gain confidence to express ideas in the workplace for unit development</p>
The ability to determine and define actions and reactions	<p>Abdul Halim: Determine action according to the consensus and company's norms</p> <p>Abdul Rahim: Act according to the consensus and accepted procedures</p> <p>Amran: Determine action collectively</p> <p>Anuar: Produce good results from the agreed action so that it could be emulated</p> <p>Azahari: Determine action collectively</p> <p>Azize: Determine action acutely and collectively</p> <p>Azmi: Determine action according to mutual understanding</p> <p>Fakhrurazi: Determine action collectively</p> <p>Hazis: Determine action collectively</p> <p>Herlina: Determine action collectively</p> <p>Ishak: Produce good results from the agreed solution so that it could be emulated</p> <p>Kamal: Produce good results from the collective decision so that it could be emulated</p> <p>Mazalan: Determine the action or reaction acutely and collectively</p>

	<p>Md Isa: Determine action collectively</p> <p>Mohamed Ridzuan: Interact with others for task improvement</p> <p>Mohd Adi: Determine action in a collective manner</p> <p>Mohd Azmi: Determine action collectively</p> <p>Mohd Rahmat: Determine action or reaction acutely and collectively</p> <p>Mohd Syafawi: Became adept at determining action collectively</p> <p>Mohd Syukri: Determine action collectively</p> <p>Mohd Wahyudi: Determine action in a collective manner</p> <p>Mohd Yazi: Determine action collectively</p> <p>Mohd Zulmahri: Apply task savvy to determine actions</p> <p>Norazlan: Apply task savvy to produce good results from the collective decision so that it could be emulated</p> <p>Nordin: Determine action collectively</p> <p>Rosli: Determine action collectively and prudently</p> <p>Ruzuan: Determine actions collectively</p> <p>Samsulisam: Determine action or reaction acutely and collectively</p> <p>Shaarin: Determine action according to the accepted procedures and consensus</p> <p>Susi: Produce good results from the collective decision so that it could be emulated</p> <p>Tg Mahathir: Determine action collectively and systematically</p> <p>Yaakop: Determine action collectively and systematically</p> <p>Yumas: Determine the accepted procedures in task implementation through systematic and collective approach</p> <p>Zaini: Determine action collectively</p> <p>Zainizam: Determine action collectively and systematically</p> <p>Zainol: Determine action collectively</p> <p>Zakaria: Determine action collectively and systematically</p> <p>Zulkipli: Determine action collectively</p> <p>Zuriana: Know what should be done at every time</p>
The ability to reflect problem	<p>Abdul Halim: Obtain clarification before making decision</p> <p>Abdul Rahim: Interpret what is happening and determine action from interpersonal perspective</p> <p>Amran: Obtain clarification before making decision</p> <p>Anuar: Evaluate the solution for any problem collectively</p> <p>Azahari: Feel concern with obtaining relevant inputs for making right decision</p> <p>Azize: Interpret what is happening in interpersonal situations</p> <p>Azmi: Obtain relevant inputs after interpreting what is happening in interpersonal situations</p> <p>Fakhrurazi: Understand problem from a variety of sources before determining action</p> <p>Hazis: Feel concern with obtaining relevant inputs for making right decision</p> <p>Herlina: Interpret what is happening and determine action from human and non-human perspectives</p> <p>Ishak: Refer unsolved problem to the colleagues</p> <p>Kamal: Evaluate risks and interpret what is happening in interpersonal situations</p> <p>Mazalan: Obtain operational inputs before making decision</p>

	<p>Md Isa: Evaluate problem and validate solution based on the interpersonal perspectives</p> <p>Mohamed Ridzuan: Obtain operational inputs before making decision</p> <p>Mohd Adi: Read problems and obtain necessary inputs for reliable solutions and task delegation</p> <p>Mohd Azmi: Interpret what is happening and determine action from interpersonal perspective</p> <p>Mohd Rahmat: Obtain clarification from others</p> <p>Mohd Syafawi: Read problems and obtain necessary inputs for reliable action</p> <p>Mohd Syukri: Obtain and evaluate inputs prudently before determining reliable solution or task delegation</p> <p>Mohd Wahyudi: Obtain relevant inputs for reliable solutions acutely and collectively</p> <p>Mohd Yazi: Obtain and evaluate inputs prudently before determining reliable solutions</p> <p>Mohd Zulmahri: Obtain clarification from others</p> <p>Norazlan: Obtain relevant inputs for interpreting, comparing and determining actions in interpersonal situations</p> <p>Nordin: Obtain necessary inputs in a collective manner for evaluating problem</p> <p>Rosli: Evaluate inputs and causal relationship before determining reliable solutions or task delegation</p> <p>Ruzuan: Delegate tasks in an effective manner</p> <p>Samsulislam: Evaluate risks and interpret what is happening in interpersonal situations</p> <p>Shaarin: Obtain clarification to evade risk of low quality job</p> <p>Susi: Obtain clarification before making decision</p> <p>Tg Mahathir: Interpret what is happening and determine action from interpersonal and task perspectives</p> <p>Yaakop: Evaluate task according to its impact on and risk to the company in a collective manner</p> <p>Yumas: Evaluate problem through collective discussion</p> <p>Zaini: Undertake comparison analysis before action</p> <p>Zainizam: Evaluate task issues from the rational and interpersonal perspectives</p> <p>Zainol: Evaluate task issues from the rational and interpersonal perspectives</p> <p>Zakaria: Interpret what is happening and determine action from interpersonal and task perspectives</p> <p>Zulkipli: Obtain clarification before determining action</p> <p>Zuriana: Obtain clarification before determining action</p>
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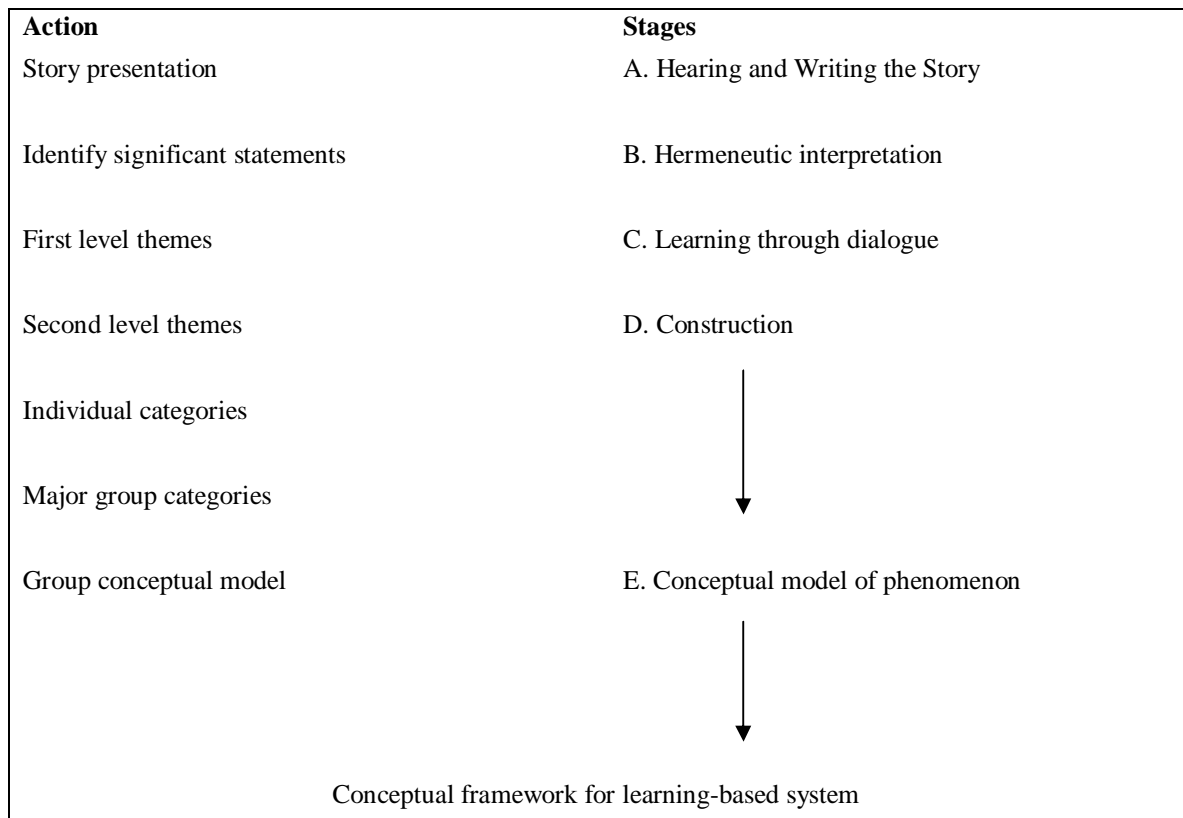


Figure 1. Diagrammatic representation of analysis process

Source: Clarke (1999)

Hypothetical and Theoretical System Framework of Cultivation of Organizational Citizenship Behavior and Validation

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Abstract

Employers' Organizational Citizenship Behavior (OCB) is the endless impetus to promote organizational performance. Starting from the microcosmic point of view, we do research on factoring affecting the cultivation of OCB, put forward hypothesized framework on how to cultivate OCB and validate the framework by demonstration.

Keywords: Employer, OCB, Organizational Performance

1. Introduction

Organizational Citizenship Behavior (OCB) is a unique aspect of individual activity at work, first put forward in the early 1980s, by Dennis W. Organ in the university of Indiana. According to Organ's (1988) definition, it represents "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and in the aggregate promotes the efficient and effective functioning of the organization". Two main components of OCB are mentioned in the previous studies. The first one is that employers have the option of OCB, which are except of the working load of employers. Another point is the irrelevance between OCB and rewards, which mean that the organization can not put any premium on individuals owing to their OCB.

Great achievement has been made by western scholars during the past a couple of years. Three main points have been approved by various kinds of theories and experiences. First of all, OCB has some influence on the performance of the whole organization (Walt & Niehoff, 1996). Moreover, OCB is one of the most important criteria for managers to evaluate employers for the promotion and salary raise (Podsakoff & MacKenzie, 1993). Finally, the pleasure and fairness of employers support from managers and promise of the organization can also be affected by OCB.

We have got a general agreement that OCB can influence the performance of organization directly or indirectly. Today, along with the dramatic competition of companies and sudden changes in market, the promotions of performance more and more relied on the "contextual performance" of employers other than their "task performance". However, "contextual performance" is due to the OCB of employers. So far, because of the kindergarten research on OCB in our nation, present theories can not give instructional advices on how to culture OCB of employers. In that light, according to present status of our nation, the purpose of this article is to do related research about factors affecting the culture of employers' OCB and put forward a theoretical hypothesis of systematical framework, and validate it.

2. Hypothetical and theoretical System framework of the culture of employers' OCB

2.1 Justice

According to Blau's (1964) Social Exchange Theory, organizational justice could stimulate the trust of employers, who will do beneficial extra work more probably in that case. Konovsky & Organ (1996) thought that organizational justice was one of the most essential factors influencing employers' OCB, which was supported by a great number of following research.. We can draw a hypothesis H1 from the statement above: organizational justice is a critical factor affecting the culture of OCB. These factors include:

H1a: Distributive justice. Distributive justice has an emphasis on the justice of results and contents, which means the extent of justice on the distribution of organizational resources, and the response of employers. (Folger & Greenberg, 1985) Distributive justice is the factor that influences employers' justice directly.

H1b: Procedure justice. Procedure justice focuses on the justice of procedure and process, which means the extent of justice on procedure and process of organizational employers' perception (Folger & Greenberg, 1985). Procedure justice stands for the employers' psychological procedure in organizational work.

H1c Interactional justice: Interactional justice emphasizes on the fairness of interaction and communication among people. That is to say if employers' perception of organization has enough communication before making decision

and the extent to which the employers' ideas are referred (Bies & Moag, 1986). Harmonious relationship is social demand of employers.

2.2 Employers' diathesis.

Diathesis is the prerequisite of the development of individual behavior and success in career. Some scholars conducted a great many of survey towards employers' diathesis with OCB and found some common characters among these people including character, educational background, work experiences, the ability to face an emergency in uncertain environment, enduring ability, career interests and so on. We can draw a hypothesis from the statements above H2: Employers with diathesis of OCB have positive effect on the culture of OCB. Specifically, the factors of employers' diathesis that influence the culture of OCB include:

H2a: Character: Character is the core of any personality. It has direct influence on people's behavior and work aptitude and efficiency.

H2b: Career interests: We define career interests as the people's aptitude towards some major and work. People have great interest on some career always study and work absorbedly and with great passion, moreover, they may have great effort on finishing any task in a creative manner.

H2c: Career ability tendency: We define career ability tendency as the ability tendency to pursue some career. Employers with career ability have higher work efficiency and performance in the case of having a positive work manner.

H2d: Career value: We define employers' career value as employers' basic stand, aptitude and tendency of value based on their own value when they confront and deal with various kinds of contradiction and conflict. Behavior based on right value can embody the uniform between the value of individual existence and development and organizational benefit.

H2e: Educational background and work experiences: OCB is a kind of embodiment of comprehensive diathesis; employers should have interdisciplinary knowledge and cross-fuction work experiences.

H2f: Ability to meet an emergency in uncertain environment: Employers should keep confident when organization in confronting uncertain environment and should have enduring ability.

2.3 Organizational environment.

OCB means that OCB filter into the whole organization. Whole organizational environment have direct effect on the generation of OCB. We can draw a hypothesis from the statements above H3: Organizational environment has positive influence on the cultivation of employers' OCB. Specifically, the factors of organizational environment that influence the culture of OCB include:

H3a: Establishment of organizational stratagem. Involvement of employers conduces to their reorganization of establishment of organizational stratagem, their understanding and support and their behavior conducing to realize organizational stratagem in their positions.

H3b: organizational managers' trust and respect to employers. Only if managers' trust and respect to employers can we create an atmosphere conducing to the development of OCB. Therefore, Trust and respect from managers are essential factors of the culture of OCB.

H3c flatten organization. Organizational structure is the reflection of relationship between work division and collaboration among organizational members. Tall hierarchy organization has relative centralized power; employers have less opportunity to exert their talents. As a result, it inhibits the formation and development of OCB. However, flatten organization form relative centralized environment of management, which is helpful to the cultivation of OCB.

H3d: corporate culture emphasizing on dedication: Without corporate culture emphasizing on dedication, organization can not form the atmosphere that every employer care about the destiny of their organization, and employers can not do work unrelated or discretionary.

H3e Scientific and fair evaluation of performance: Scientific and fair evaluation of performance is an important method to evaluate employers' work performance and work results reasonably in the organization.

3. The demonstration research of Framework of cultivation of OCB

3.1 Research method and data collection

A paper and pencil survey was used to collect data. The survey contained a pool of items for three projects: basic situation, factors affecting internal employers' OCB in the organization, the scale of OCB The scale was a five-point Likert-type scale with end points of strongly disagree=1 and strongly agree =5. Based on our ideas and purpose, the

study mainly included managers and common employers from 200 domestic enterprises. Of those, 165 responded.

3.2 Construction of OCB scales

3.2.1 Scales of employers' OCB

The scales for OCB were constructed according to four factors: responsibility, work quality, study and creation and team work. This scale is used to evaluate the cultivation of employers' OCB by organization.

3.2.2 Scales of strategic performance

The scales of strategic performance are used to analyze the relationship between the OCB and strategic performance. This article use scales, put forward by Banker, to measure strategic performance: ratio of return on investment, growth ratio of profitability, and growth ratio of net profit.

3.3 Data statistic and analyses

3.3.1 Factor analyses and warrant validation

In order to validate construct validity of this framework, researchers name the content of variety choosen, and use scree plot to decide the number of factors, then utilize consistence of Cronbach to survey. The results of factors that influence the cultivation of OCB have been show in table 1. From table 1, we can see that there is some difference between the result of ingredient analyses and original ideas. In table 1, factor 1, which means organizational environment including all the sub-projects of H3, is defined as F4. Scientific and fair performance evaluation in factor 2 has nothing relationship with its sub-projects. Therefore, we eliminate factor 2 and redefine F2 as characteristics of employers' abilities. In factor 3, H2a employer's character has nothing to do with fairness presented by H1, thereby; we eliminate this sub-project and rank it to F1. In factor 4, there are two terms: career interests and career value, which are defined as employers' personal characteristics of F3. Based on the analyses and adjustment above, table 2 shows the factors that influence the cultivation of OCB.

From the results, according to the rearranged result of factor analysis, the Cronbach's (1951) α of various factors (F1, F2, F3, F4) that influence the cultivation of OCB are above 0.6, which are acceptable.

3.3.2 Regression analysis

In order to see about the relationship between each factor that affects the cultivation of OCB and OCB and organizational performance, we conducted a series of research on multi-linearity regression analysis. Including:

- (1) Regression analysis of factors affecting the cultivation of OCB and OCB. (Table 3)
- (2) Regression analysis of specific factors affecting the cultivation of OCB and measuring guide line of OCB. (Table 4)
- (3) Regression analysis between employers' OCB and organizational performance. (Table 5)

3.4 Analysis and discussion of analytical results

Research results demonstrated researchers' hypothesis mostly. According to H1, fairness has great influence on the cultivation of OCB, which was proved by our results. Meanwhile, analytical results demonstrated the significant relevance between the two sub-projects of H1 and the cultivation of OCB: H1a distributive justice, H1c interactional justice. However, the relationship between procedure justice and the improvement of OCB was not be proved.

Analytical results demonstrated that employers with some employers' ability characteristics has positive pertinence with the cultivation of OCB. H2e educational background and work experiences has positive effects on the cultivation of OCB. However, H2f enduring ability towards uncertain environment has nothing to do with the cultivation of OCB.

Analytical results demonstrated that employers with characteristics of career interest, tendency of career ability and career value have positive pertinence with the cultivation of OCB.

According to H3, organizational environment has positive pertinence with the cultivation of OCB. Statistical results demonstrated this hypothesis and H3c flatten organization and H3d corporate culture with dedication has positive pertinence with improvement of OCB. Relativity between H3a emphasize on employers' involvement in organizational stratagem establishment and H3b managers' trust and respect to employers and the cultivation of OCB did not be proved.

Meanwhile, analytical results also demonstrated that there is positive pertinence between OCB and organizational performance, cultivation of OCB was helpful to the improvement of organizational performance.

4. Conclusion

To sum up, this article demonstrated main factors affecting the cultivation of OCB by putting forward hypothesis

framework and demonstration research, and adjusted original hypothesized framework according to demonstration and analysis (pic 2). We believe that it will improve the cultivation of OCB if organization could take some efficient measurements on organizational justice, employers' training and its internal environment. And, the cultivation and improvement of OCB have significant influence on the sustaining development of organization and the promotion of its competence.

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Table 1. Table of factors affecting the cultivation of OCB analysis

Project of content	Factors			
	1	2	3	4
H3b managers' trust and respect	0.784	0.291	-3.975E-02	1.724E-02
H3d dedicative corporate culture	0.701	-6.594E-02	-0.171	0.128
H3a involvement of employers	0.666	0.108	0.183	0.232
H3c flatten organization	0.640	0.206	4.584E-02	0.375
H2e educational background and work experiences	0.250	0.740	-9.082E-02	0.273
H2f enduring ability towards uncertain environment	0.359	0.727	1.494E-02	0.144
H2d career value	0.374	0.694	0.294	6.386E-02
H1c interactional justice	0.186	-0.258	0.780	0.137
H1b procedure justice	-8.921E-02	0.115	0.709	-3.848E-02
H2c tendency of career ability	0.249	0.205	3.594E-02	0.693
H1a distributive justice	8.658E-02	0.150	0.450	-0.428
H2a Character of employers	6.118E-02	0.228	0.546	6.606E-02
H3e scientific and right performance of evaluation	0.471	0.564	0.149	0.205
H2b career interests	-6.773E-02	0.462	0.191	0.605

Thereinto, H1* means factors of fairness, H2* means factors of employers' diathesis, H3* means organizational environment

Table 2. Modulated analysis of factors affecting the cultivation of OCB

Factor	Project	Cronbach's (1951) α
F4 organizational environment	H3a, H3b, H3c, H3d	0.78
F2 employers' characters	H2d, H2e, H2f	0.75
F1 fairness	H1a, H1b, H1c	0.61
F3 employers' personalities	H2b, H2d	0.60

Table 3. Regression analysis between factors affecting the cultivation of OCB and employers' OCB

Factors affecting the cultivation of OCB	Standard regression coefficient
F1 fairness	0.32*
F2 employers' characters	0.26**
F3 employers' personalities	0.29*
F4 organizational environment	0.37*

**p<0.01

*p<0.05

Table 4. Regression between specific factors affecting employers' cultivation of OCB and measuring guide line of OCB

factor	project	Standard regression coefficient
F1 fairness	H1a	0.45**
	H1b	0.18
	H1c	0.20
F2 employers' characters	H2e	0.27
	H2f	0.10
F3 employers' personalities	H2b	0.40**
	H2c	0.38**
	H2d	0.33**
F4 organizational environment	H3a	0.07
	H3b	0.18*
	H3c	0.22*
	H3d	0.30

Table 5. Regression analysis between employers' OCB and organizational performance

factor	ratio of return on investment	Ratio of profitability	Growth ratio of profitability	growth ratio of net profit.
OCB	0.25*	0.27*	0.28**	0.34*

**p<0.01

*p<0.05

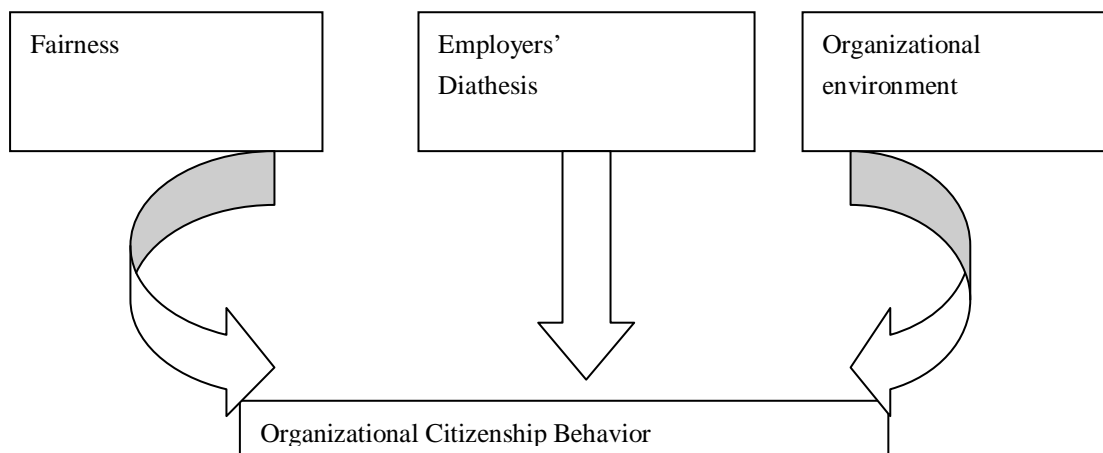


Figure 1. Framework of cultivation of OCB

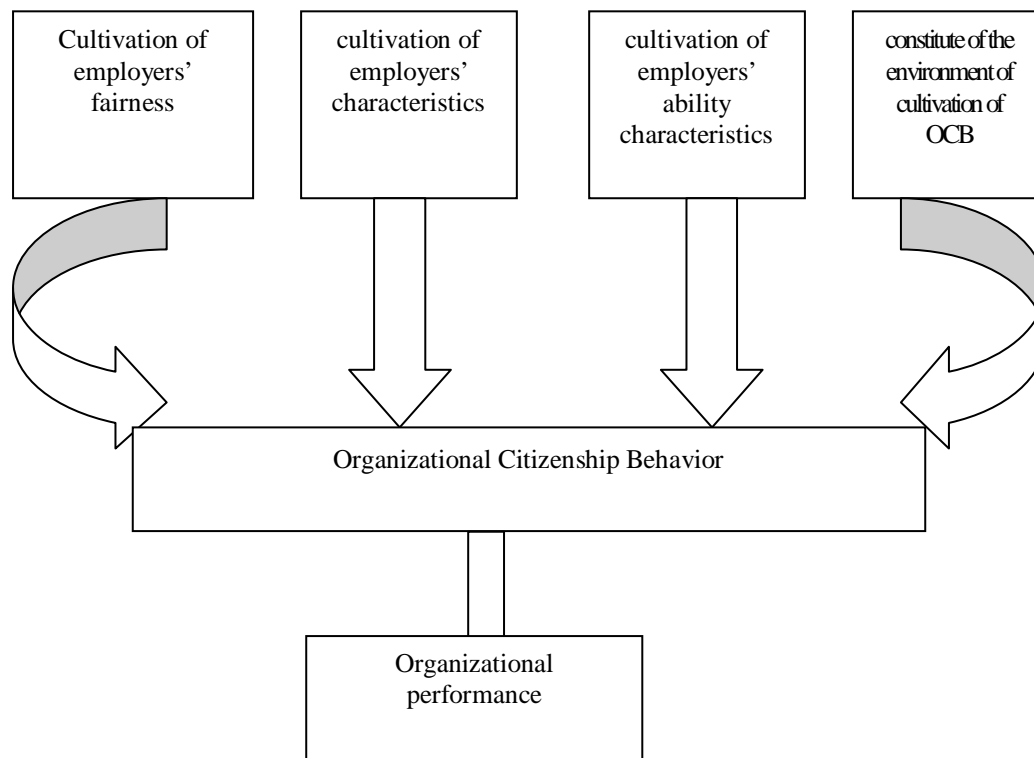


Figure 2. system framework of cultivation of OCB, OCB and organizational performance

An Analysis on the Knowledge Workers' Turnover: A Psychological Contract Perspective

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Abstract

Knowledge workers are gradually becoming the most valuable and productive part of employees, but their intrinsic characters lead to their high turnover rate. As viewed from the theory of psychological contract, this article analyzes the flow process of knowledge workers, establishes the employee satisfaction model and finds out that one important reason inducing knowledge workers' high turnover rate is to ignore and breach their psychological expectations. Based on that, this article also puts forward the countermeasures to reduce knowledge workers' turnover rate by managing their psychological contracts.

Keywords: Knowledge worker, Psychological contract, Employee satisfaction, Employee turnover

1. Introduction

With the advent of knowledge economy in 21st century, knowledge works which can answer changes quickly in a creative way will become the main work forms for the new economy, and knowledge workers are gradually becoming the most valuable and productive part of employees. Knowledge workers mean those workers who grasp and operate symbols, concepts, knowledge or information to work (Peter Drucker, 1999), and they create values by right of their own originalities, analysis and judgments, who generally include middle or super managers, professionals and assistant professionals with deep special skills (Peng, 2001, p.90-96). Since knowledge workers possess production instruments through knowledge, the relation between them and enterprises has been changed essentially (Drucker, 1994, p.10). Only "employment contract" has not decided whether they would give loyalties and pay out creativities for enterprises. And uncertain environment, incomplete information and finite rational limitation make economic contract can not forecast and regulate all contents of the contract. Because knowledge workers have essential characters such as higher occupation promise but not organizational promise, they more emphasize the implementation degree of their "psychological contract".

The psychological contract means responsibilities offered by organizations or individuals for each other which they can apperceive in their mutual relation, and this sort of apperception either comes from the apperception to the formal agreement or is concealed in various expectations (Herriot, 1996). The psychological contract is differ from economic contract, and the economic contract depends on specific and concrete regulations which mean bartering time, talents and physical forces for salary, rest and proper work conditions, but the psychological contract is the corresponding balance and weighing based on social criterion and value views. The psychological contract limits conditions (including contributions and expectations) which employees invest in organizations. If employees agree to give organization some loyalties and creativities, so as exchangeable conditions, they expect other wishes such as searching work security, fair and rational treatment and organizational supports to implement developments except for economic recompense. The psychological contract is the impelling determinant to influence employees' attitudes and behaviors to organization (Schein, 1980), which predominance is that it can apperceive the bilateral relation of mutual responsibilities between employees and organization to influence employees' behaviors through the psychological harmony and resonance between them. The ago practical researches indicate the psychological contract relates to high level apperception, organizational supports, work satisfaction, occupation expectation and

sensible promise and low level turnover intention (Wang, 2007, p.41-46 & Turnley, 2003, p.187-206).

Knowledge workers' intrinsic characters decide they have high turnover rate (Jiang, 2001, p.85-88). The employees' turnover are divided into voluntary turnover and passive turnover, and the former includes job-hopping, auto demission by force of pressures, retirement and so on, and the later includes dismissing, laying off and so on. This article only discusses the dismissing behavior for a better position after job-hopping. Different with the past models which researched knowledge workers' encouraged factors, this article tries to deeply analyze interior reasons of knowledge workers' turnover as viewed from psychological contract to offer decision-making references for the human resource management practice of enterprise.

2. Influences of psychological contract on knowledge workers' turnover

As viewed from enterprise, the values of knowledge workers should comply with the formula "knowledge workers' values = scarcity \times loyalty degree" (Wu, 2003, p.35-40), where, the factor "scarcity" means accumulated results of knowledge workers' long-term learning and experiences, and the factor "loyalty degree" reflects their identification tendency to enterprises. As we know, as a sort of employees' value judgment to enterprise, satisfaction is the necessary conditions that employees give loyalties, so this formula indicates knowledge workers' values are decided by whether they are satisfactory or loyalty to enterprises. And all early research models of employee turnover such as March & Simon Model (1958), Price Model (1977), Mobley Agent Chain Model (1977) and Extended Mobley Model (1979) (Xie, 2001) thought work satisfactory degree was an important variable to influence employee turnover, i.e. the employees' work satisfactory degree was lower, the probability producing demission intention was higher. At that time, if better development opportunities exist and employees realize their work satisfactory degree can be increased when they enter new enterprise, so the turnover may happen. It is obvious that the common factor to influence employees' demission intentions and decide to enter new enterprise is the evaluation to work satisfactory degree, and this evaluation result decides whether employees are loyalty to enterprise and produce turnover behaviors to some extent.

Philip Kotler thought satisfaction means one person's actual apperceived effects to certain thing and the feeling status formed after comparing with his expectation (P Kotler, 2002). The model in Figure 1 describes the forming process that employees are satisfactory with works. Form the theory of psychological contract, the employees' expectations to work are not only embodied in the employment contract, but are included in employees' concealed psychological contract. The forming process described in the model is the result of a series of interior communications and enterprise management activities between enterprise and employees. The apperception of enterprise to employees' expectation decides various regulations and systems established by enterprise, and the actual implementation of regulations and system also will directly influence employees' actual apperception. If actual apperception approaches or exceeds expectation value, so employees will satisfy, or else they will not satisfy.

In the forming process of employee satisfaction, certain gaps may exist in various steps, and these gaps will influence employees' satisfactory level. Three gaps are shown in the model. Gap 1 means the expectation of enterprise to employees has "apperception gap". Gap 2 is a sort of "system gap" which is caused by that the regulations of enterprise has not completely embodied employees' expectation. Gap 3 is the "implementation gap" which is caused by the system constituted has not been implemented truly. Obviously, apperception gap, system gap and implementation gap induce the deviation between employees' actual apperception and expectation together and directly influence employees' satisfactory level. Gap 1 is the most important, and if enterprise has not completely known anticipated factors including employees' psychological contract, gap 1 will exist and induce employees' dissatisfactions to enterprise to a certainty.

Because knowledge workers are experts in their occupation domains, they have high creativity, independences and strong adaptive abilities to works, they have confidences to complete the contents regulated in the employment contract, and generally enterprise also would implement promise, so the employment contract is not the important factor considered by knowledge workers. Knowledge workers' strong of self-implementation wishes and achievement motivations determine that they will seek enterprise to implement their own psychological contracts, such as requirements to occupation development and individual achievement, which is differ from common employees. Most knowledge employees are the scarcity resource of enterprise, they have relative higher word rights, and they always request organizations fulfill their requirements of psychological contracts because they fully trust their own abilities, or else, they will depart from the enterprise which can not implement their psychological contract because of dissatisfaction. However, common employees usually emphasize material encouragement and short-term developments, and their requirements to fulfill psychological contract is comparatively weak. On the other hand, the present normative and perfect labor market management system make employees' flow become easier, and knowledge workers have comparatively extensive choices, and this tendency will strengthen knowledge workers' flow wishes and finally induce talent turnover of enterprise. Therefore it is very necessary to understand knowledge

workers' psychological contract for enterprise. But in fact, now most enterprises have not understood knowledge workers' work favor, they only emphasize knowledge workers' expectation to employment contract and ignore the perception to their psychological contracts, which may be one of important factors to induce knowledge workers' turnover.

However, even if the anticipated apperception gap (gap 1) of enterprise to employees is zero, it may include employees' turnover because dissatisfaction, which because gap 2 or gap 3 may still exist. This turnover can be controlled relatively, because system gap (gap 2) and implementation gap (gap 3) should be induced by wrong interior management of enterprise, or the results that enterprise voluntarily breaches economic contract or psychological contract. Only enterprise strengthens their interior management and implements promise seriously, this turnover behavior can be effectively controlled.

3. Countermeasures to control knowledge workers' turnover

Knowledge workers are the special group which human capital repertoires are higher than other employees, and their turnover means talent turnover and the depreciation of intelligent capital to the demission enterprise, so to control knowledge workers' higher turnover rate is the key problem that enterprise must emphasize highly.

Undoubtedly, many enterprises has done a lot of works to enhance knowledge workers' satisfaction, but these works seemly ignore knowledge workers' psychological contract, and some encouragement measures aiming at knowledge workers' satisfaction and emotion devotions all are based on the requirements of management, and the encouragement contents always are designed according to the value view and maximum avail anticipation of the enterprises themselves which can not possess objectivity and justice in practice. Therefore, to make knowledge workers achieve real work satisfaction and organizational loyalty, enterprise managers need fully emphasize the structure and contents of knowledge workers' psychological contract, because any enterprise management decisions or emotion devotion to knowledge workers based on single satisfaction may induce both variance of apperception effect and disharmony of psychological expectation. So, enterprises must take the management of knowledge workers' psychological contract as their strategies and countermeasures, highly emphasize the communications with knowledge workers, understand and analyze knowledge workers' psychological expectation by introducing communication management, attitude management and other means (such as interior marketing), and make this communication can weaken employees' work satisfaction and organizational promise at low level (Rousseau, 2000, p.514–528) in order to achieve the final intention to reducing knowledge workers' demission rate.

On the other hand, enterprises must establish the people-oriented management idea. "People-oriented" is a sort of demand that people requests arranging their life independently, embodies their own existence values, actualize self-wishes and motile adaptation and counteraction to control others (Abraham, 1987). The people-oriented management idea requests enterprise respect employees and emphasize their principal part natures, which even fulfill knowledge workers' work favors and expectation of psychological contract. To hold knowledge workers, enterprise usually consider problems as viewed from higher rewards, which always induces the magrginal utility degression of material encouragement. Knowledge employees' people-oriented demands are the base of their psychological contract, and enterprises ignore human responsibilities and development responsibilities and take knowledge workers as the tools to obtain profits for themselves, which not only breaches employees' psychological contracts, but trample the people-oriented management idea.

Finally, enterprises also should emphasize the career management to knowledge workers. The knowledge workers' characters determine their demands to trainings and developments. In actual enterprises, knowledge employees may be satisfactory to the present jobs, but they may leave enterprise because they can not see the satisfactory role in future, which is the necessary result that enterprise ignores developmental dimensionality in knowledge workers' psychological contract. Therefore, enterprise should offer career consultation, developmental opportunities and projects for knowledge workers, evaluate and their potentials on the path of various career development, advise knowledge workers totally consider self-development, career development, family development and the harmony of these developments on time, and totally consider the approaches and sequences of career and relations on occupation and flows among enterprises. It is the important means to emphasized knowledge workers' career management for enterprise to control knowledge workers' turnover as viewed from employees' psychological contract.

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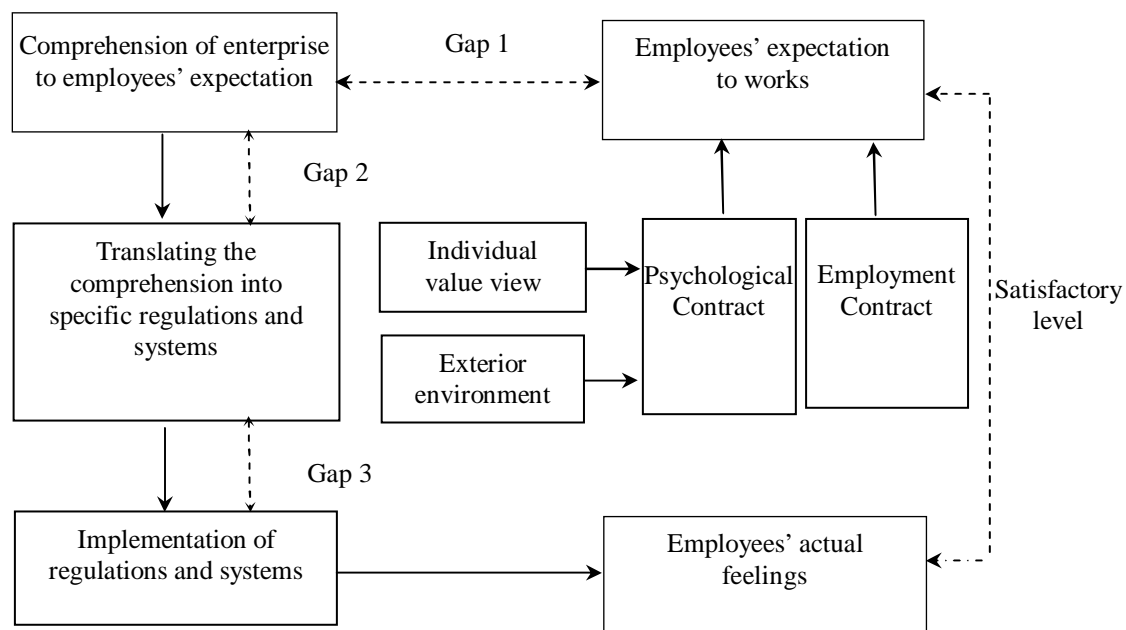


Figure 1. Forming Process Model of Employee Satisfaction

Do ISO Certified SME's have Hgher Quality Practices?

Empirical Insights from the Northern Region of Malaysia

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Abstract

Most scholars as well as practitioners are fully aware that Total Quality Management (TQM) has become the key factor in improving organizational performance. Most of past researchers have found that TQM has a deep impact on organizational performance including the small and medium enterprises (SMEs). Several researchers have also looked at the issue of ISO 9000 certification in relations to the implementation of TQM. This study tries to examine whether ISO certified companies have higher TQM practices as compared to those non ISO certified small and medium enterprises in the northern region of Malaysia. The result shows that the only significant difference between ISO certified and non-ISO certified organizations was in training and education with ISO certified firms reporting higher extent. However, overall, ISO certified firms did not differ significantly on the other 6 practices. This to a certain extent questions the rationale of getting certified.

Keywords: ISO 9000, SME, Quality practices, Certification

1. Introduction

The business world has become increasingly globalized and firms have to compete globally compared to locally in the previous years. One of the competitive advantage used by many firms are quality. Closely related to quality are the quality management practices. Although many have resorted to implementing these practices in their efforts to stay competitive, there have emerged several new concepts and certifications that can be pursued by these firms instead. So apart from the importance of TQM, some researchers have raised the issue of ISO 9000 certification in relations to the implementation of TQM. According to Sohail and Teo (2003), some researchers like Bradley (1994) have pointed out the opinion that the ISO 9000 certification is the first step towards the implementation of TQM while some researchers still prefer to maintain focusing on TQM only. They indicated that even though some authors praise the ISO 9000 concept, others view it as a ritualized form of quality management that should not be used in isolation from TQM principles.

Briscoe, Fawcett, and Todd (2005) indicated that internalizing the core ISO practices is important in improving performance and ISO 9000 practices must become part of the routine in the organization. It is also proposed by Fenghueih, Ching, and Cleve (1999) that for the maximum benefits of ISO 9000 certification, the efforts undertaken in implementing the standards should be part of a TQM process.

Meanwhile, a study by Sun (2000) found that ISO 9000 standards are partially related to the implementation of TQM and the improvement of business performance and therefore it is recommended by the study that ISO 9000 should be incorporated with the philosophy and methods of TQM. In addition, Martinez-Lorente and Martinez Costa (2004) mentioned that despite the beliefs about ISO 9000 as a good first step in the way of implementing TQM, some of the ISO 9000 principles are contradictory once implemented with TQM philosophy. Ho (1994) has pointed out 8 characteristics, which are needed in order to implement TQM and ISO 9000 successfully. One of them is TQM is needed in the ISO 9000 system in order to produce quality products and services. This is because even with the ISO 9000 certification in hand, it would not guarantee that the products are of high quality.

This study tries to examine whether ISO certified companies have higher TQM practices as compared to those non ISO certified small and medium enterprises in the northern region of Malaysia by adapting the Sohail and Teo's (2003) framework of quality measurements.

2. Literature Review

2.1 TQM Practices

TQM is an approach historically unique to improve the organizational effectiveness with solid conceptual foundations, which at the same time, provides a strategy to enhance business performance, taking into consideration the way companies and their staffs operate (Wruck & Jensen, 1994). It has become the major business strategy in the 1990s (Witcher, 1994; Lee & Leung, 1999).

According to Javier, Antonio, and Mignel (2003), a distinction can be made between the TQM content, elements, processes or practices. It is so-called elements (Waldman, 1994) practices and principles (Dean & Bowen, 1994), values and techniques (Hellsten & Klefsjo, 2000), processes and contents (Reed, Lemak, & Mero, 2000), interventions (Hackman & Wageman, 1995), principles and precepts (Sitkin, Sutcliffe, & Schroeder, 1994), etc. Although definitions do not coincide in full, all of them still refer to those fundamentals that make up TQM theoretical frame without which the management system implemented in the organization or the philosophy on which it is based could not be called TQM (Javier et al., 2003). The elements of TQM practices are vary according to various scholars. Table 1 below shows the various practices that has been proposed by different authors. (See Table 1)

For this study, seven main practices of TQM implementation has been used in which all practices are selected due to their relation to and supported in service organizations: *management support and commitment, employee involvement, employee empowerment, information and communication, training and education, customer focus, and continuous improvement*. All these seven practices are among 25 TQM practices listed to be the most common extracted across 76 studies on TQM (Sila & Ebrahimpour, 2002).

2.2 ISO 9000 defined

ISO certification started in Europe and was spread to North America, Japan, and the rest of the world in which it was introduced in 1987 by the International Organization for Standardization, based in Geneva, Switzerland (Abraham, Crawford, Carter, & Mazotta, 2000). It is a series of standards for quality management systems with a comprehensive model of quality systems (Sun, 2000) that addresses the quality of a company's processes (Withers, Ebrahimpour, & Hikmet, 1997). Similar with other quality management practices, these standards are based on the concept that certain minimum characteristics of a quality management system could be usefully standardized, giving mutual benefit to suppliers and customers, and they focus on process rather than product quality (Van der Wiele, Dale & Williams, 2000; Withers & Ebrahimpour, 1998; Gourlay, 1994).

The ISO 9000 series sets out the methods that can be implemented in an organization to ensure customers' requirements are fully met (Oakland, 1989). Yahya and Goh (2001) mentioned that ISO 9000 is a management control procedure. It involves a business documenting the processes of design, production, and distribution to ensure that the quality of products and services meets the needs of customers (Quazi, Hong, & Meng, 2002; Pun, Chin, & Lau, 1999).

2.3 ISO 9000 in Malaysia

In Malaysia, the Scientific and Industrial Research Institute of Malaysia (also known as SIRIM) is the one responsible to issue the standards for a quality management and quality assurance system which is recognized as MS ISO 9000 standard. This standard has been widely accepted in the Malaysian private sector. MS ISO 9000 is welcomed by most Malaysian companies. Knowing the facts that MS ISO 9000 is a good standard to be implemented, the government has decided to adopt the MS ISO 9000 standard to the civil services as well. With the main objective to develop an efficient and effective quality management system in order to provide the best service consistently to the public, the Malaysian government started the implementation of MS ISO 9000 in the civil services on 1st November 1995. From there, the MS ISO 9000 has played a big role in creating a quality public service for the Malaysian public service.

2.4 SMEs in Malaysia

There are various descriptions of SMEs. Some describe SMEs based on number of employees; some measure the amount of capital or maybe assets and even sales turnover while the Small and Medium Industries Development Corporation (SMIDEC) defined SMEs into two broad categories. The first one is Manufacturing, Manufacturing-Related Services and Agro-based industries, which comprises the enterprises with full-time employees not exceeding 150 or with annual sales turnover not exceeding RM25 million. Second one is the Services,

Primary Agriculture and Information & Communication Technology (ICT). This second category refers to service enterprises with full-time employees not exceeding 50 OR with annual sales turnover not exceeding RM5 million (Saleh & Ndubisi, 2006).

In most developing and developing countries, the small and medium sized enterprises (SMEs) sector plays a crucial role in contributing to the growth of the economy. Similarly in Malaysia, SMEs forms an important part in the national economy right from the aspects of business units, employment opportunities, income generation, training and development, up to contributing 47.3% of the gross domestic product (GDP) (Leong, 2006). Besides, currently SMEs contribute about 16.6% of the country's total exports (Habib, 2006). According to Habib (2006) as well, the Prime Minister of Malaysia, Datuk Seri Abdullah Ahmad Badawi also admitted the importance of role played by SMEs. He said that SMEs, even though they are not big, but they contribute much on the economy of the country and they are one of the sectors that is growing rapidly in most developing countries nowadays. Furthermore, according to statistics provided by SMIDEC (2004), SMEs contributed 57.6% to exports in the manufacturing sector, 40.6% in the service sector, and 1.8% in the agriculture sector. All of these evidences suggest that SMEs contribute an important role not only in the economy aspect but also in the nation's well being.

3. Research Framework

The research model developed by Sohail and Teo (2003) has been adapted and used in this study. However this study only focuses on to link the two main components of TQM practices and ISO 9000 certification instead of three main components of TQM practices; ISO 9000 certification and Organizational performance studied by them (refer to Figure 1). Also, the dimension of TQM practices studied by Sohail and Teo (2003) were different from this study. This study focused on the seven practices comprising of management support and commitment, employee involvement, employee empowerment, information and communication, training and education, customer focus, and continuous improvement compared to the six variables in Sohail and Teo (2003): employee training and empowerment, customer involvement and satisfaction, process management, quality measurement and benchmarking, top management commitment, and, strategic planning.

4. Research Methodology

4.1 The Instrument

In collecting the data, a structured questionnaire was used as the research instrument for this study. The survey instrument consisted of seven variables of TQM practices, which are the management support and commitment, employee involvement, employee empowerment, information and communication, training and education, customer focus, and continuous improvement. It measures the level of TQM practices in the organization. The 33 questions asked were modified from Antony, Leung, Knowles, and Gosh (2002), Brah, Wong, and Rao (2000), and Sureshchandar, Rajendran, and Anantharaman (2002), in which respondents were asked to respond to the statement using 5-point Likert scale ranging from strongly disagree, which is weighted as 1, to strongly agree, weighted as 5.

4.2 Sample and Procedure

A field study was conducted in collecting the primary data from a population of service organizations in the northern region of Malaysia (Kedah, Perak, Penang, and Perlis States) that do practices TQM in their operations. These service organizations comprise of banks, finance companies, insurance companies, private and public utility service organizations, higher learning organizations, consulting service companies and other related service organizations.

A total of 200 service organizations have been contacted. About 175 of them were implementing TQM practices in their business routine. A set of questionnaire was sent to each service organizations by post and e-mail directed to the manager. For the mail questionnaire, a set of questionnaire containing a cover letter and stamped-reply envelope address to the managers as the key informant of the organization, while the e-mail questionnaires were sent using the e-mail address of the managers. In ensuring a good response, the researcher kept contact and followed up through e-mail and phone. A total of 66 usable responses were subsequently used in the analysis.

4.3 Goodness of Measure

In determining the goodness of data for the study, factor analysis and reliability analysis were used. Factor analysis was performed to assess convergent validity. The results of the factor analysis and reliability test are presented in Table 1 and Table 2.

Table 1 presents the factor loadings for each rotated factor and each variable of TQM practices. The first factor (F1) relates to the support and commitment in practicing TQM given by the top management. Five items are found to have significant loadings in this factor. The second factor (F2) concerns on the involvement of employees in practicing the TQM in the organization. For this factor, four items are found to have significant loadings. F3 refers to the level of employee empowerment in the implementation of TQM, which comprises of four items. F4 concerns

the degree of information and communication being used in the organization. This factor comprises of four items that have been found to have significant loadings. The fifth factor (F5) is labeled as training and education that has been exposed to employees. This factor has six items, which are found to have significant loadings. F6 consists of five items, which has been found to have significant loadings in this factor. This factor suggests the role of customer focus in practicing the TQM. The final factor (F7) relates to the level of continuous improvement being made by the organization. It consists of five items, which are found to have significant loadings in this factor. This further enhances the convergent validity of the instruments used in the study.

In terms of reliability analysis, the Cronbach alpha's ranged from 0.723 for employee empowerment to 0.932 for continuous improvement, again showing acceptable reliability for all the measures used. (See Table 3)

5. Research Findings and Discussion

5.1 Profile of the Organizations

In terms of nature of service organization, majority (54.5%) of them were from the others category of service organization such as public service department, government authority, government agencies, healthcare industry and hotels. Meanwhile, 15.2% comes from higher learning organizations, 13.6% from consulting service companies, and 7.6% from financing companies, while both banking industry and insurance companies contributed 4.5% respectively. From all service organizations that have participated, 65.2% comes from private sector and the remaining 34.8% comes from public sector. In term of size, 89.4% are the small size organizations that have below 500 employees, and 10.6% are the medium size organizations with the range of 501 to 1 000 employees. Only 39.4% of these service organizations have received the ISO 9000 (or similar) certification (refer Table 3).

5.2 Means and Standard Deviations of TQM Practices

The means and standard deviations of TQM practices are portrayed in Table 2. "Continuous improvement" has the highest mean and standard deviation with 3.887 and 0.870 respectively. Meanwhile, "employee involvement" has the lowest mean with 3.380 and "employee empowerment" has the lowest standard deviation with 0.649.

5.3 Comparing ISO Certified and Non-ISO Certified Organizations

An independent samples t-test was conducted to compare the practices ISO certified and non-ISO certified firms. There were significant differences in the scores for ISO certified firms ($M=3.76$, $SD=0.62$), and non ISO certified firms [$M=3.25$, $SD=0.89$; $t(64)=2.766$, $p=0.007$] for the training and education practices only. The magnitude of the differences in the means was moderate to large (eta squared= 0.1).

Effect size is to test if the statistical differences found is truly sufficient and not by chance. Although sometimes the difference is significant, it may be because of the large sample size where very small differences will be significant. Effect size calculates the strength of the association which indicates the relative magnitude of the differences between means. Tabachnick and Fidell (1996, p. 53) described this as "amount of total variance that is predictable from the knowledge of the levels of the independent variable"

One common measure of effect size is eta squared. Eta squared represents the proportion of variance of the dependent variable that is explained by the independent variable (Pallant, 2001). To interpret the strength we can follow the guidelines of Cohen (1988) which is as follows:

- 0.01= small effect size
- 0.06= moderate effect; and
- 0.14= large effect size

See Table 5.

6. Limitation and Suggestion for Future Research

This study covers only the northern region of Malaysia, more variations of results could be gained through a wider coverage of respondents. A comparison of the same study between service organizations and manufacturing companies could give another valuable contribution. Meanwhile, the self-reporting bias perhaps can be reduced with multiple responses from different individuals and management levels. Also, more variations of results could be gained by including more TQM practices.

7. Conclusion

Many companies have invested a lot of money in getting the ISO certification. The general perception is that ISO certified companies have higher quality practices. From the findings of this study it can be concluded that ISO certified organizations only differed on the extent of training and education whereas for the other TQM practices there were no significant differences. The non ISO certified firms also had the same level of practices. So the

question would be is it necessary to spend a big chunk of investment to get certification when there are no tangible differences.

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Table 1. Various types of TQM practices proposed

Author (Year)	Number of Practices Used	Practices
Saraph, Benson, and Schroeder (1989)	Eight (8) Critical success factors (CSFs) for TQM implementation	Top management leadership, role of the quality department, training, product design, supplier quality management, process management, quality data reporting, and employee relations.
Ahire, Golhar, and Walker (1996)	Twelve (12) implementation constructs of TQM	Top management commitment, employee training, design quality management, supplier quality management, internal quality information usage, employee involvement, employee empowerment, customer focus, benchmarking, and SPC usage.
Black and Porter (1996)	Ten (10) major TQM practices	People and customer management, supplier partnerships, communication of improvement information, customer satisfaction orientation, external interface management, teamwork structures for improvement, operational quality planning, quality improvement measurement systems, and corporate quality culture.
Yusoff and Aspinwall (1999)	Ten (10) TQM factors	Management leadership, continuous improvement systems, education and training, supplier quality management, systems and processes, measurement and feedback, human resources management, improvement tools and techniques, resources, and work environment and culture.
Brah et al. (2000)	Eleven (11) constructs of TQM implementation	Top management support, customer focus, employee involvement, employee training, employee empowerment, supplier quality management, process improvement, service design, quality improvement rewards, benchmarking, and cleanliness and organization.
Agus and Abdullah (2000)	Eight (8) TQM factors	Top management commitment, customer focus, supplier relationships, training, employee focus, quality process, measurement, and zero defect.
Agus, Krishnan, and Syed (2000)	Five (5) TQM factors	Top management commitment, supplier relationship, training, employee focus, and customer focus.
Antony et al. (2002)	Eleven (11) TQM practices	Management commitment, role of the quality department, training and education, employee involvement, continuous improvement, supplier partnership, product/service design, quality policies, quality data and reporting, communication to improve quality, and customer satisfaction orientation.
Sureshchandar et al., (2002)	Twelve (12) major practices	Top management commitment and visionary leadership, human resource management, technical system, information and analysis system, benchmarking, continuous improvement, customer focus, employee satisfaction, union intervention, social responsibility, servicescapes, and service

		culture.
Temtime and Solomon (2002)	Eight (8) critical TQM factors	Managerial leadership and commitment, customer satisfaction, continuous improvement, employee empowerment and involvement, supplier partnership, quality culture and philosophy, resources and working environment, and measurement and feedback.
Ooi, Arumugam, and Teo (2005)	Nine (9) TQM practices	Top management, education and training, employee participation, customer focus, organizational culture, teamwork, job involvement, career satisfaction, commitment.

Table 2. Factor loading of the seven TQM factors

Items	F1	F2	F3	F4	F5	F6	F7
MSC 1	0.827						
MSC 2	0.842						
MSC 3	0.834						
MSC 4	0.757						
MSC 5	0.783						
EI 1		0.851					
EI 2		0.707					
EI 3		0.818					
EI 4		0.822					
EE 1			0.721				
EE 2			0.697				
EE 3			0.743				
EE 4			0.793				
IC 1				0.700			
IC 2				0.823			
IC 3				0.868			
IC 4				0.779			
TE 1					0.790		
TE 2					0.823		
TE 3					0.842		
TE 4					0.846		
TE 5					0.898		
TE 6					0.818		
CF 1						0.685	
CF 2						0.899	
CF 3						0.829	
CF 4						0.892	
CF 5						0.787	

CI 1							0.886
CI 2							0.892
CI 3							0.851
CI 4							0.911
CI 5							0.894

Notes: Where F1 = Management Support and Commitment; F2 = Employee Involvement; F3 = Employee Empowerment; F4 = Information and Communication; F5 = Training and Education; F6 = Customer Focus; F7 = Continuous Improvement

Table 3. Means, standard deviations, reliability and correlations for the main variables (n = 66)

	Mean	SD	Reliability	1	2	3	4	5	6
Management Support and Commitment	3.721	0.840	0.868						
Employee Involvement	3.380	0.766	0.812	0.620*					
Employee Empowerment	3.525	0.649	0.723	0.346*	0.471*				
Information and Communication	3.682	0.759	0.803	0.664*	0.702*	0.517*			
Training and Education	3.452	0.826	0.914	0.709*	0.618*	0.459*	0.656*		
Customer Focus	3.703	0.778	0.877	0.757*	0.559*	0.399*	0.752*	0.644*	
Continuous Improvement	3.887	0.870	0.932	0.707*	0.505*	0.384*	0.682*	0.672*	0.781*

Note: ** Correlation significant at 0.01, * Correlation significant at 0.05

Table 4. Organization Profile

Type	Category	Frequency	Percentage (%)
Nature of Service	Others	36	54.5
	Higher learning organizations	10	15.2
	Consulting service companies	9	13.6
	Financing companies	5	7.6
	Banking industry	3	4.5
	Insurance companies	3	4.5
Type	Private Sector	43	65.2
	Public Sector	23	34.8
Size	Small	59	89.4
	Medium	7	10.6
ISO 9000 certification	No	40	60.6
	Yes	6	39.4

Table 5. t-test Results

Variable	ISO Certification		t-value
	Certified	Not Certified	
Management Support and Commitment	3.92	3.59	1.593
Employee Involvement	3.53	3.28	1.279
Employee Empowerment	3.64	3.45	1.172
Information and Communication	3.68	3.68	0.007
Training and Education	3.76	3.25	2.766**
Customer Focus	3.68	3.72	-0.218
Continuous Improvement	3.98	3.80	0.828

** $p < 0.01$, * $p < 0.05$

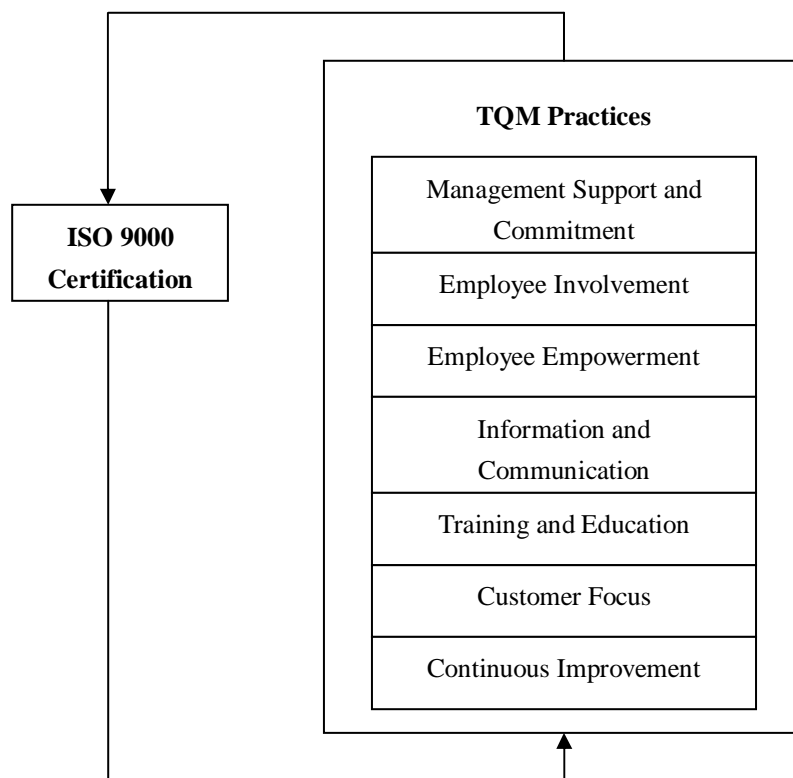


Figure 1. Research Framework

An Analysis on Chinese Hotel Enterprises' Outsourcing Strategic Modes and Corresponding Development Conception

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Abstract

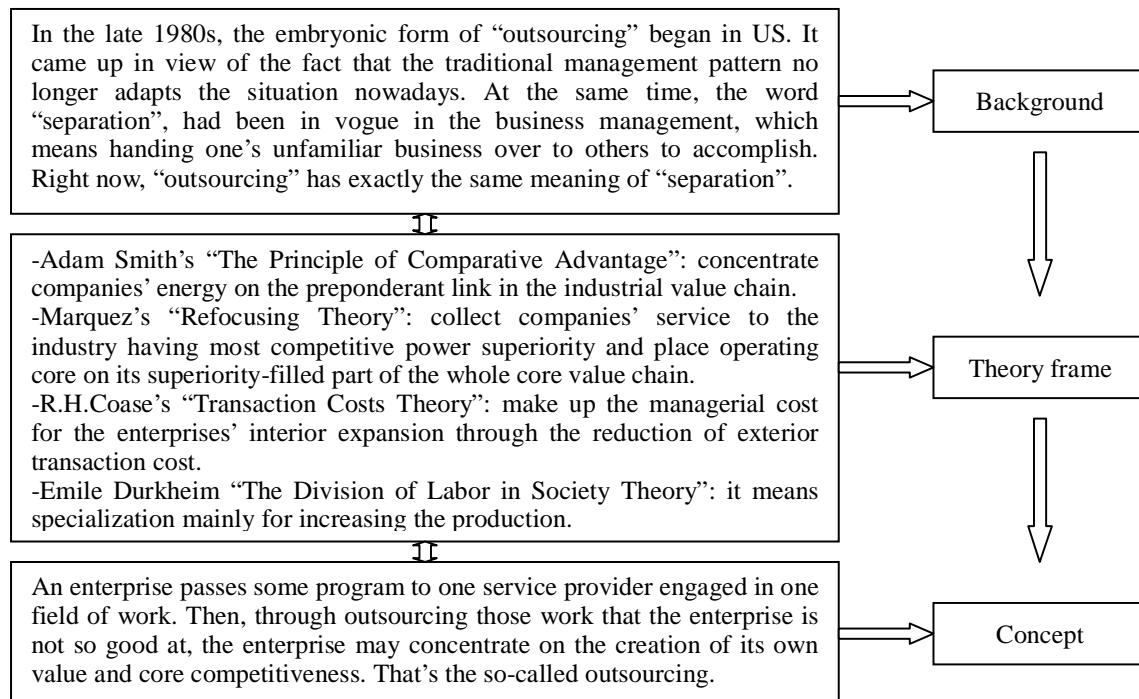
The present outsourcing management mode of travel hotels has caused attention of the global hotel industry. Though the application of outsourcing modes, we can renew and combine hotels' structure, making hotels centralize their market superiority and enterprise core competitiveness. This thesis mainly discusses Chinese hotel enterprises' outsourcing strategic modes and corresponding development conception. Firstly, it analyzes the outsourcing strategy concept and the theory frame; secondly, it expounds hotels' several outsourcing strategic modes; thirdly, it summarizes the effect and significance of Chinese hotel outsourcing strategic modes. Simultaneously, it also proposes the outsourcing strategic modes' management and the safeguard countermeasures, and makes the macroscopic summary and the forecast to Chinese hotels' outsourcing strategy development in future.

Keywords: Travel hotel, Outsourcing strategy, Strategic management, Development conception

Introduction

The refinement of science and technology, the adjustment of industrial internal structures and the dissimilation of consumers' demands, have made numerous hotels difficult to have absolute competitive advantage in the product market already. The transformation of competitive formation causes the hotel enterprises to carefully re-examine the increment superiority on the entire product value chain, to establish enterprises' core business scope, and to optimize inner organizational circuit, in order to concentrate the enterprises' core energy in this domain and enhance their core competitiveness.

1. The outsourcing strategic concept and the theory frame (Figure 1)



2. The analysis on Chinese travel hotels' outsourcing strategic modes

2.1 The outsourcing mode of hotels' finance

The financial outsourcing involves the salary account management, the receivable and payable accounts, the cash and the basic data disposal of the bank deposit as well as the budgets, the audit management and the tax payment

declaration. This kind of outsourcing is very suitable to the enterprises' whose financial disbursement is to be much and service turns out to be complicated. The characteristic of complication for the hotels' financial management manifests in the following several aspects: first, in order to meet visitors' various needs well, travel hotels are additionally building up the new service items unceasingly, which causes the type and quantity of the property to increase continuously. Actually, travel hotels' many fixed assets are used as the servicing facility by the visitors, and the different kinds of property's renewal transformation time and the service maintenance method are various, which thus enables the hotels to have certain complexity in the fixed asset management aspect. Second, travel hotels' financial work has the extremely strong comprehensive nature. For the operators who lack in the financial managerial knowledge or the enterprises that are hard to take financial management into consideration during operation, the financial outsourcing may control the cost expense effectively for the hotel enterprises to raise the financial managerial level.

2.2 The outsourcing mode of hotels' partial service

Kitchen work in the dining part, the energy management work (clothes-washing, cleaning up guest room, project repair)—we can put them out to one or several contractors who advertise for service personnel and organize them, arrange service work, and are responsible for the service management. Meanwhile, the contractors determine the total amount of service according to the work content, the work load and other projects agreed by both sides. These work steps are all provided and assigned by contractors. Reservation and onstage outsourcing mode—call center and association center, particularly global call center. Hilton Hotels of many countries outsource their local call center and the reservation service to the local companies. Sales and marketing outsourcing mode—customer relation management, such as loyal-award-scheme management outsourcing, online investigation of membership promotion. Hyatt Regency hotels in North America outsource the global technology service's supervisory work to a transnational technical company.

2.3 The outsourcing mode of hotels' human resource management

The human in-sourcing and the outsourcing are two mutual connected aspects. Their relative importance is not only decided by the enterprise's own development scale and human resource management level, but also depends on maturity of the human resource specialization market. The interactive mechanism of human resource's in-sourcing and outsourcing is as follows:

2.3.1 Outsourcing impetus mechanism

Now some hotel enterprises' attempts to hand the human resource management's partial contents over to the exterior specialized employer organization, which pay more attention to the essential service that promotes its core competitiveness. Investigating the reasons: (1) The social division of labor has accelerated the advancement of the human resource work's socialized division. Human resource management service has already become a knowledge product of demand-based transaction when enterprises hand the non-core and duplicated human resource management work over to the market and may obtain the high quality service. (2) For enterprises' own needs of strategic development, they concentrate the limited resources to carry on enterprises' innovation-ability construction, which promotes their core competitiveness constantly. The traditional managerial content of human resource management is so complex that every function must have the special personnel to be responsible for it, such as payment-welfare manager, training manager, personnel manager, personnel dossier manager, achievement assessment panel and so on. The human resource department needs to spend the high cost to be engaged in this redundant and tedious work. Moreover, there're also many uncertain risks. The human resource outsourcing was right catering to the enterprises' needs to reduce the cost and circumvent the risk, providing an innovation platform for enterprises' reorganization and merger.

2.3.2 In-sourcing-outsourcing interaction mechanism

The endogenous variable of in-sourcing-outsourcing relation changes is enterprises' development strategy while external variable is the appearance of specialized organizations, and both are assumed as supplementary: (1) The hotel enterprises will meet a series of difficult problems concerning their own development in the period of expansion, for example, obsolete system, ill management, unclear prospect, less talented personnel, narrow market, laid-off workers, overstocked products, tight money, impeded information and so on. By now, the problem we should face is to "seek the survival" whose development strategy will generally be fortifying at every step, fighting steadily, and paying great attention to carrying out human resource management comprehensively in the enterprises. The in-sourcing duty of the human resource is arduous and attends to every detail while the outsourcing is only taken as the supplementary means of the human resource management. (2) When enterprises' development enters the mature period, what they're faced with is to "seek the development", such problems as raising the productivity, reducing enterprises' cost, promoting core competitiveness, enterprise innovation begin to be proposed on the

agenda. At the same time, the content of the human resource outsourcing will be enriched gradually, and it will undertake the important function of the human resource management.

2.3.3 Outsourcing control mechanism

There're two viewpoints: (1) Core supervisory work and marginal supervisory work: the marginal work including those low-level and redundant work can be outsourced, such as advertisement for staff, the wages and welfare, training, the achievement examination, the labor relations, and so on. On the other hand, the core human resource management work relating to the enterprises' development strategy must be completed by the internal personnel, such as human resource planning, salary management, enterprise culture and so on; (2) The core competitiveness is also relative and enterprises may also outsource the core business, for others will possibly do better on your core business. So it seems that the enterprises' operation circuit of human resource management may be outsourced. But we also should notice that "the managerial power cannot be outsourced": this management includes objective management to service providers, the quality surveillance of the service providers' products, and appraisal of providers' service process. If the enterprises lose the managerial power and form high dependence on the specialized organization, the management will be hollow, increasing enterprises' movement risk enormously.

3. The effect and significance of Chinese travel hotels' outsourcing strategic modes

3.1 Save the cost and optimize the capital structure

Hotels outsourced certain service to specialized management companies, which enables hotels to enjoy the service provided by management companies. After handing the service full of manpower, material resources and financial resource over to specialized management companies, hotels themselves may save a lot of cost, on one hand; on the other hand, with the frugal cost out of the outsourcing service, the enterprises may all invest into the core business, developing the core competitiveness with all their strength. In addition, the implementation of outsourcing service will reduce the sunk cost brought about by property's special purpose, which makes the hotel industry's withdrawal barrier and the conversion cost reduce greatly and thus optimizes the hotels' capital structure. Meanwhile, capital structure's optimization also causes the fixed cost proportion of the unit product to drop, and it will enhance the compatibility and flexibility of the entire hotel greatly.

3.2 Connect with other countries and study advanced managerial ideas

In the past, outsourcing was regarded as one kind of enterprises' inferiority while outsourcing could be considered as the key of enterprises' operation in the present. The outsourcing contractors of the hotel service mostly belong to the international specialized management company. Through contacting with the management companies, hotels may learn massive international managerial experience. When it comes to the overall opening of hotel market, all sorts of challenges brought about by WTO can be dealt with calmly with acceptance of international managerial experience.

3.3 Promote the hotels' specialization and promote the service grade

With the help of financial outsourcing, partial service outsourcing and human resource outsourcing, the original staff then should place emphasis on the hotel's strategic target, making the hotel's core prominent and the hotel itself specialized. Simultaneously, in order to satisfy the demands of hotel's outsourcing, many related service industries also grow strong, like rear service company, public accounting firms and so on. Besides, for the outsourcing service's undertakers are often some quite large-scale service companies, their specialized degree as well as the level of expertise are often the symbol and guarantee of efficiency and quality, which helps hotels to promote its overall service grade and service scale and to satisfy various demands out of guests' day-by-day personalization.

3.4 Dodge the operational risk and activate the competitive potential

Regardless of being in the hotel's internal environment or the external environment, there're always the uncertainty and complexity of varied degree which are in the dynamic change. In addition, the sluggishness of operators' cognitive ability as well as processing methods' limitation often cause the hotel to withstand every type of operational risks in the management process, for example, supply risk, production risk, marketing risk, technological risk, financial risk, property risk, investment risk and so on. Through the outsourcing service, however, the hotel may form the partner relations with the exterior service company, working at all risks together. For the hotel, it can strength its own flexibility greatly and adapt the hotel environment's anomalous change, activating the competitive potential itself.

4. The management and safeguard countermeasure of Chinese travel hotels' outsourcing strategic modes

4.1 The realistic barrier

4.1.1 The quality's out-of-control risk

Once the hotel enterprise hands the partial service management over to the exterior service provider, the enterprise's

authorities are unable to proceed the positive governing of outsourcing content or to obtain the direct report from the outsourcing service personnel. Moreover, the limits of bilateral rights and obligations are not so clear that the out-of-control risk is obvious. For instance, the service grade, efficiency provision, and nimble grasp of service demands' change are in possession of the possibility of the risk existence.

4.1.2 The hidden cost risk

It consists of the transaction cost while choosing the outsourcing service provider and the conversion cost while giving hotel's service to providers. What is more serious, if the outsourcing service provider doesn't enable the outsourcing service's quality level to the reasonable level, as entrusting party, the hotel will suffer heavy loss for business stagnation or mistakes.

4.1.3 The information asymmetrical risk

The contractual relationship in outsourcing is frail from time to time because in aspect of service grade, partner relation and benefit problems may turn up momentarily, but these problems are unable to be circumvented or completed before signing the contract. Seeing that the information is asymmetrical, compared to the enterprise itself, the service provider understands more about the enterprise's credit, the real technical strength, the personnel condition and may supply non-full or non-real information to the hotel, which leads to choosing an unsuitable service provider by mistake.

4.1.4 The gradual risk

- (1) Appraisal stage in the organization: the hotel authority's risks for misunderstanding of outsourcing motive and uncertainty risk of outsourcing goal and scope;
- (2) Choosing stage of outsourcing service provider: risks of improper standard and less experience for choosing contractors;
- (3) Stage of contract's discussion and formulation: risks brought about by unclear service range and time limits;
- (4) Stage of outsourcing management: the outsourcing service provider's non-fulfillment of contract, the complexity of management and the worsening relationship with outsourcing service providers are included as risks.

4.2 The management and safeguard countermeasure

4.2.1 Construct the brand-new managerial idea and manage hotels' outsourcing dynamically

Faced with the economic globalization, the gradual fine social division of labor, intensive competition, various demands of consumers as well as rapid development and widespread application of information and technology, Chinese hotel industry must transform their ideas positively and make best use of marketing to raise enterprises' operating efficiency with the exterior resources; hotels should transfer their dependence on single strength for participating in competition to dependence on the conformity superiority of entire supply chain, and strive to cooperate with the dynamic outsourcing organization, guaranteeing that the enterprise has the long-enduring competitive advantage. In addition, the hotel must keep the dynamic management to the outsourcing process while the following supervisory work is so important. Outsourcing not only means the cost saving, but also makes it clear that the enterprise should provide better and higher-quality service than before. In order to achieve the initial goal of outsourcing, the hotel must pay more emphasis on cooperation and exchange with contractors, during which the supplier would understand better concerning the enterprise's demands and two parties could create the condition for the proliferation of experience and knowledge, improving the service grade from the long-term angle.

4.2.2 Recognize the outsourcing service needed and elect the contractors cautiously

The outsourcing service needed could be possibly divided into the following types:

- (1) those of which contained core technology is not the hotel's strong point and interrelatedness with the hotel's core competency is quite low;
- (2) those of which exterior supplier has the obvious comparative superiority in resources, technologies, scale, demand reaction rate;
- (3) those occupy more resources of hotels, and of which investment-return rate is quite low. Besides, regarding the outsourcing service has the latent risk for hotels, thus establishing a special evaluation group that unifies every divisional management personnel's opinions to verify it when choosing contractors. Suppliers' cooperation wish, trust degree and synthesis strength are the most important factors, but the hotel enterprises must also pay attention to the differences of organizational culture and monitoring flexibility to suppliers' achievements.

4.2.3 Rely on outsourcing service steps and strength the process management

- (1) Make clear the hotels' outsourcing condition: the related internal and external conditions should be provided

with if the hotel implements the outsourcing service. There're approximately two external conditions: the outsourcing service must have the suitable degree's standardization, which is right the standard of outsourcing service quality; widespread application of information technology is the safeguard of information symmetry, sharing, transaction cost saving. The internal condition mainly refers to the hotel's whole staff's idea forms, as well as the necessity and feasibility of operation circuit reorganization and organizational reconstruction.

(2) Define the hotels' outsourcing demands: there're many factors affecting the hotel's outsourcing service demand, out of which four factors are especially of most importance, namely hotel scale (middle and small scale), grade (economical), business agency's status (secondary), and manpower cost accounting (high) as well.

(3) Formulate the hotels' outsourcing strategy: in the process of formulating strategies, the hotel must be clear about whether the outsourcing service is helpful to the realization of the operating objectives; determine the needed outsourcing service domain through the investment forecast and the cost accounting; in order to choose the suitable service company, the hotel must understand truly its own demand and have enough ability to solve its problems; the hotel also should handle with such issues as solution appraisal, company's whole appraisal, information system appraisal, commercial provision appraisal and financial situation appraisal.

(4) Guarantee the hotels' outsourcing implementation: in this stage, the hotel must maintain the momentary monitoring and appraisal of outsourcing service, and prompt communication and exchange with service providers are necessary as well. At the same time, for the outsourcing service will involve some staff's benefit inevitably, more communication with the hotel's internal staff in initial period of outsourcing implementation turns out to be very important, which helps them to adapt to this new operating way.

4.2.4 Perfect the outsourcing contract and clarify both-sides' responsibilities, rights and benefits

(1) The contract should make clear the service boundary and the outsourcing agreement, and point out the range of service explicitly so that the outsourcing service provider can be clear about its own responsibility. Simultaneously, the outsourcing contract, especially the long-term outsourcing contract, should have the full elasticity, dealing with the possible changes in the aspects of service and strategic goals.

(2) The contract should make clear the reasonable service level and the quality explanation.

(3) The contract should make clear the compensation liability and the conflict-solving procedure, and the service contract should include the provision of punishing the service provider for not supplying the service of the agreed rank. Meanwhile, in order to solve the conflict quickly and proceed to supply service when conflict appears, the contract should also contain the procedure of solving bilateral conflict.

(4) The contract should also make clear the right of contract's termination. When the outsourcing service can't attain the designated standard for many times, the hotel is authorized to propose the termination of contract.

5. Conclusion

In the present, the outsourcing service, along with the deep development of Chinese hotel industry and the professional service industry, is popularized gradually. In the future several years, the auxiliary work that is lacking in developing vigor or non-profit may all be outsourced to the specialized companies. For the outsourcing modes will certainly become the development trend of the international hotel industry, the Chinese hotel enterprises should renew the managerial ideas, innovate outsourcing modes to strengthen hotels' core competitiveness, thus enhancing Chinese travel hotels' international synthesis competitive power and making the very good beginning for further unfolding the transnational market.

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A Study on Relationship between Shares-proportion of Institutional Investors and Corporation Performance Based on the Dates of the Chinese listed Company

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Abstract

We have a study on relationship between shares-proportion of institutional investors and corporation performance during 2001 to 2005 in China. According to the positive analysis, we found the institutional investors have ability to choose the corporation which performance of them are markedly higher than which are not chosen by them. Moreover, from year of 2003, the more shares-proportion, the more corporation performance and the more restrict level to big shareholder, the more corporation performance are. Furthermore, the performance after the institutional investors investing exceeds the performance. So the institutional investors in China have value-creator characteristic. Development of the institutional investors to establish competition shareholder share structure and institutional investor union action then are advised.

Keywords: Institutional Investors, Corporation Performance, Corporate Governance

1. Introduction

Institutional investors generally have a huge amount of capital, and have a strong ability to collect and analyze the information on the securities, and can carry out the diversification of investment. They absorbed a lot of money from the investors, insurance families and savers, and then put a part of money on the securities market to invest. Institutional investors we talk about mainly include: all types of investment funds, social security funds, insurance funds, securities companies and QFII (Qualified Foreign Institutional Investors).

Institutional investors on western capital markets started early and developed maturely. After the 1980s, the majorities of institutional investors actively participate in corporate governance through electing the agents, participate in the struggle for the agent right. Institutional investors on the United States hold 53.3% shares of the total stock market until 1990, and in 2003 Institutional investors already hold more than 2/3 of the shares in all the major American companies.

Compared to the institutional investors in foreign country, Chinese institutional investors started relatively lately. The Stock Exchange of Shenzhen allows institutional investors to go into the market in 1991, and the Stock Exchange of Shanghai in 1993. Before the implementation of "Securities Act" in 1999, institutional investors in China mainly include securities companies, trust and investment companies, banks and a few of state-owned enterprises. The operation of all kinds of the fund is in the disorder. Then the governors cultivated institutional investors. On November 5th in 2002, the China Securities Regulatory Commission and the People's Bank of China issued "The Procedures of Qualified Foreign Institutional Investors Investment Management in China" together. It allowed the foreign institutional investors coming to China. At present, Chinese institutional investors formed diversified pattern including securities investment funds, social security funds, insurance companies, corporate annuity and qualified foreign institutional investors. In 2001 the market value of the holdings of institutional investors in Shanghai account for 11.4% of the total market value. It increases to 44% in the December of 2005. Institutional investors gradually replace the retails and become a dominant force of the market.

2. Previous Research

Since the 1980s, institutional investors' shareholders in the Western countries have begun to emerge especially in the US and UK markets, they begun to participate in corporate governance as the representative of the interests of shareholders. The main focuses on research of the institutional investors are as following aspects:

2.1 The Research on the Choice of the Target Company

Stulz (1998) and Shivdasani (1993) believed that the relationship between the internal level of shareholding and the possibility of being acquired was negative correlation, because an internal high level of shareholdings would reduce the likelihood of success of the acquisition. Michael P. Smith (1996) studied the situation that the largest

institutional investors give the proposal to the company, and found that it had a reverse correlation relationship between the price of the stock and the possibility of being the target company, and had a positive correlation relationship between the size of enterprises, the amount of shareholding of institution investors and the possibility of being the target company. While He found the internal ownership, the ratio of market capitalization and value are not the significant factors affecting the institutional investors to choose the goal company.

2.2 The Research on the Affection about Institutional Investors Taking Part in Corporate Governance

It is still in the theoretical debate stage for institutional investors taking part in corporate governance. The focus is primarily that the goal of institutional investors participating in corporate governance is a long-term holding or short-term interests, and whether they improve corporate performance through participation in corporate governance.

2.2.1 One view is that institutional investors had a positive effect to corporate governance.

Kaplan (1994) found that the existence of the institutional investors as major shareholders would facilitate companies to replace the incompetent managers. Walhal (2000) analyzed the property, manufactory and equipment (PP&E), research and development (R&D) costs of 2500 American companies from 1988 to 1994, and didn't find the evidence of institutional investors leading managers to conduct short-sighted performance. Moreover they found it was the positive correlation relationship between the costs on PP&E and R&D and the amount of the shares owned by the institutional investors. McConnell (1994) found the value of Tobin Q and shares owned by the institutional investors have a positive correlation relationship. Chaganti (1995) measured the company performance by the return rate of assets, and had a conclusion that the scale of the shareholdings owned by the institutional investors and company's performance had a obvious correlation relationship. Michael P. Smith (1996) analyzed 51 companies which had huge achievement on changing governance structure by CalPERS's activism, and gradually led to the increase of shareholder's wealth. Guercio and Hawkins (1999) found that the performance of the target company grew by 50% in the subsequent years since participating in the governance. Institutional investors had more ability to intervene in corporate governance, supervised the business activities of company. Gillan & Starks, (2001), and studied the positive role of activism by the 2042 company's proposal from 1987 to 1994, found that institutional investors had obvious effect to the outcome of voting as the same as the assumption.

2.2.2 Another view thought that the institutional investors had a negative effect to corporate governance.

Lipoton (1991) thought that the institutional investors did not have the skills and experience about managing the company, and didn't improve the decision-making of enterprises. Murphy (1994) thought that the objectives were inconsistent between the institutional investors and the maximizing the value of enterprises, and had short-sighted problems. Their goal often included the social or political factors. In the 1980s, the excellent CEO and influential scholars all claimed that the stock market in United States forced the manager of the company make short-sighted decisions (Monks, 1988; Jacobs, 1991; porter, 1992). American commentators said the two economic characteristics of American may be responsible for the behavior: Active or very active companies controlled the popularity of the market and the concentration of stock which the institutional investors hold in short-term, and make the managers to reduce the object investment about long-term investment returns. Elkins (1990), Daily (1995) pointed out that the institutional investors holding share only, or only taking part in governance didn't have any meaning to corporate performance, the number of the published annual shareholder proposals had no correlation relationship with company performance. Brands and Kim (1994) and Bamer and Cheon (1995) believed that institutional investors had better information-processing capabilities compared to individual investors, but they might not develop its supervision's function, because of the different of its investment objectives and incentives. Given these incentives, Pound (1998) gave efficiency supervision hypothesis, interest conflict hypothesis and the strategy cooperation hypothesis, so the relationship between institutional investors and the efficiency of the company did not exist an inevitable link. Holderness (2001) found that it had not significant correlation relationship between the concentration of institutional investors holding and the operating performance of business. Keyes's (1997) study showed that institutional investors had not obvious impact on the performance of corporation.

2.3 The Study of the Relationship between Institutional Investors and the capacity of supervision.

Maug (1998) believed that the market's flow could reduce the cost of the bulk transaction, thereby it facilitated investors to exercise the right of supervision and control through accumulating a large share. Shleifer and Vishny (1986) showed that the existence of institutional investors would help to alleviate the "free-rider" problem caused by shareholding decentralization, and might strengthen internal supervision mechanism to a certain extent. Chidanbaran & John (1997) thought that institutional investors as a major shareholder could get more internal information from the managers. It slowed the problem about asymmetric information in a certain extent on the capital market, strengthened the supervision to enterprises. Holmstrom & Tirole (1993) believed that the growth of institutional investors would reduce the flow of investment increasing the transaction costs of selling the stock.

2.4 The Research on Chinese Institutional Investors.

The government has been vigorously developing institutional investors since 1998 in China. The institutional investors gradually replaced individual investors, and become a dominant force of the market.

2.4.1 Introducing the course of development and current conditions about foreign institutional investors.

Such literature analyzed the course of development and the status about institutional investors, and the function as the role of corporate governance in the United States and other foreign countries. These researches gave some proposal to the domestic institutional investors. They showed that the basis of institutional investors rapidly developing is the legal regulatory, the framework of the organization, the scale's advantages and the mode of operation. Institutional investors in china to participate in corporate governance were necessity and feasibility. They should cultivate the diversification of investors, and improve the relevant legal system (Xu Yunkai, 2002). Zhong Ji yin (2000) carried out the analysis that why and how the institutional investors in the United States were actively involved in corporate governance, and pointed out the unreasonable ownership structure in Chinese securities market (price-earnings ratio much higher than other countries) hampered the development of the company's control right and the development of institutional investors. They should draw successful experiences of the United States, and adopt the investment strategy oriented by corporate governance.

2.4.2 The development of institutional investors would help to form the competition ownership's structure, and improve enterprise performance.

Wang Bin, Yuan Lin (2002) proposed to introduce diverse shareholders, establish a competitive stock mechanism, let institutional investors fill the seats, in lieu of state-owned shares and turn it into a balancing, constraint, incentive and high efficiency shareholding structure. Wang Qibo (2005) demonstrated the institutional investors in listed companies taking part in corporate governance would help to reduce the control of private shareholders, reduce invading the benefit of small shareholders, and improve enterprise performance. A major shareholder taking part in the competition of the control right would cause two functions. On the one hand, institutional investor shareholders would have a positive effect on enterprise's performance through supervising managers' activities. On the other hand, after institutional investors as shareholders accessed the control right, they would use its influence on enterprises.

2.4.3 The authors analyzed the conditions and the effecting factors of institutional investors to participate in corporate governance by the model.

Hao Yun hong(2005) showed that only when the institutional investors investment and the expected return of actively participation in corporate governance were greater and greater, institutional investors would be more motivated to choose on investment and actively participate in corporate governance, and improve the management through the analysis of the cost-benefit' compare model. Jiang Xiang Cai (2004) selected 246 listed electronics industry as the study object, got a conclusion that there was a significantly correlation relationship between the proportion of institutional investors holding share and the proportion of the board of directors holding share, and with information disclosure had not significantly correlation, but with the financial transparency had a significant positive correlation, so he proposed to strengthen the transparency of information.

2.4.4 The study on institutional investors 'sheep effect'.

Song Jun, Wu Chong Feng studied the fund from the October in 1998 to the September in 2000, totally eight quarters, and Shi Dong Hui studied the fund in group from the first-quarter of 1999 to the third-quarter of 2000, they found that the fund exist typical sheep's effect.

We can find through the analysis of the literature the current domestic scholars all regard the fund as the study object of the empirical studies about the relationship between the proportion of institutional investors and listed companies' performance. The scope of the study is small. In addition, as to institutional investors advancing company's performance through forming the balancing shareholding stock structure, the theoretical circle only analyzed in the theoretical model, didn't write any article on this issue to give special empirical research. This paper will study the relation between institutional investor shareholding and company's performance by some, empirical research.

3. The Empirical Analysis of the Relationship between Institutional Investors Holding and Company's Performance

3.1 Sample and data.

We select the sectional data from 2001 to 2005, analyze the relationship between the shareholding of institutional investors and company's performance through empirical studies. According to the annual financial report from 2001 to 2005, we selected the listed companies which their top 10 shareholders have the institutions holding and the listed companies which their top 10 shareholders don't have the institutions holding as the sample in Shanghai and

Shenzhen stock exchanges. We selected all samples that suit all the conditions, and don't remove samples of companies in bad performance (such as ST and PT companies). We think that these companies also reflect the investment orientation of institutional investor, they can make people have a more comprehensive inspection to the effect degree of institution holding.

In order to ensure the validity of data, and eliminate the impact of samples of abnormal, we remove the following data: a. financial companies. This is the international experience of the research on shareholder structure. Its financial management has special character. b. Removing the listed companies which don't have complete data.

We select with the software, such as Excel, Access, and get the 3892 sample data about institution holding, and the 2178 sample data about no institution holding. The data used in this paper derive from CSMAR database, the website of the China Securities Regulatory Commission (www.csrc.gov.cn), and the website of the China Insurance Regulatory Commission (www.circ.gov.cn).

3.2 Variable Definitions.

The variables of this study mainly include performance variables, the related variables of institutional holdings. Furthermore, in order to control the impact of the performance, this paper also selects assets and liabilities rate and company scale as the control variable.

3.2.1 Company Performance Variables.

When we evaluate the indicators about the profits lever of listed companies, the most common index is net rate of asset earning (ROE) and earnings per share (EPS).

Net rate of asset earning (ROE) is a very comprehensive and the most representative financial indicator, and it is still the comprehensive of the scale of business sales, cost control, capital operation, can reflect the final results of the company's business activities and the profitability of shareholder investment, and it maximizes to pursuit the value of company.

Earnings per share (EPS) seldom is refrained by the industry and scale, it is the most intuitive indicator which can reflect company's profitable ability, and is the basis of the dividends shareholders receive, it is the indicator which investors highly concern and has a significant impact on investment decisions.

3.2.2 Institutions Holding Variables.

As to the measure of institutions holding's numbers, we used the proportion of institutional investors owning share (INS) and institutional holdings of balances (INZ).

The proportion of institutional investors holding was definite as the proportion of the share owned by the largest institutional investor in the target company. It is the indicator that can reflect the possibility of institutions taking part in corporate governance. The proportion of institutional investors holding is higher, the possibility is larger, and the possibility of sharing corporate earnings is higher, so the driving force taking part in corporate governance is higher.

The purpose of this paper is that study the effect that institutional investors holding on company's performance, the effect of institutional investors holding and the majority shareholder in the checks and balances on the company's performance, so we select the ratio about proportion of the largest institution shareholding comparing to proportion of the largest shareholder (INZ). The larger the variable is, the higher the balances degree is, and the result is near to one. It shows that the right of institutional investors is close to the power of control of the first large shareholders. In such circumstances, enterprises are controlled by some controlling shareholder including institutional investors. When the degree is closer to zero, the controlling degree of the first major shareholders is stronger; the degree of balanced by institutional investors is lower.

3.2.3 Internal Control Variables.

To control the effect that the other characteristics of the company arise, we selected the rate of assets and liabilities (HF), company size (SIZE) as a control variable, and the rate of assets and liabilities reflects the company's financial condition, the company's scale also have some impact on corporate performance. These variables affect the company's performance will be controlled, and we can observe that how institution holding affect to corporate performance.

3.3 The Establishment of Assumptions.

Institutional investors, particularly large institutional investors, their investment philosophy firstly is "Value Discovery" because of large scale and high-flow requirements. They carry out a deep level of analysis with their professional background and sophisticated financial analysis tools, and they choose the companies having the invest value to invest. They pay attention to the risk at the time they investing in order to achieve higher returns. From the whole situation, when choosing investment targets institutional investors generally choose the company that has

good performance, stability, and a certain growth in future.

According to analysis above, the higher the proportion of institutional investors holding, the more power in corporate governance. When the percentage reached a certain extent, the returns participating in corporate governance surpass the cost of supervision, institutional investors actively want to involve in the supervision. So they can enhance company performance. After investment, it can have a positive on the governance of listed companies through some mechanisms, such as the right to vote, initiating shareholder proposal and private consultations. On the one hand, the performance of these companies is better than those no institutions holding, on the other hand, the company's performance can be improved.

Institutional investors actively involved in corporate control's competition, and help to restrain the major shareholders, which helps to reduce the control of shareholders private profit and reduce major shareholder expropriating small shareholder, change the phenomenon of 'one stock dominance' in China, actively participation in corporate governance. The fact that institutional investors of the United States and other developed countries take part in the governance of listed companies shows that institutional investors actively involved in the control of the listed company competition achieved certain outcome, improving the lever of listed corporate governance.

Based the analysis we mentioned, we propose the following five assumptions, and establish a regression model:

H1: The company performance of institutional holding in the T-1, T year is superior to those company no institutional holding in the T year.

H2: The proportion of institutional holding has positive relationship with the company's performance.

H3: The performance on the T +1 year is better than the performance before taking part in institutional shareholdings on the T-1 year.

H4: Check-balance shareholder structure has positive correlation with company performance.

We study by multiple regression methods using the above assumptions, the regression models are:

$$EPS/ROE = a_0 + \beta_1 INS + c_0 SIZE + c_1 HF + \varepsilon \dots\dots \text{Model 1}$$

$$EPS/ROE = a_0 + \beta_1 INZ + c_0 SIZE + c_1 HF + \varepsilon \dots\dots \text{Model 2}$$

The variable EPS in the equation represent earnings per share, ROE is return of total assets, SIZE and HF are behalf of the logarithm of the total assets and the assets and liabilities rate, INS represents the proportion of institutional investor shareholding, INZ represents the proportion of institutional shareholding to the proportion of the first major shareholders shareholding. Model 1 observes the relationship between the proportion of institutional investors shareholding and company's performance, and model 2 observes the relationship between balances of institutional investors holding and company's performance.

3.4 Statistics Results and Discussion

3.4.1 Integrity Description Statistics

Table 1. Integrity description statistics data

year	number	the proportion of institutional investor shareholding(%)			
		Max	Mix	Median	Mean
2001	720	70.970	0.01	0.950	2.438
2002	908	70.520	0.01	1.560	2.878
2003	744	70.970	0.03	1.735	3.292
2004	773	70.970	0.03	2.385	4.340
2005	745	59.940	0.001	2.980	4.811

From Table 1 we can find: Not considering the factors of industry, with the increasing scale of institutional investors, equity ratio of institutional investors in listed company increases year after year. According to median, the figure increased from 0.95% in 2001 to 2.98% in 2005. But the equity ratio of institutional investors is not balance; in 2005 the minimum of equity ratio was 0.001%, while the maximum reached 59.94%. It suggests that the equity ratio of institutional investors varies greatly. It also shows that institutional investors'force of governing the corporate is relatively weak and the phenomenon that the equity ratio of the largest shareholder is too high still exists, although some institutional investors in listed companies play more important role.

3.4.2 To Test Whether If the Performance Will Affect Institutional Investors to Choose the Target Companies

As same as assumptions 1, the performance of the companies which are chosen by institutional investors is superior to those which are not. We assume the time when institutional investors entered is T. The whole samples whose stocks were not hold by institutional investors before T-1, were divided into two groups. One group is the listed companies whose stocks are hold by institutional investors in T year and the other is not. We use the average value of independent samples to test whether earnings of per share of the two group exists significant difference.

Table 2. Data of the average value of earnings of per share

year	Variable	number of samples	average value	Std. err.	F value	T value	Lower	Upper
2001	X1	181	0.034	0.023	0.095 (0.758)	-2.610 ^{***} (0.009)	-0.158	-0.001
	X2	204	0.113	0.020				
2002	X1	201	-0.017	0.028	9.697 (0.002)	-5.316 ^{***} (0.000)	-0.287	-0.098
	X2	57	0.175	0.023				
2003	X1	368	0.020	0.020	0.910 (0.341)	-3.181 ^{***} (0.002)	-0.239	-0.025
	X2	105	0.151	0.029				
2004	X1	446	-0.047	0.022	4.629 (0.032)	-4.615 ^{***} (0.000)	-0.373	-0.105
	X2	89	0.192	0.032				

①* significant at the 10% level using a two-tailed test; ** Significant at the 5% level using a two-tailed test; *** significant at the 1% level using a two-tailed test.

②the data in the () is the value of P.

③X1 The listed companies whose stocks are not hold by institutional investors in T year

④X2 The listed companies whose stocks are hold by institutional investors in T year.

According to the test results, under the condition that listed companies have not been invested by institutional investors in the past, institutional investors choose the listed company which had significantly better performance than those which are not been chosen in the following year. From 2001 to 2004, the EPS of listed companies whose shares are hold by institutional investors the next year are higher 232.35%, 1129.41%, 655%, 508.51% than those not been chosen. And it is significant at the 1% level. This suggests H1 assumption is correct. That is to say institutional investors will choose investment companies whose performance is significantly better. It shows institutional investors have investment concept that they focus on the performance of the company. So we believe they are the discoverer of the value.

3.4.3 Corporate Performance

Table 3. Description statistics of proportion of institutional investors holding and corporate performance

year	0-20%		20%-50%		50%-100%	
	EPS	ROE	EPS	ROE	EPS	ROE
2001	0.0777	0.037	0.1686	0.063	0.1927	0.068
2002	0.0670	0.031	0.0362	0.037	0.1670	0.060
2003	0.0783	0.028	0.1459	0.064	0.2264	0.084
2004	0.0261	0.049	0.1804	0.060	0.2574	0.086
2005	0.0502	0.017	0.1314	0.016	0.2260	0.054

Table 4. Regression analysis on the proportion of institutional investors holding and EPS

	2001	2002	2003	2004	2005
The proportion of institutional investors holding	0.001	0.003	0.007***	0.008**	0.012***
Total assets	0.079***	0.084***	0.080***	0.104***	0.125***
Financial release lever	-0.476***	-0.330***	-0.339***	-0.422***	-0.728***
R^2	0.334	0.332	0.328	0.340	0.434
Adjusted R^2	0.107	0.107	0.103	0.112	0.185
F value	27.4	34.465	27.923	32.177	55.704
P value	0.000	0.000	0.000	0.000	0.000
The number of sample	720	908	744	773	745

* Significant at the 10% level using a two-tailed test; ** significant at the 5% level using a two-tailed test; *** significant at the 1% level using a two-tailed test.

The above tests have confirmed the H2 and H3 establishment. According to proportion of institutional investor holding shares, in table3, there are three sections:(0,20%),(20%-50%),(50%,100). We found EPS and ROE in the section 50%-100% are higher than in the section 20%-50% and 0-20%. It shows the higher the proportion of institutional investor holding is, the more performances are. This is consistent with the statistical result. In table4, from 2003, value of R^2 and adjusted R^2 of regression equation are higher year by year. The correlation coefficient also year by year enhances. The proportion of institutional investor holding are significant correlation with EPS at the 10%, 5%, 1% level. That indicates the higher proportion of institutional investor holding is benefit to the corporate performance.

3.4.4 The research on the check-balance of Stockholder's rights and corporate performance

Table 5. Regression analysis on the check-balance of Stockholder's rights and EPS

	2001	2002	2003	2004	2005
the check-balance	0.001	0.003*	0.007***	0.008**	0.012***
Total assets	0.079***	0.084***	0.080***	0.104***	0.125***
Financial release lever	-0.476***	-0.330***	-0.339***	-0.422***	-0.728***
R^2	0.334	0.332	0.328	0.340	0.434
Adjusted R^2	0.107	0.107	0.103	0.112	0.185
F value	27.4	34.465	27.923	32.177	55.704
P value	0.000	0.000	0.000	0.000	0.000
The number of sample	720	908	744	773	745

* Significant at the 10% level using a two-tailed test; ** Significant at the 5% level using a two-tailed test; *** significant at the 1% level using a two-tailed test.

The regression result of the check-balance of Stockholder's rights and EPS in table5 is significant at the 1% level. The value of R^2 is in the section of 0.1-0.2, and higher year by year. The result is as same as H4. That is to say, on the check-balance shareholder structure institutional investor take part in corporate governs positively, then the performance will be better.

4. Conclusion

4.1 Institutional investor is a value discoverer in China

Based on the data of 2001, we use average value of independent samples to test EPS and find that the performances

of listed companies which are invested by institutional investors are better than others. That is to say institutional investors will choose the target company according to a professional look and sophisticated financial analysis tools for investment analysis and they choose potential companies to enter. So we believe that Chinese institutional investors are "value discoverers."

4.2 Institutional investors also have feature of "value creator"

From 2003, the equity proportion of institutional investors and EPS significantly correlated. System of check-balance of institutional investors and performance of the company are significantly correlated. Our study indicates that after years of development, especially in the latest three years, institutional investors in our country, to a certain extent, improve the company's performance. This is similar with the current domestic Empirical Study. From 2001 to 2005, EPS of listed companies, with institutional investors in top 10 shareholders, was significantly higher than those with no institutional investors and their performance is significantly better than others. From 2003 to 2005, the performance of companies which get more growth in T+1 is better than that in T-1. It indicates that after the investment of institutional investors, it will produce positive impact on performance. The higher the proportion of institutional investors hold, the better the performance of the company is. Based on the above, we believe institutional investors are not only "Value Discoverers," but also "value creators", which is consistent with the conclusion about domestic institutional investors' investment philosophy. Since 2002, the process of securities market has accelerated in China. The security regulatory level is rising and our country vigorously promotes the development of institutional investors. Institutional investors started to change ideas, advocated value investment. There were more cases about institutional investors participating in corporate governance, such as the 2002 ZTE Issued H Share Storms. It shows that the awareness that our institutional investors participate in corporate governance is rising. From the initial self-interest to participation in company governance, it indicates the positive significance of institutional investors in corporate governance.

4.3 Proposal

So based on our study and the reality of shareholding structure of Chinese state-owned enterprise, we give some proposals:

4.3.1 Gradually eliminate the system shortcomings

The empirical results show that after 2003, the equity ratio of institutional investors is correlated with the company's performance. However, the equity ratio of institutional investors in our country is still small and its role is not very large. So we should gradually eliminate the system shortcomings limiting the role institutional investors and relax equity ratio of institutional investors in listed companies and provide the system conditions for institutional investors play a leading role in governance structure of listed companies. For example, in "Management Measures of Securities Investment Fund Operation", a Fund holds shares of a listed company, which can not exceed 10% of the market value of its net assets; the same Fund managers hold a security of a company which can not exceed the 10% of it. To the reality of "only one major shareholder" in China, the ratio is not enough to form balancing force to the largest shareholder. To a certain extent, it limits the enthusiasm of institutional investors in corporate governance. Relevant government departments should revise and perfect related ordinances, according to the needs Chinese securities market development to institutional investors and the present situation of shareholding structure.

4.3.2 Modify investors' structure and build competitive shareholding structure.

Modern enterprise theory believes, as a lease portfolio enterprise, the internal arrangements of its shareholding structure will directly affect the company's performance and value. Efficient shareholding structure should meet two conditions: first, the controlling shareholder equity can control the most resources by the least shareholding. Second, the other shareholders union is possible to replace the controlling shareholders. In China there exists phenomenon of "only one major shareholder" and the equity ratio of institutional investors is too low. It is very difficult for institutional investors to play their role to check and balance the largest shareholder. The ongoing shareholding reform will help to resolve the circulation of non-tradable shares, realizing same shares with same rights. But no fundamental solution to phenomenon of one stock dominance in Chinese listed companies. So it is necessary to develop institutional investors and guide the securities investment funds, insurance companies, social security funds and other institutional shareholders, institutional investors actively and narrow the gap between the largest shareholders and institutional investors. On one hand, the phenomenon of one stock dominance can be solved and can reduce the necessary portion of institutional investors for decision-making in listed companies; On the other hand, it can reduce the risk of individual investors, establish shareholding structure with the existence of several controlling shareholders including institutional investors and improve corporate governance and enhance performance in the deeper level.

4.3.3 Perfect the securities market and improve the quality of listed companies

The quality of listed companies and institutional investors' actively participation in corporate governance is

interactive. The stronger a listed company's growth is, the more institutional investors they can attract. Whether listed companies have sustained investment value, sustained development capabilities and the ability to give shareholders more satisfactory long-term rate of return are the basis for the healthy development of the market. It is also the important market conditions to attract institutional investors actively to participate in corporate governance.

4.3.4 Promote the government's supervision to institutional investors

Under the condition that the stock market are imperfect, institutional investors, as a group with strong influential to the market, are greatly possible to make market rent-seeking and market manipulation. The government's supervision to institutional investors, with relatively high direct costs and indirect costs, is inevitably failed. However, the government's failure is not meant to deny government regulation. It indicates the government is the role of complement of the market but not the role replacement when it handles the relationship between sides of the security market. In the future the government should improve the laws and regulations related to security supervision. At the same time, more focus should be placed on intensifying law enforcement and establish highly efficient enforcement mechanism. Government regulators should focus on the characteristics of institutional investors' market behavior and establish a set of timely monitoring and warning mechanism for institutional investors. In addition, as the investment behavior of institutional investors becomes more complex, the government's supervision should be more refined and stringent.

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Audit Specialisation in Malaysia

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Abstract

By applying audit firm industry market share measure as proxy for audit firm industry expertise or specialisation, the focus in this study is on trends in industry specialisation from 1999 to 2002. With data coming from annual reports of companies listed at the Kuala Lumpur Stock Exchange (KLSE – now, Bursa Malaysia) and industry specialists defined as market leaders with market share greater than 20 percent of audit services (in terms of the number of clients) within a client specific industry, it is found that Ernst and Young specialising in construction and plantation, KPMG in industrial products, PricewaterhouseCoopers in finance and Arthur Andersen in finance, plantation, technology and trading/services.

Keywords: Auditor Industry Specialisation, Market Share, Big 5, Kuala Lumpur Stock Exchange

1. Introduction

In the United States, claims by large auditors suggest that industry specialisation is a goal of increasing importance for some, if not all, of them (Hogan and Jeter, 1999, p. 1). This implies that the concerned audit firms have perceived a benefit from specialisation, whether increased market share, profits, audit quality or merely the maintenance of market share in a competitive environment. That specialisation in the audit market is considered of utmost important in the United States is also reflected by the fact that in 1998 a sample of the nation's accountants had viewed it as critical for the future survival of the audit firms (AICPA, 1998). Thus, not surprisingly, the same study has identified specialisation as one of the five top issues impacting the CPA profession in the 21st century.

The 1993 KPMG Peat Marwick's restructuring of its organisation along industry service lines (Emerson, 1993) was the forerunner of all Big 5 firms implementing industry service line restructurings (Greene and Barren, 1994; Hogan and Jeter, 1999). As mentioned by Gramling and Stone (2001, p. 1), these restructurings are consistent with a growing emphasis in professional auditing standards on understanding the client's industry and business. A decade later, the United States General Accounting Office survey conducted in 2003 with top officers from the nation's largest publicly held companies on audit firms' consolidation and its impact on competition (among other things) provided the data that the nation's public companies preferred firms with established records of industry-specific expertise (GAO, 2003, p. 27). Specifically, 80 percent (118 of 148) of the public companies responding to its survey said industry specialisation or expertise would be of great or very great importance to them if they had to choose a new auditor. Overall, industry specialisation or expertise was ranked third in importance behind quality of service offered (99 percent) and reputation or name recognition (82 percent). Also, when asked why they would not consider an alternative to the Big 4, 91 percent (117 of 129) of public companies responding cited technical skills or knowledge of their industry as a reason of great or very great importance.

When it concerns Malaysia, little is known regarding its auditor industry specialisation (hereinafter AISpec) except for a study done by Takiah et al. (2000) which shows that there is no industry specialisation for the auditors in the country. In an internet search done in early 2005, it was found that that the nation's big audit firms have failed to provide any information on their possible industry specialisation in their websites. This is not the case when it concerns their counterparts operating in some other countries in the region. All this happens in a national surrounding where there is a decline in the relative importance of audit services as a proportion of total audit firm revenue and an increase in litigation concerns. There is also a recent increase in the awareness of globalisation and

liberation impacts on audit services among audit interested parties. In this environment, auditors may strive to maintain or increase market share by increasing quality and/or reducing costs via their specialisation efforts.

2. Literature Review

There are around at least three proxy measures of audit firm industry expertise. These are (1) audit firm industry market share measures; (2) audit firms' self-identified market specialisation that may be found at the firm's website (Hogan and Jeter, 1999); and (3) percentage of an audit firm's total audit revenue (as proxied by square root of client size) generated by clients in an industry relative to the total audit revenue earned by that audit firm across all industries it serves (Yardley et al., 1992; Kwon, 1996). Compared to the latter two, research to date most frequently applies audit firm industry market share measures as proxies for audit firm industry expertise or specialisation. Specifically, the market share approach assumes that by observing the relative market shares of the audit firm servicing a particular industry, one can deduce those which may be known as industry specialists. These audit firms have the largest market shares within the industry which they are able to develop due to significant investments in industry-specific audit technologies. With such investments it is also assumed that they achieve increased economies of scale and improved audit quality.

Zeff and Fossum (1967) in the United States profile audit firm industry market shares, based on several different bases, in 38 industries comprising 526 companies. In what appears to be the first ever study on AISpec, they find across-firm variability in market leadership and identify one Big 8 firm that is not a leader in any studied industry. Replication and extension of Zeff and Fossum's work include Rhode et al. (1974), Schiff and Fried (1976), Dopuch and Simunic (1980, 1982), Danos and Eichenseher (1982), Beelde (1997) and Hogan and Jeter (1999). All in all, they have made it clear that individual audit firms have high levels of market share within specific industries, and that between-firm market shares vary across industries. It is also notable that the audit firm industry market share conclusions of these replications differ by the period examined.

Thus, for example, Dopuch and Simunic (1981, 1982) and Hogan and Jeter (1999) have found that changes in industry market shares among the large audit firms. In particular, the former find that in many industries, the dominant firm as of 1964 lost market share during the subsequent ten years. As for Hogan and Jeter (1999) who examine changes in audit firm industry market shares between 1976 and 1993, their findings suggest that firms with large market shares increased their industry market shares, while the market shares of firms with smaller market shares decreased. In contrast to Danos and Eichenseher (1982), Hogan and Jeter (1999) observe this trend in not only regulated but also unregulated industries. Gramling and Stone (2001) provide excellent review on these and other research works related to audit firm industry expertise in the United States.

The numerous studies conducted in the United States over the years on audit firm industry market shares used as proxy for audit firm industry expertise parallel similar efforts conducted in many other countries around the world. For a good example, Craswell and Taylor (1991) analyse auditor industry specialisations for all 23 Australian Stock Exchange industry classifications. Their analysis indicates that only Big 8 auditing firms has industry specialisations. Weets and Jeger (1997) include a summary of the literature in table form for studies conducted as early as in the early 1960s and as recent as a decade ago in the United States and other countries in the West.

Just about every study on AISpec shows that the audit of large firms in many industries located in various countries is dominated by one or a few of the Big 8/6/5 audit firms. Thus, the question asked for this research is whether we would observe similar pattern in Malaysia since the same audit firms also operate in the country. But the market for audit services differs by country. Gramling and Stone (2001) say this in reference to two works – Hancock (1996) and Beelde (1997) - in their study of archival literature on audit firm industry expertise. If that were true, there is a question about the generality of those results using one nation's data to the other audit markets.

Probing over the Malaysian accounting profession and audit practice in its first four decade after the nation's independence in 1957, Azham (1999) shows that when one goes beyond the structural form, in many ways they hardly resemble those in countries such as the United States or Australia. This is perhaps understandable considering the distinctive socio-economic and political contexts that audit in Malaysia is operating in. Therefore, there could be reasons why the results reported overseas could not be discerned in the Malaysian context. The Malaysian audit market is just not comparable to those found in countries such as United States and Australia – though it may be comparable to the rest of developing countries or countries in the region considering their similar stages of economic and political development and socio-cultural values.

Nonetheless, available evidence to date provides the picture that the big audit firms have over the years accounted much of the audit fees paid out by the listed companies in Malaysia (Azham, 1999) if not also perhaps for the whole audit market in the country. So, the gap in the literature that we hope to address is this: would we find evidence of audit firm specialisation in specific industries in a segment of the audit market comprising of listed companies in Malaysia? Specialisation of auditors would result in an overrepresentation of a given firm in a given industry and, consequently, underrepresentation in other industries.

3. Problem Statement

In the United States, standard setters and quasi-regulatory bodies have suggested on several occasions that industry expertise results in higher quality audits (e.g. AICPA, 1983, 1997; Panel on Audit Effectiveness, 2000). So, is there such expertise in Malaysia considering the fact that Malaysia just like the United States needs high quality audit? Takiah et al. (2000) do just that and more for data coming for the years 1991-1996. But the following may be found in the concluding section of their work (Takiah et al., 2000, p. 110): "Hence, it can be concluded from this study that a specialisation by industry among auditors does not exist in Malaysia. Audit firms provide services to a wide range of clients in different industries rather than specialised services in any particular industry. Consequently, audit firms gain general audit knowledge rather than industry specific knowledge ..." Would the same conclusion be found for a new set of data? Thus, the study attempts to find answer to the following question: Is there industry specialisation for the period 1999-2002 for the segment of audit market in Malaysia comprising of the KLSE listed companies?

4. Research Design

Several researchers test for evidence of industry specialisation but there is a lack of consensus as to the definition of a specialist. This is not surprising since defining industry specialisation is such a subjective task (O'Reilly and Reisch, 2002). This in turn leads to a situation where academic researchers have taken up a variety of approaches in measuring specialisation.

4.1 Measuring Specialisation

In identifying specialist audit firms, the market share rule, the market share bases, the industry classification scheme and the industry size need to be spelt out first of all. For each one of these, different researchers may define them differently. See Gramling and Stone (2001). As a result, there is more than one way in determining those who are auditor specialists.

Following Hogan and Jeter (1999), the present study defines auditor industry specialist as market leaders with market share greater than 20 percent of audit services within a client specific industry. This 20 percent cut-off for Big 5 audit firms is based on modification of the Craswell et al. (1995) 10 percent rule applied to Big 8 audit firms, given the mergers that reduced the Big 8 prior to late 1980s to Big 5 in the late 1990s. It is notable that the 20 percent are also the industry specialisation measure taken up by Chen and Elder (2002) and Mayhew and Wilkins (2003).

As for the market measure, it is the number of clients like in the case of Craswell et al. (1995) and that of each of the three early works in the AISpec field: Rhode et al. (1974), Gilling and Stanton (1978) and Campbell (1981). Also, following Krishnan and Yang (1998), industries included in the study need to have at least 10 companies in number. This is an arbitrary inclusion rule to avoid unreasonable results because of too few firms in an industry (Minyard and Tabor, 1991, footnote 22). Note however Ferguson et al. (2003) who designate as industry specialists auditors who earn the highest percentage of industry audit fees regardless of the number of public company clients in the industry or city.

Finally, for industry classification, the industry classification scheme used by the KLSE (now Bursa Malaysia) is adopted in this study. There are thus 13 industries. But since five of them – closed-end funds, hotel, infrastructure project companies, mining and trusts – have each fewer than 10 companies for each of the years covered, the total number of industries relevant for analysis is downed to 8: construction, consumer products, finance, industrial products, plantation, properties, technology and trading/services.

4.2 Data

The market for audit services is recognised to be segmented into distinct submarkets in a hierarchical way (Beattie et al., 2003). At the national level, the private (for profit) and public (not-for-profit) sectors can be distinguished with the former split into listed and unlisted companies. The listed company market can be further split based on (1) stock market indices (e.g. Composite Index, First Board, Second Board); (2) industry sector; and (3) city markets. As in so many previous studies, the present study is limited to a submarket: the publicly listed companies. Only listed companies are studied because their annual reports are easily available. In addition, this group represents the most economically significant group of companies in the country.

All the data collected come from the annual reports of KLSE listed companies. No additional information or opinions from companies or audit firms were obtained. For each company, the data is consisted of the type of industry, the identity of the company auditor, audit fee and turnover as found in the published financial statements of the companies for the accounting periods ending in 1997, 1998, 1999, 2000, 2001 and 2002. Annual reports of companies are mainly drawn from the KLSE website. In cases where the website has failed to provide them, annual

reports of companies found in the form of printed pages are searched for in either the KLSE in Kuala Lumpur itself or a securities firm in Penang.

Companies chosen to be analysed are those listed in 1999, 2000, 2001 and 2002. The exclusion is made for the data in 1997 and 1998 in order to avoid problems associated with the merger between Price Waterhouse and Coopers & Lybrand. The merger was announced 18 September 1997, effective August 1998 (Wall Street Journal 19 September 1997, pp. A3, A4.) The number listed differed over the 1999-2002 period ranging from 755 to 838. Unlike Hogan and Jeter (1999) and Velury et al. (2003), no exclusion is made regarding companies in regulated industries. But for the research question related to auditor industry specialisation compared to the other two on audit market share distribution, exclusion of companies in industries with fewer than 10 observation in each sample year is done.

5. Findings

At different times within the accounting community, certain terminology has evolved to describe the top firms in the industry. At one time, they might have been described as the Big 8, later the Big 6 and later still the Big 5. (Since middle of 2002 with the collapse of Enron and the fall of its external auditor Arthur Andersen, the top firms are known as the Big 4.) As a result, different scholars use different designations in their works in describing the top audit firms depending on the time periods that they are concerned about. In this paper, for convenience, the names of the Big 5 audit firms are abbreviated as follows: Arthur Andersen (AA), Deloitte Touche Tohmatsu (DT), Ernst & Young (EY), KPMG (KPMG) and PricewaterhouseCoopers (PwC).

With 20 percent as the cut-off point for industry specialisation measure, it may be seen from Table 1 that four industries – construction, consumer products, properties and technology – have failed to have auditor specialist at some point during the four-year period covered by the study. Consumer products has in fact failed to have auditor specialist for the last three years of the four-year period. Also, for these four industries and majority of the rest, at various points during the four-year period, there is no more than one single auditor specialist. In two industries – industrial products and plantation – the auditor specialists stay the same throughout the four-year period. It is KPMG for industrial products and AA and EY for plantation. In the case of finance, AA and PwC are the auditor specialists for each of the last three years of the four-year period. In the case of construction and technology, EY and AA have been the auditor specialist over the last two years of the four-year period. For trading/services, it is interesting to find that AA is the auditor specialist for the last three years of the four-year period. However, PwC is also the auditor specialist in one of these years.

During the four-year period, it is only the year 1999 when each of the eight industries possesses auditor specialist. The year 2000 sees three industries (construction, consumer products and technology) failing to have their auditor specialists. That is also the year that sees the highest number of industries failing to have auditor specialists. In 1999, KPMG is the auditor specialists in four industries, while AA in four other industries. As for EY and PwC, there are auditor specialists in one and two industries, respectively. For EY that position in plantation has to be shared with AA. As for PwC, in one of the two industries that it is auditor specialist, it has to share the position with KPMG. For the rest of the three-year period, AA appears to be auditor specialist in more times than the rest of the Big 5 firms. Second place is taken up by EY.

All in all, it may be safely said that there is industry specialisation in the listed company segment of the audit market with EY specialising in construction and plantation, KPMG in industrial products, PwC in finance and AA in finance, plantation, technology and trading/services. With the fact that there is no industry specialist found in consumer products for the last three years of the four-year period, it may be said that this very sector is without auditor specialist. It is also notable that DT has failed to be considered as auditor specialist for any of the industries for the years covered. (Note however that when the 20 percent as the cut-off point for industry specialisation measure is reduced to 15 percent, DT is finally able to be one for the technology industrial sector. That position is however shared with the other four Big 5 audit firms.) (See Table 1)

6. Discussion

Prior research has used Big 8/6/5 non-Big 8/6/5 dichotomy without regard to differences between large audit firms in industry market share and expertise (Pike, 2003, p.10). But there is linkage between industry market share and industry specialist/expertise (Solomon et al., 1999). That is, industry experts have a deeper knowledge than non-experts due to greater experience in the industry which enables experts to make more accurate audit judgements. So, in those cases where audit firms have more clients or earned more fees in an industry, they may safely be said to have more opportunities to acquire deep industry knowledge which leads to industry expertise.

Recently the United States General Accounting Office which conducted survey in 2002-2003 on audit firms' consolidation and its impact on competition (among other things) mentions in its report that audit firm 'industry specialisation' can be captured by a firm's relatively high market share, in terms of client assets or client sales, in a

given industry (GAO, 2003, footnote 18). Thus, the assumption held is that a firm does not have sufficient expertise and staff resources if it audits only a small share of industry assets (GAO, 2003, Appendix IV, footnote 3).

In the Malaysian context, from the analysis undertaken, there is evidence suggesting that four of the five large audit firms show a pattern of strong presence in specific industries. This might be related to the fact that these four firms use different audit approaches and have incomparable industry knowledge within their audit teams. As a result, there is competitive advantage for these firms, and auditor choices have become less than “random”. This very finding is comparable to that which can be found in so many other research conducted over the years in many other parts of the world (see the above Literature Review). It is also the very opposite found in Takiah et al. (2000) as mentioned above. Having said all that, there is a need to take into account that there exist different approaches to identify firms as industry audit specialists. This lack of consistent measurement, as stated by Neal and Riley (2004), has made it difficult to compare and evaluate findings on auditor industry specialisation in studies.

The finding that there is auditor industry specialisation in the country brings out the picture that though Malaysia is a developing country with a different socio-economic and political background from that of western developed countries, certain things are still the same the world over. This is probably due to the relaxation of competitive barriers in recent time and increasing participation of foreign investors in financial markets. Furthermore, due to the Asian Financial Crisis 1997-98, the large audit firms with affiliated firms located in developing countries faced pressure from various parties to have their audit philosophy and audit approach harmonised on a world-wide scale. Differences in audit practices between local offices of the Big 5 firms, which existed due to national factors, may have been replaced by a more unified approach within each of these firms. All in all, audit market in the country that concerns with the listed companies segment may not be so different when compared to those in western developed countries. For other audit market segments and other matters in audit besides audit market, there is still however a need for the conduct of research in order to find out whether similarities are also abound.

7. Conclusions

The presence of the demand for industry specialisation drives audit firm investments in specialisation and leads to industry-based clienteles. The presence of this type of clienteles is the rationale for using market share data to infer specialisation for research in auditor industry specialisation. In the market of audit services, the suppliers come in the form of top tier, second tier and third tier firms. Those in the latter two categories may have long histories and some may also have developed specialisation to capture economies of scale (Godfrey and Hamilton, 2005, p. 13). Nonetheless, a client seeking a high-quality audit has two main methods of identifying a specialist auditor (other than in relation to the specific types of contracts audited) (Godfrey and Hamilton, 2005, p. 12).

The first is top tier designation. The second is a reputation for being an industry specialist. The first signal is easy to recognise because top tier auditor designation is common knowledge. Awareness of industry audit specialisation requires more specific knowledge of which audit firms specialise in which industries. The auditee's senior management would be likely to have this knowledge (see Shockley and Holt, 1983). More importantly, though, the signal provided by a specialist auditor depends upon investors' knowledge of auditor expertise. For these reasons, the auditor specialisation has two tiers and that top tier designation dominates the specialisation signal. Furthermore, top tier audit firms are likely to not only be perceived as specialists, but also to be specialists. Top tier audit firms have enough resources to employ individual auditors and audit teams with industry specialisations.

In the Malaysian context of listed companies segment of the audit market in recent years, four of the Big 5 audit firms gave the picture of being industry specialists like their counterparts in other parts of the world. This means well for the country, for it has been found in several research conducted overseas that audit quality as well as earnings quality increase with the auditor industry specialisation (Craswell et al, 1995; Balsam et al., 2003; Dunn and Mayhew, 2004).

Though several benefits may be derived with the presence of industry specialisation by the auditors, there is a need to be aware that when a specialist audit firm becomes a dominant force in the supply of sectoral audits, it has the potential to extend considerable influence over audit pricing within the sector. Knowledge of its presence may thus assist relevant parties to be more on the watchout of the possibility of the use of such power and the kind of actions that they may need to take in dealing with it.

8. Limitation of the study

There are more than a few limitations associated with this descriptive study. First, the sample studied is limited to listed companies. Thus, the findings may not be generalisable to the entire market for audit services in Malaysia, which includes private companies, unlisted public companies, the public sector, etc. Second, since sample chosen is not directly comparable to those used in prior studies of the western developed economies, comparisons between the study's findings and theirs should be made with caution. Third, the definition of auditor industry specialisation is

arbitrarily based on a 20 percent market share rule and the results are sensitive to this definition. Fourth, the use of the number of clients as a basis for calculating market share has its limitations. As stated Neal and Riley (2004), this particular basis may misrepresent the potential for increased economies of scale and/or improved quality. They explain that an auditor with two small clients would be considered to have twice the market share of an auditor with one large client. See Weets and Jager (1997) for studies that use concentration measures other than number of companies.

Fifth, the data contained in the report do not differentiate between those associated with consolidated amounts and others such as parent and/or subsidiary companies. There is acute difficulty in allocating audit fees amount to the right auditors when the consolidated figures do not distinguish between fees paid to the holding company auditor and those paid to other auditors (who are rarely identified). There is thus the risk of double counting of holding companies and their listed subsidiaries audit fees and other data.

Sixth, the audited companies' lines of business, not the business of the audit firms, define the market. The audit firms' understanding of industries may be totally different from that classified by the KLSE codes. This may lead to a situation where in those industries that an audit firm is not judged to be a specialist, it may in fact be one if only these industries (or some combination of them) are viewed together from the viewpoint of the audit firm. On the other hand, an audit firm that is judged to be a specialist in some other industries may not truly be the case from viewpoint of the audit firm when its own lens instead of that of the KLSE codes which is applied. Note that in the Australian context, Ferguson et al. (2001) mention that the 24 industry categories of the ASX are narrower in scope than the self-reported industry specialisations of the Big 5 auditing firm which were disclosed on their Australian web-sites in 1998.

9. Further Study

Prior literature (Palmrose, 1986a; Craswell et al., 1995) followed by the present study identify industry specialisation variable based on the market share of an auditor in the audit services market for each particular industry. A specialist shall have substantially higher market share than other auditors in the market. The research results are sensitive to the cut-off points used to define the "high market share". Thus, the linkage between the concept of specialisation and market share statistics is debatable (Ferguson and Stokes, 2002). It would be much better for future study to directly identify the auditor's specialisation through field interviews with its senior management.

The approach undertaken in this study could be extended using other databases to obtain information about larger samples of client companies or perhaps even complete industries. Combined with data on audit approaches and client knowledge present in audit firms, such analysis might give additional insight to the supply side of the audit market. Future research could also replicate this study in the audit markets in other common law countries, to investigate its generalisability across jurisdictions. Using a different time period would also reveal whether results observed are time specific.

Perhaps in the Asian context, industry specialisation may not be such an important factor for auditor selection. In Asia compared to the western developed economies, many companies are characterised by unique features such as family ownership, "interlocking firm relationships" and cross-chairmanship. Specifically, these companies including the listed ones are often controlled by a network of family companies, with only a minority of its voting, equity shares floated. The owners of listed companies would often exercise control by holding board chairmanships. The same may perhaps be said when the owners are not families but actually governmental bodies which would make sure that their representatives to be those holding the board chairmanships. In the context of Hong Kong in particular where family ownership of listed corporations is abound, Baydoun (1999) hypothesised that cross chairmanship lead to cross auditorship. While the evidence is circumstantial, it can be said that his study shows that auditor choice is not independent of personal connections between chairmen of companies. Thus, for a further study of auditor specialisation in Malaysia, perhaps one similar to that for Hong Kong by Baydoun (1999) may be one of the better alternatives for achieving an insight than any that has been mentioned above.

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Table 1. Auditor Industry Specialisation by Number of Clients

Industry	1999	2000	2001	2002
Construction	1	0	1	1
	(KPMG)		(EY)	(EY)
Consumer Products	1	0	0	0
	(AA)			
Finance	1	2	2	2
	(AA)	(AA, PwC)	(AA, PwC)	(AA, PwC)
Industrial Products	1	1	1	1
	(KPMG)	(KPMG)	(KPMG)	(KPMG)
Plantation	2	2	2	2
	(AA, EY)	(AA, EY)	(AA, EY)	(AA, EY)
Properties	1	1	1	0
	(AA)	(AA)	(AA)	
Technology	2	0	1	1
	(KPMG, PwC)		(AA)	(AA)
Trading/Services	1	1	2	1
	(PwC)	(AA)	(AA, PwC)	(AA)

Note:

1. The number of audit firms with a market share greater than or equal to 20 percent
2. AA = Arthur Anderson, DKC = Delloite Kassim Chan, EY = Ernst & Young,
PwC = PricewaterhouseCooper, KPMG = Klynveld Peat Marwick Goerdeler

Outlets: The New Favorite of Apparel Industry

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Abstract

In recent years, along with the fast development of China retail industry, outlets, the brand-new retailing form has entered China. This paper briefly analyzes the advantages and disadvantages of outlets, and puts forward three tactics for its operation.

Keywords: Brand, Outlets, Apparel retailing

Along with the improvement of people's living level, consumers pursue for brands more and more. Domestic people's needs for apparel are changed from basic clothes toward brands. Confronting with this need, domestic market has to consider what it can provide with for consumers due to its limited brands. It is also a project in front of apparel production companies. Outlets, the unique sale channel, become a win-win choice for both apparel companies and consumers. Specialists predict that outlets will become the most powerful retailing form in future apparel industry.

In recent ten years, many world-famous brands enter China market. Data show that 70% of well-known consumption brands have already entered China market. Among these brands, most have already been accepted by domestic consumers. For consumers who just step into the brand consumption field, the prices of goods in brand shops are too high, and the goods in small shops are hard to value. Besides, they have not sufficient time to hope for discount in brand shops. The emergence of outlets just meets the needs of these kinds of consumers. Therefore, outlets have kind of competitive advantages indeed. What the temptation is as we can choose favorite clothes among first-class apparel brands that have lower prices. Outlets, as a completely-imported mode, are a final retailing form after chain stores, convenient stores, promotion stores, and other new commercial modes.

1. Origin of outlets

Outlets is kind of shopping mall that chiefly sales past-season, and off-shelf brand apparels, which can provide with entertainment and discounted brand goods at the same time. The typical outlets are composed of apparel outlets, large-scale discount goods, entertainment, and restaurant. Outlets are originated from producers of brand apparels, and brand direct-sale centers that mainly sale bad stock goods at very lower prices in late 19th century. Till 70s in last century, brand direct-sale centers gradually evolved into the outlets that combine apparel producers, brand owners, restaurants, large-scale discounted-goods malls, and entertainment facility providers.

America is the cradle of outlets. It is also the most developed region for operating outlets (Decai Tang, 2005). During the 80s to 90s in last century, outlets have gained most rapid development in America. Although in recent twenty years the development becomes slower, American outlets businesses accomplished integration. Most outlets are mastered by several commercial businesses. From the form of outlets, there is both shopping mall and outlets village. But sale field is seldom.

Perhaps many Chinese consumers may regard discount stores as small business. But as a matter of fact, discount stores, as a new commercial mode, have shared the retailing market together with merchandise malls, supermarkets, and large specialized stores, in European and American countries. Especially under the situation of slumping economy and rising unemployment ratio, discount stores possess unique advantages of low-cost operation, and high circulation. In recent American commercial companies' list, three of the first five members are discount stores. Half of Wal-Mart's annual sales are coming from its discount stores.

In foreign countries, the discount stores refer to producers' direct-sale shops. It has three preconditions. Firstly, the discount stores must have first-class brands. Secondly, although the discount stores sale past-season, and off-shelf goods, they must have sufficient brands sources and can renew goods. Thirdly, goods in discount stores are cheap. Today, many consumers pursue not only brands but also high quality and lower price. Outlets can bring about "great brands, lower prices" for consumers.

Today, discount stores have already become such a retailing form that chiefly sale self-owned brands and fast-circulated goods, with restricted goods types, limited business areas, services, and lower operation costs, providing with worthy goods for consumers.

2. Advantages of outlets

2.1 Price advantage

New product' retail price = material costs + labor costs + management costs + capital costs + profits + marketing costs + brand advertising costs + logistics costs (Zhengxiu Lin, 2004).

Special product' price = material costs + labor costs + production costs

Most consumers are longing for possessing world famous brands. However, higher prices make common consumers stop at eye shopping. Apparently, outlets can meet consumers' needs for well-known brands to certain degree. The pursuit of brand consumers for brand goods includes two stages, namely the longing-for stage of brand consumption, and the stage of brand fashion consumption. Most brand fashion consumers prefer to purchase brand goods in brand stores or high-class shopping mall. But the longing-for brand consumers hope to buy brand goods at lower prices. Outlets provide with more consumption chances for the later.

As far as apparels are concerned, the values exist in the fashion. Each brand has its depreciation rate. For a famous brand, the right-season apparel is at 100% price, next year 50%, the year after next 30%. One of reasons for cheapness is past-season. Entering outlets, consumers should understand this essential concept.

Diversified consumption ideas make consumers accept discount stores completely. Everyone has his own consumption idea. No matter what it is pursuing new goods and commonness, or uniqueness and cheapness, the choice is based on self preference. People who enter outlets emphasize brands and lower prices. Commercial businesses should follow consumers' consumption needs.

2.2 A flexible way of solving the stock issue

As well-known brands solve their stock issues, outlets contribute a lot. According to world famous brands' practices, public discount or special promotion has become a must. Specialists think that it is universal to change past-season and off-shelf products from fashion consumption into common consumption. Outlets can not only help to solve the stock issue effectively, but also separate normal-price goods from special-price goods. It is a popular way for world famous apparel brands.

However, many domestic companies do not emphasize discount stores. They even refuse to make discount forever. In their opinions, discount may hurt the image of brand. But if we take outlets as a part of brand operation, establishing brand for outlets, imposing strict requirements for market, customers, and finals, separating normal-price products from special-price products as much as possible, outlets, as a way of solving the stock issue, will bring about maximized benefits for consumers and companies.

Regard outlets as kind of brands' further development toward their potential consumers and a complement for low and medium consumption market. On one hand, it can expedite the circulation of normal-price goods. On the other hand, it can expand brands' inferior market, controlling brands' stock rationally, and ensuring brands' healthy growth. Along with the complete openness of domestic retailing industry, amount of foreign brands enter China market. Domestic brand operation companies can introduce mature foreign outlets companies or co-operate with them, making best use of their effective management, and their sufficient goods sources to cultivate domestic market.

2.3 Non-discount service

Although outlets sale past-season and off-shelf goods, they still stand for brands. Therefore, excellent services are always powerful weapons to attract consumers. Bright smile, kindness, active attitudes, and together with discount can help to complete purchases. Services in outlets should not be discounted.

2.4 Benefit the regulation of market

As discount has become a popular and regular way for commerce gradually, it will weaken the strengths of commercial companies, and it may disturb the brands' price system, which may make consumers lose confidence on brands. Emergence of outlets can effectively control this irrational discount. Normal-price goods and special-price goods have different sale channels. Market separates normal-price goods from special-price goods completely, which helps consumers form exact position and understand clearly what prices are.

3. The development and problems of outlets in domestic market

As the first outlets come into being in Beijing, some people predict that this new retailing form will develop into a huge industry rapidly in recent years. In the Classification of Retailing issued by Ministry of Commerce, outlets, together with TV purchase, online stores, are named as new retailing modes. Indeed, outlets, in other words, companies' direct-sale centers, have already developed for more than one hundred years (Xu Liu, 2003). Presently, there are 275 large outlets centers in America. In contrast, till late 2002, it is a blank in China. Since Beijing Yansha

Youyi Shopping City set up the first outlets shopping center in Dec. 2002, the outlets concept has begun to spread over China. As a result, different outlets are founded all over the country.

However, present discount stores appeared in China are not real outlets. Problems include these aspects as follow.

3.1 Scarcity of goods sources and too much counterfeits

Domestic outlets do not have reliable goods sources. Limited goods can not satisfy the large-scale operation. Many commercial stores are incapable of obtaining “producers’ direct-sale” sources. The stability is poor. It is common for certain brand that appears in outlets one month but disappears next month. If outlets prefer to prosperity, it must depend on first-class brands to attract more consumers. However, most outlets do not construct direct connection with well-known brands. Especially, some first-class brands do not enter or merely wait for entering China’s retailing market. Since normal-price goods do not enter the market, how do discount goods obtain business opportunities? Present outlets are more like special-sale market. In today’s outlets, it is hard to find real first-class brands but few out-of-date brands or high-price goods. In stead, these outlets are filled with numerous unknown brands. Although some products are marked with “world brands”, they are produced in domestic market by China’s business man who has registered his companies in foreign countries. By outlets, commercial companies sale some “world brands” that are unknown in China.

3.2 Confusion of price system

Products sold in outlets merely have discount prices. Consumers do not know the original prices of products except learning from salesman’s oral promise. As a rising retailing form, the price system should be further perfected, which can ensure that consumers know prices of products clearly.

4. Three tactics should be mentioned in operating outlets

4.1 Tactic of brand ----- build up consumers’ confidence

Because outlets are a brand-new retailing form in China, some consumers may visit it out of curiosity. In this stage, commercial stores should focus on the construction of credit. Sometimes, they have to sacrifice their short-term profits. But in the long run, it can benefit not only the commercial stores but also the industrial development. As far as products are concerned, because most of them are past- season or imperfect more or less, it is necessary for salesman to make discount reasons clear, and help consumers make purchases faithfully. In the price aspect, pay more attention on psychological strategy. In other words, value the products from the angle of consumers.

4.2 Tactic of orientation ----- uniqueness

In a sense, the orientation of outlets in retailing industry is determined by its positioning tactic. If the orientation of outlets is similar to that of supermarket and shopping mall, they may step in to a trap. That is an inherent shortcoming of outlets. Outlets must focus on consumers who are at low and medium level in pursuing brands instead of people who pursue fashion consumption. Outlets should set up the orientation from every aspect.

4.3 Tactic of superiority ----- advantage of costs

Outlets follow a low-cost way, advertising for “buying brands, not waiting for promotion”. In specific, it is to shorten stock channels, and decrease costs of chain business. Firstly, outlets should decrease costs as much as possible, imposing strict and scientific management on products’ types, goods’ purchases, stock, location of outlets, products’ arrangement in outlets, and sale stages. Secondly, outlets can enlarge the scale and decrease costs by chain business. The chain business should be accomplished really but not merely in form. Besides, outlets should make best use of China’s self-possessed brands.

Along with the gradual development of China’s retailing market, consumers’ rational consciousness of consumption is improving step by step. More and more people accept the pure brands. In a sense, outlets, the new retailing form, are facing an excellent commercial opportunity. Presently, the primary factor is the self-restriction of operators and the improvement of management, which can guarantee the quality of products. By this way, the operation of outlets can grow into maturity in a real sense. Since the outlets in America become the paradise of consumers, and there are successful TK MAX outlets in London, we can hold the belief that China will have its own world famous outlets in future.

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Issues about Innovation of Present Theory of Accounting

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Abstract

With the method of theoretical analysis, this thesis, systematically analyzed the limitations of the present theory of accounting in recycle economy and the reasons for that, analyzed the characteristics of accounting in recycle economy, and, according to the internal demand of recycle economy, put forward brand new development orientation of theory of accounting that would be suitable for recycle economy development. It specially discussed four suggestions, including constructing brand new accounting information disclosure model in recycle economy, bringing resource assets into accounting system, introducing new accounting method, and improving the control theory for accounting cost (including safety cost). This thesis will be a reference for the development of theory of accounting in Chinese recycle economy.

Keywords: Recycle economy, Theory of accounting, Limitation, Safety cost

World economy is developing at great speed, every country is being confronted with the problems of resource exhaustion, environmental pollution and ecological damage, so it is urgent for every country to develop recycle economy (Ji, 2004), and China has made strategic programming for the development of recycle economy. From the viewpoint of accounting, traditional theories of accounting are based on linear economics, so traditional accounting takes enterprise as a individual system, it only cares about the operating status and financial achievement of the enterprise itself, but neglects the influence of business operation on natural environment and society. The rapid development of recycle economy in western developed countries puts forward new challenges for the present accounting of theory, this paper makes a brief discussion about the influence of recycle economy on the present theory of accounting.

1. The characteristic of accounting in recycle economy

Compared with the traditional accounting, accounting in recycle economy has the following characteristics:

1.1 The main users of accounting information are different

The main users of traditional accounting information are the investors and creditors of enterprise; while the main users of accounting information in recycle economy is the relating departments of government, especially the management department of environmental protection and tax inspection department. According to the accounting information provided by enterprises, departments of government will understand enterprise's investment in treatment of environmental pollution and the return of renewable resources; accordingly, they can make macro policy and assess, punish or encourage enterprises according to the information. In addition, the external investors of enterprise have to know about the enterprise's situation of fulfilling environmental protection responsibility, and the situation of getting direct return and tax advantage from the transformation of contaminations into renewable resources in accordance with the recycle economy information, so as to estimate the development prospect of enterprise and make decision about the investment behavior.

1.2 The accounting entities are different

Enterprise should build up the concept of adapting to the environment of recycle economy if they want to realize longtime existence and stable development in the new economic environment, the following are reasons.

Firstly, social environment is the system basis for the existence and development of enterprise, while the natural environment is the material basis. Enterprises should adapt themselves to social environment as much as possible, they should look for best investment environment, financing environment, market environment and policy environment so as to realize longtime existence and stable development. From the angle of development cycle, the existence and development of enterprise need the resources from natural environment, and enterprise will discharge rubbish to the environment, if there is no durable and stable natural environment as material basis, it is impossible for enterprise to realize longtime existence and stable development.

Secondly, the disclosure of information of developing recycle economy, especially the information about resource and environment, will make enterprise that performs good environmental behavior get good image in public and community, and get good market returns in capital market and product market; also, it will make the enterprise that

performs bad environmental behavior strengthen pollution control and improve environmental behavior (Wang, 2000; Milne, 1999). Effective information disclosure will reduce transaction cost and improve the effective allocation of resource; the effect of bestirring enterprise's environmental protection behavior will be more obvious if the environmental information is disclosed to a greater extent.

1.3 The accounting information disclosure forms are different

The main form of traditional accounting information disclosure is financial statements, together with annotations to financial statements and text notes. While in recycle economy, there is much non quantitative information; accordingly more practical things are used to disclose the environmental information of enterprises, and more annotations and text notes are needed. The format and content of financial statements should be reformed, financial statements and reports that reflect the information of recycle economy should be added, for example, table of return from renewable resources, report of resource environment responsibility.

1.4 The accounting methods are different

In traditional accounting, monetary measure is used, but in recycle economy accounting, both monetary measure and non monetary measure should be used. Because resource asset comes from the longtime accumulation of nature, there is no human labor in it, it is impossible to make sure its value according to the method of social labor productivity, hence, its value should be determined by the method of indirect calculation. Further more, the regeneration period of natural resources are different, there is no uniform standard. The combination of monetary measure and non monetary measure will provide more integral and accurate information.

1.5 The preconditions of accounting theory and practice are different

Sustainable development is the precondition of theory and practice of accounting in recycle economy. Accounting in recycle economy should check and supervise the economic activity of enterprise, reflect the energy exchange and value transfer between enterprise operation and environment on the basis of sustainable development of human society. The theory of recycle economy is the precondition and basis of the establishment and development of environmental accounting. The accounting in recycle economy is based on the long-term coexistence and mutual benefit between enterprise and environment; it attaches importance to the sustaining operation of enterprise under the precondition of good circulation of resources. Without the sustainable development of natural environment, the operation of enterprise will be difficult, and there will be no necessary and basis for the existence of accounting.

Hence, in recycle economy, accounting should take on the task of calculating the input and output of enterprises in the new economic conditions, confirming the responsibility of resource usage, calculating the relating expense, revenue and loss to get renewable resources, further more, it should provide real and credible accounting information about the resource utilization efficiency for enterprise to realize their objectives.

2. The limitations of the present theory of accounting in recycle economy

The objective of the present accounting is to check and supervise the linear economic activity, and provide financial information for management and examine the managerial responsibility, so as to achieve maximal economic benefit. The limitations of the present theory of accounting in recycle economy development are as follows:

2.1 The present theory of accounting pays little attention to the utilization of renewable resources

The problems of recycle economy are not studied in the present theory of accounting, specifically, the accounting information of business activity in recycle economy is not disclosed thoroughly, the accounting cycle is not integral, the resource assets, renewable resource assets, relating responsibility and expense are not calculated and checked fully, the benefit or loss of enterprise are not confirmed, and the benefit brought by renewable resources are not calculated and checked thoroughly.

2.2 The present theory of accounting doesn't take enterprise as an economic body that coexists with the natural environment

The present financial accounting process only covers the linear process from getting resources from environment to the realization of product and economic benefit; it doesn't realize that the economic operation is closely related with natural environment, it neglects the influence of resource and environment on enterprise and the influence of enterprise on natural environment, it also neglects the material complement process of environment itself and enterprise's responsibility to complement the natural environment. Specifically, the present accounting doesn't confirm natural resources as assets, doesn't confirm enterprise's social benefit responsibility, safety production responsibility and environmental protection responsibility as debt, doesn't confirm resource as rights and interests of owner, and doesn't specifically reflect the income, expense and profit of renewable resources in resource circulation process.

2.3 Recycle economy information is not included in the present accounting information disclosure

Some relating recycle economy information cannot be disclosed because some technical problems in the present accounting information disclosure cannot be solved thoroughly, Such as the disclosure scope of enterprise resources and renewable resources, the establishment of technical criteria and style, the relationship between publicity and business secret, the accounting of cost and risk of resource information disclosure, the inspection of information disclosure behavior, the criteria for audit, counterclaim and punishment for the loss caused by distortion of environmental information disclosure.

3. The developmental orientation of the present theory of accounting

The present theory of accounting is based on the linear economy and serves the industrial economy. In recycle economy, lots of new situation and problems will come up, so it is urgent to make innovation in the theory of accounting and expand the research area in the following aspects:

3.1 The construction of accounting information disclosure model in recycle economy

Recycle economy is completely different from the traditional economy, it changes the traditional economic developmental model of open material cycle, i.e. "resource-product-waste" to the new developmental model of closing material cycle, i.e. "resource-product-renewable resource", so as to realize "low exploitation, full utilization and low discharge", maximally utilize the material and energy of the system and improve the resource utilization ratio, maximally reduce the discharge of contamination, improve the quality and benefit of economic operation and protect ecological environment. The era of recycle economy make higher demand on accounting information, the information should be real, accurate, timely, convenient, applicable and practical, it should not only reflect the actual situation, but also predict the future. Accounting should not only provide internal information, but also provide relating external information; there should be monetary information, and non monetary information, which are the report forms of "products" of accounting. The present single pattern should be changed, and the content of renewable resources should be disclosed in the report form system, so as to meet the need of recycle economy.

The accounting information in recycle economy is the information about the operation behavior and environmental work of enterprise, and their influence on finance. The forms of accounting information are diversified; there are qualitative information and quantitative information, monetary information and non monetary information, such as things and technology. Hence, the following principles should be paid attention to when choosing the accounting information disclosure mode in recycle economy: firstly, the least amount of relating information that should be disclosed will be prescribed by system; secondly, the mechanism for enterprise to disclose information voluntarily should be established; thirdly, the resource accounting information, practical thing information and the financial information should be combined, on the one hand, the influence of resource and environmental problem on finance can be revealed by financial report form, annotations to report form, and financial situation report; on the other hand, the utilization status of resource and renewable resource can be provided by special "liability report about resource environment".

3.2 Resource assets should be brought into accounting system

Recycle economy demand the sustainable development of society and economy, so the resources should be utilized effectively. In a long period of time, the accounting of resource is not good enough, the Enterprise Accounting Criteria No.27- Oil and Natural Gas Exploitation: the Mining of Oil and Gas is a good example of accounting of resource assets, but the accounting of other resources has not been started. From the angle of recycle economy, it is urgent to calculate and utilize the resource asset well. The modern economics thinks that things that will bring benefit for people are assets, natural resources are asset, no matter they are natural or processed by human, exhaustible or renewable, accordingly, natural resources have property right and value, so it is necessary to calculate and control the natural resource. The accounting of resources should be done macroscopically and microscopically, so there must be microeconomic organization, such as enterprises, to take part in the accounting in order to realize the real meaning of accounting. Besides, in order to improve the utilization efficiency of resources, standard to control the utilization of resources should be established; accounting control system for the cost of resource should be established, the utilization of resources and the production, product, service should be combined to improve the utilization efficiency of resources, periodical analysis and evaluation system should be established to maximize the utilization efficiency of resources; both practical things and money should be used in accounting system to record the utilization situation of resources, the cost of resources should be displayed independently; the amount of consumed resources and the cost should be paid attention to in decision-making of long-term production, operation and investment, the price trend of the future resources should be estimated effectively; clean energy and renewable resources should be used, effective measures should be taken to facilitate the cycle utilization of resources and energy. In that way, the objective of developing economy with the least resources and protecting environment with

the least cost will be realized.

3.3 Investigate and introduce new accounting methods

In recycle economy, the center of accounting should be changed from resource consumption to calculation and reuse of resources, and the biggest obstacle for that is the accounting problem. The traditional accounting methods can not accommodate the development of recycle economy, so it is necessary to reform in the accounting methods. The social substances are multiple, if only one accounting method is used, accounting will be bogged down. Hence, multiple accounting methods should be introduced into accounting system and these methods will be used in different situations.

3.4 Improve the accounting cost control theory

Every step of the accounting cost control theory should be related to the recycle of resources. The daily production and operation of enterprise correlate with lots of problems of resource consumption, so resource should be taken into consideration in the management of working capital. Special resource cost control system should be established to realize the high-efficient and circular utilization of resources. The overall budget of enterprise and the liability accounting of its execution, and the difference analysis system should take resource problem into consideration and improve the resource utilization efficiency by pricing resources, establishing energy-saving standard and carrying out energy-saving management. With the development of computer technology, intellectual technology for recycle of resources will be introduced into the accounting information system, various kinds of expert systems will provide help for accountants and managers, such as resource cost analysis and control, energy-saving and consumption-reducing of product etc. Besides, the resource consumed in preventing production accident should be listed as safety cost, which will be propitious to the sustainable development of recycle economy.

4. Conclusion

The present theory of accounting is the product of linear economy, the objective, method, management system and criteria system of the present theory of accounting cannot meet the need of recycle economy development. The development of theory of accounting is an all-round systematic engineering; the component of theory of accounting will be endowed with new meaning according to the requirement of recycle economy. We should use the international experience in developing recycle economy as reference, according to the practical situation and legislation condition of China, investigate the development model in recycle economy and feasible theory of accounting, and promote the establishment of accounting system in recycle economy by using appropriate law and regulations.

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The Impact of Organizational Goal Setting on the Industrial Munificence-goal Attainment Relationship

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Abstract

In seeking to exploit environmental resources and opportunities, CEOs can either set multiple goals or narrow their focus on a few targets for the organizations. What approach will help organizations to benefit more from industrial munificence? In this paper, we investigate the moderating effects of CEOs' goal setting (including the number of goals and the prioritization of these goals) on the relationship between industrial munificence and the satisfaction of goal attainment. By examining 277 small and medium-size firms in four countries, we find that CEOs need to stretch their goal list while keeping a clear priority order among these goals in order to capitalize on industrial munificence. Implications of our study are discussed.

Keywords: Goal Attainment, Industrial Munificence, Goal Complexity, Goal Diversity

1. Introduction

Individuals find themselves compelled to pursue several types of goals at the same time. As spouses, parents, children, teachers, researchers, and more, they seek to achieve a wide range of goals. Simon (1964: 7) observed that any action tends to serve several purposes and that it thus makes sense to "refer to the whole set of requirements as the (complex) goal of the action." Extending Simon's approach, a group of intertwined goals whose attainment requires similar actions can be referred to as a *goal type*. Even when related goals are grouped into goal types, one action can impact the attainment of multiple goal types. At the same time, the attainment of a single goal type can and generally does require many actions. Because of this many-to-many relationship among actions and goal types, actions undertaken to pursue one goal type can impede attainment of that goal type through feedback effects from other goals. For example, parents cannot simply put parental responsibilities above professional ambitions because neglecting professional goals can undermine their effectiveness as parents by decreasing their happiness and income. As any spouse, parent, child, teacher, and researcher can affirm, the balancing of goal types is challenging and too often stressful.

Organizations face an analogous challenge even when guided by effective leadership. Effective leadership provides direction, but organizations operate in complex environments that require more than guidance from above.

Success in a complex environment comes not just from one big thing done correctly but also from many small things done well. Organizations must increase sales but also generate profits. They must maintain or increase quality while holding down or cutting costs. Pursuit of different goal types generates stress for organizations as well as for individuals. Individuals can sometimes manage goal complexity by reducing the types of goals they seek to attain, for example, by focusing on their careers and choosing to delay or avoid marriage and parenthood. Organizations can also reduce complexity by eliminating or neglecting some types of goals, but they do so at the risk of decreasing organizational performance because of the interdependence among goals and the actions required to achieve them. Research suggests that pursuit of a single goal is not a viable strategy for organizations (Connolly, Conlon, & Deutsch, 1980; Simon, 1964). Research has also shown that organizations combining two types of goals - market orientations and entrepreneurial orientation - outperform organizations rating high on just one of these orientations (Atuahene-Gima & Ko, 2001; Covin & Slevin, 1989; Hart, 1992; Slater & Narver, 1995; Venkataraman, 1989).

Organization theories are divided in terms of the emphasis placed on the friction caused by pursuing multiple goal types. For some theories, this friction is negligible. For example, structural contingency theory asserts that fit between the organization and its environment enhances organizational performance. But what does fit mean in a complex environment that cannot be characterized in terms of a single or just a few environmental factors, such as uncertainty or technology? Because environments are generally complex, achieving fit requires the pursuit of several goal types, leading to internal friction. Organizational population ecology emphasizes variation among rather than within organizations. But variation within organizations in terms of the types of goals pursued may affect the performance of organizations and ultimately their survival. Other theories of organization incorporate more explicitly the pursuit of multiple goal types and the resulting friction. Stakeholder theory asserts that organizations must find a balance among different stakeholders with differing interests (Connolly et al., 1980). The need to offer rewarding experiences to employees, competitive returns to investors, innovative products and services to customers, and a myriad of contributions to these and other stakeholders or constituents suggests that organizations must pursue a variety of goal types. Theories of entrepreneurship and organizational learning direct attention to the friction between two types of conflicting goals: exploration of new opportunities and exploitation of existing strengths (March, 1991; Rothaermel & Deeds, 2004; Schumpeter, 1934). Solutions such as the ambidextrous organization offer ways of explicitly addressing conflict among these goal types, but they do not and cannot eliminate the inherent conflict between exploration and exploitation because of the different actions required by each. The exploration/exploitation framework provides only a limited view of goal type complexity because many goals cannot be clearly mapped to either exploration or exploitation. For example, is increasing profits tied to exploitation or exploration?

In general, there has been scant research related to the complexity of goal types. Goals have been examined extensively - mainly through the lens of expectancy, motivation, and the roles of principles and agents (Fred & Slowik, 2004; Lee & Schuler, 1980; Steers, 1976; Tubbs, 1986). Goals have been conceptualized in many different ways, for example, as objectives (Blau & McKinley, 1979; Krouse, 1972), evaluation criteria (Tansik, 1973), effectiveness criteria (Connolly et al., 1980; Hoy & Hellriegel, 1982), and aspiration levels (Lant, 1992). But these prior studies of goals and related constructs have generally focused on the effectiveness of specific goals or goal components in improving organizational performance. The complexity caused by the pursuit of multiple goal types has been largely ignored. Organizations may cope with goal type complexity by satisficing (Simon, 1964) rather than optimizing, but satisficing provides an incomplete picture of how organizations respond effectively to goal complexity. We seek to extend previous research by investigating the relationship between organizations' pursuit of multiple goal types - *goal type complexity* - and their success in attaining goal types. More specifically, we propose that the pursuit of multiple types of goals facilitates organizations' abilities to take advantage of the resources and opportunities available in their environments. We also propose that the more organizations reduce *goal type variability*, i.e. prioritize their goal types, the more effectively they are able to take advantage of environmental resources and opportunities. If pursuing multiple goal types and prioritizing these goal types facilitates organizations' exploitation of environmental resources and opportunities, then it is natural to ask whether the pursuit of multiple goal types is itself facilitated by reducing goal type variability; we explore this possibility as well.

In addition to extending research on organizational goals by developing and testing these specific mechanisms, we endeavor to make three more general contributions to the study of organizational goals. We would like to attract more attention to the promise that complexity theory holds for the study of organizational goals. We also hope to direct more attention to the importance of empirically analyzing organizational goals from an organizational as well as an individual perspective. Many if not most empirical studies of goals have focused on the effects of individual-level phenomena on organizational goals, e.g. goal ambiguity and specificity between principles and

agents or among different stakeholders (Austin & Klein, 1996; Fred & Slowik, 2004; Lee & Schuler, 1980; Locke & Latham, 1990, 2000; Steers, 1976; Tubbs, 1986), goal setting and motivation or satisfaction (House, 1971; Locke, 1968), or goals and employees' feelings of success and failure (Lewin, Dembo, Festinger, & Sears, 1994). There are also several empirical studies that view organizational goals through the lens of top management teams, e.g. by examining discrepancy in goals among top management team members (Blau & McKinley, 1979; MacIver, 1955). While concepts extrapolated from the individual level of analysis can inform the study of organizational goals, they can only go so far. As we have noted, pursuit of a single goal is arguably not a viable strategy for organizations in complex environments. While both individuals and organizations must cope with multiple goals, their mechanisms for doing so are different. The study of phenomena at the individual level informs but cannot replace the study of organizational-level mechanisms. We hope that our study encourages future empirical research on goals at the organizational level. Lastly, by examining goal types rather than specific goals and by examining organizations in four countries and seven industries, we attempt to provide insights that are not embedded in specific organizations, industries, or cultures.

We begin by reviewing the literature related to organizational goal types and elaborating upon our motivation for applying complexity theory to the investigation of organizational goal types. Building on previous research on industrial munificence and organizational performance, we then explain how goal type complexity may facilitate the exploitation of environmental opportunities in organizations' efforts to attain goal types; we present three hypotheses based upon mechanisms developed in our explanation. Next, we describe the field survey and the resulting data that we used to assess our hypotheses. We end by discussing our findings and their implications for both the study and management of organizations.

2. Theory

2.1 Organizational goal types

While empirical studies on the subject have been rare, organizational goals - goals defined at the organizational-level - have consistently been a central element in organization theory (Bourgeois, 1985; Simon, 1964). The concept of the organizational goal has evolved over time, but most theoretical discussions of organizational goals have emphasized their "normative" and "evaluative" function (Connolly et al., 1980: 211). Organizational goals have most commonly been employed as criteria for assessing effectiveness (Hoy & Hellriegel, 1982). Conceptualized in this way, organizational goals are in essence benchmarks used to evaluate the effectiveness of organizational behaviors and attained outcomes (Tansik, 1973). Other conceptualizations such as the work motif (Blau & McKinley, 1979) or work objective (Krouse, 1972) also accentuate the normative function of organizational goals as "the intellectual ethos or prevailing set of ideas concerning what architecture is and what it should accomplish" (Blau & McKinley, 1979: 201-202). Simon (1964: 1) took the normative conceptualization of organizational goals one step further by representing them as "constraints" of organizational structure and behaviors (Simon, 1964: 1).

The challenge with a normative conceptualization of organizational goals lies in defining effectiveness criteria in a way that is not context-dependent. If organizations' goals are unique to their context, then comparing goals across organizations would be like comparing the volume of one building with the architectural style of another. To facilitate our empirical analysis, we therefore articulate an alternative although still normative conceptualization of goals. We define *organizational goal types* as an evoked set of satisficing or policy constraints, where particular satisficing levels or targets are continually updated through compromise and achievement (Krouse, 1972; Simon, 1964). Goal types are effectiveness criteria whose attainment requires performance of related actions. Our concept of organizational goal types includes such effectiveness criteria as increasing sales, improving profit, and speeding cash flow.

As criteria for evaluating organizational performance and guides for organizational behaviors, organizational goal types must balance the conflicting interests of different types of stakeholders (Bourgeois, 1980, 1985; Connolly et al., 1980). Short-term and long-term goals need to be balanced (Blau and McKinley 1979). Cost and benefits need to be weighed (Bailey & Malone, 1970), and both individual desires and organizational needs must be reconciled (House, 1971; Locke, 1996). As a result, no organizational systems are observed to employ only a single criterion to guide organizational behaviors in the context of market competition (Connolly et al., 1980). In adapting to complex environments, organizations develop complex visions and structures that are reflected in their goals (Blau & McKinley, 1979). Multiple organizational goals are necessary for each organization - even organizations that consist of relatively simple systems (Connolly et al., 1986). While there is variation from organization to organization in goal types as well as in goals, there are some common goal types that must be satisfied in order for organizations to achieve a satisfactory performance. For example, Cyert and March (1963) identified the following domains as consistently important: production, sales, inventory, market share, and profit.

When organizations pursue multiple types of goals, the complexity and the structure of these goals become important considerations.

2.2 *The complexity of organizational goals*

Complexity theory as applied to organizations portrays an organization as a dynamic system of adaptation and evolution that contains multiple, interacting parts (Morel & Ramanujam, 1999; Simon, 1996). The complexity in organizational systems is often conceptualized in terms of how differentiated their structures are or how numerous their tasks are (Blau & McKinley, 1979). Of particular interest to complexity researchers who study organizations is the relationship between organizational performance and the complexity of distinct activities and subsystems within organizations (Anderson, 1999; Ashmos, 1996, 2000; Boisot & Child, 1999; Daft, 1992). The rationale behind organizational complexity theory is that the more complex an organization is, the more potential options the organization has and thus the more flexible it is. A complex organizational structure facilitates effective responses to a complex environment (Blau & McKinley, 1979; Evan, 1966; Kimberly, 1975; Lawrence & Lorsch, 1967; Perrow 1961).

The value of applying a complexity perspective to the study of goals is apparent in the observation that it is doubtful whether in real organizations decisions are generally directed toward achieving a single criterion. "It is easier, and clearer, to view decisions as being concerned with discovering courses of action that satisfy a whole set of constraints" (Simon, 1964: 20). Different goal types serve different purposes (Cyert & March, 1963). For example, besides the profit maximization goal, firms need to achieve a reasonable amount of sales and a good rate of sales growth in order to sustain profitability (Higgins, 1977). Similarly, a certain degree of attainment of four goals - absolute sales, sales growth, cumulative cash flow, and profitability - has been found to be crucial in competition among small-to-medium sized enterprises (Boag, 1987). When an organization pursues multiple goal types, it is able to build a more comprehensive picture of the environment, which is then rewarded in the market (Settecase Ernst & Young LLP, 1999).

The complexity of organizational goal types is reflected in both the number of and the interdependence among organizational goal types applied by the organization. We define *goal type complexity* as the number of organizational goal types emphasized by an organization. Our definition of goal type complexity omits interdependence among goal types because of the intractability of studying such interdependence and because prior research on organizational complexity has defined it in terms of the number of organizational elements (Boisot & Child, 1999, Morel & Ramanujam, 1999). Multiple goal types increase complexity and provide organizations with broader representations of their environments and of their relationships with other organizations. Like open-mindedness in individuals, these broader representations help organizations remain open to a broader range of environmental possibilities (Bourgeois, 1985). A greater number of goal types enables organizations to be more receptive to market possibilities. It also facilitates the balancing of conflicting goals, e.g. conflicting interests among various stakeholders or the conflicting objectives of exploration and exploitation. Professional organizations need to have multiple objectives that reflect the values and interests of the professions (MacIver, 1955). *Goal type variability* relates to prioritization among goal types or diversity in the importance rankings that organizations attach to different goal types. For instance, when an organization does not prioritize its goal types, it faces greater goal variability because organizational decision-making is more difficult when goal types are deemed equally important. In contrast, when there is a clear priority among organizational goal types, decision-making is easier, and there is less ambiguity in the sequence of actions required for goal attainment.

2.3 *Industrial munificence and organizational goal types*

The relationship between organizations and external environments has received considerable attention in organization theory (Covin & Slevin, 1989; Miller & Friesen, 1983; Zahra, 1993). Along with other environmental factors such as uncertainty, instability, and hostility, the concept of industrial munificence has played a fundamental role in understanding the relationship between environmental conditions and the strategic decision-making process that occurs within organizations (Lumpkin & Dess, 2001; Zahra & Covin, 1995). *Industrial munificence* refers to the availability of resources and the number of external opportunities that are present in a specific environmental setting (Dess & Beard, 1984; Zahra, 1993). The plentiful resources and opportunities afforded to organizations in munificent environments tend to allow these organizations to enjoy heightened levels of competitive success when exploiting current business strengths (Castrogiovanni, 1991). As a result, a more proactive and risky strategic orientation can be adopted, which in turn encourages exploration of new market opportunities (Baird & Thomas, 1985; Lumpkin & Dess, 1996; Schafer, 1990).

A critical characteristic of organizations' contexts, industrial munificence is manifested in organizations' abilities to attain their goals (Dess & Beard, 1984; Pfeffer & Salancik, 1978; Randolph & Dess, 1984; Staw & Szawajkowski,

1975; Tushman & Anderson, 1986). Two different views of munificence have emerged. One perspective, environmental determinism, portrays the environment as an outside set of conditions to which organizations must adapt (Aldrich, 1979; Hannan & Freeman, 1977). The other perspective, strategic choice, portrays the environment as a reality that organizations create via the selection of their perceptions (Child, 1972; Starbuck, 1976; Weick, 1979). This study follows a middle path between these two views by integrating an important strategic tool, organizational goals, into the relationship between environments and organizational performance. Our key assertion is that while the level of industrial munificence may serve as a defining contextual factor for organizations, especially for smaller organizations (Atherton, 2003), goal type complexity facilitates the process by which organizations recognize and utilize the support afforded them by environmental conditions and thereby helps them to attain their goals.

Munificent environments have been found to support organizations' growth and performance (Gelderen, Frese, and Thurik, 2000; Dollinger & Golden, 1992). The greater the level of industrial munificence, the more opportunities the environment provides and therefore the easier it is for organizations to survive and prosper (Castrogiovanni, 1991). Applying the concept to small-to-medium sized enterprises, Dubini (1988) characterized a munificent environment as having: an economy that is diversified in terms of the sizes of companies and the industries represented, an infrastructure that is rich in skilled human resources, a financial community that is solid, and government incentives that support the creation and development of new businesses. Similarly, Gnyawali and Fogel (1994) emphasized the socio-economic dimension of a munificent environment and linked this dimension to the availability of assistance and support services that facilitate the entrepreneurial process. Korunka et al. (2003) split industrial resources into two categories: micro-social (e.g. family restrictions, support) and macro-social (e.g. social networks based on earlier occupational experience), both of which support entrepreneurs' goal attainment. Although there are differences, a common theme in these conceptualizations of industrial munificence is that it is generally easier in munificent environments for organizations to take advantage of external resources to realize their goals.

We hypothesize that an appropriate level of goal type complexity facilitates organizations' ability to exploit environmental resources to attain their goals. A greater number of goal types means that organizations are willing and able to acknowledge and balance the interests of multiple stakeholders and to maintain alertness toward direct and indirect environmental factors (Blau & McKinley, 1979; MacIver, 1955). In exploiting industrial munificence, organizations with such alertness face problems directly and search for the best way to solve them (Hoy & Hellriegel, 1982). A munificent environment presents opportunities that alert organizations are better able to recognize and exploit than are organizations with a narrower goal focus. Research on organizational goals has found that by maintaining multiple goals to satisfy a variety of constituencies, organizations are able to perceive their environments more accurately (Bourgeois, 1985). A clearer vision of the environment enables a more complete search for opportunities within an industry (Sutcliffe, 1994). Setting up multiple, conflicting goal types implies that an organization is willing to evaluate its situation and to consider several alternatives for both the present and the future (Brown & Eisenhardt, 1997). Thus, the greater the number of goal types an organization pursues, the more successful the organization is in exploiting environmental resources to attain its goals:

Hypothesis 1: Goal type complexity positively moderates the impact of industrial munificence on goal attainment.

While more goal types help organizations detect more opportunities in their industries and thereby reap more benefits from industrial munificence (Bourgeois, 1985; Brown & Eisenhardt, 1997), pursuing too many goal types could cause organizations to lose focus (Evan, 1976; Yuchtman & Seashore, 1967). When organizations engage in a broad search in exploring environmental opportunities, a clear priority among rules and actions makes exploration more efficient (Krouse, 1972). The degree to which organizations have a specific focus or goal type prioritization is reflected in the variability of the importance ascribed to goal types. Research on the goals of top management teams has applied a similar logic. While acknowledging that management team members must maintain a sufficient number of goal types in order to represent the interests of various constituencies (Bourgeois, 1985), scholars have also suggested that a certain congruence and prioritization among these goal types must be achieved in order for the goal types to be attained efficiently (Bourgeois, 1980; Child, 1974). Bailey and Malone (1970) found adverse consequences from focusing on either profit or sales (output) maximization. Focus on profit-maximization resulted in overcapitalization behaviors. Focus on sales or output maximization produced undercapitalization behaviors. However, placing equal emphasis on both goals was deemed problematic as well because of the confusion that it caused employees and its ambiguity in directing employees' activities.

While maintaining more organizational goal types benefits organizations by enhancing their alertness to environmental opportunities and their ability to exploit environmental resources, organizing or structuring goal types provides additional benefits. As we have indicated, the interdependences and interactions among goal types and

the actions that they require can be very complex. Goal type prioritization is a rough but simple measure of how well an organization structures or organizes its goal types. By establishing priorities among goal types, organizations lower variability. To the extent that organizations neglect to prioritize goal types, variability increases. Variability is maximized when organizations fail to distinguish among goals types in terms of their importance. While goal type complexity makes organizations more adaptive and thereby facilitates exploitation of industrial munificence, variability undermines exploitation by making organizations indecisive and pulling them in opposing directions at the same time:

Hypothesis 2: Goal type variability negatively moderates the impact of industrial munificence on goal attainment.

There is a potential internal conflict in our hypotheses regarding goal type complexity and variability. We asserted that the number of goal types – complexity – positively moderated the impact of munificence on goal type attainment, while goal type variability – the lack of prioritization – is a negative moderator. But if greater diversity in the form of more goal types has a positive effect, then why does greater diversity in the form of variability not have a positive impact also? This tug-of-war between diversity and focus has been a consistent theme in the study of organizational goals. Favoring focus, Child (1979) assumed that the less dispersed top management objectives were, the more successful the organization would be in attaining them. Bourgeois' (1980) empirical studies supported Child's assertion, which Bourgeois (1985) labeled "the value of consensus." The congruence of top managers' objectives is crucial in order to reduce intra-organizational politics and transaction costs associated with negotiation and coordination (Child, 1979). Favoring diversity, Simon (1964) asserted that organizations should pursue multiple goal types at the same time. According to Cyert and March (1963), success comes when all goal types are satisfied. The benefit of multiple goal types is that different goal types together suggest a complete picture of reality, and these diverse views encourage an innovative spirit, which helps organizations locate and make use of both the apparent and the hidden, under-exploited opportunities in their environments (Blau & McKinley, 1985). In later research, Bourgeois (1985: 568) – who favored focus – argued for a type of diversity in suggesting that the members of an organization's top management team should "focus on sufficiently different aspects of the environment so that their perceptions will not be homogeneous and they will maintain different goal sets adequately representing the organization's various constituencies."

We seek to resolve the potential conflict between focus and diversity in goal types by proposing a relationship between focus and diversity. Focus facilitates the exploitation of diversity. More specifically, the number of goal types is an even stronger moderator of the impact of munificence on goal type attainment when organizations order goal types by importance. We thus propose a three-way moderation: goal type variability moderates the moderating effect of goal type complexity on the relationship between the industrial munificence and goal attainment. Lower variability (prioritization) makes it easier for organizations to pursue multiple goal types simultaneously and yet efficiently. For a given number of goal types, emphasizing some goal types over others reduces negotiation and coordination efforts and thereby facilitates the identification and distribution of environmental resources (Bourgeois, 1980; Child, 1974) – as is suggested by the "the value of consensus" (Bourgeois, 1985). When organizational goal types are prioritized, the positive moderation effect of goal complexity on the relationship between industrial munificence and goal attainment is stronger.

Hypothesis 3: The goal variability negatively moderates the moderation effect of goal complexity on the relationship between industrial munificence and goal attainment.

Figure 1. summarizes the hypothesized relationships among industrial munificence, goal type complexity, goal type variability, and goal attainment. (See Figure 1)

3. Methodology

3.1 Data Collection and Sample

We chose to test our hypotheses using small-to-medium sized enterprises in order to reduce the impact of factors extraneous to our model. Large organizations are able to influence or enact their environments. Our study required that we be able to treat the environment as exogenous to organizations. We collected both primary and secondary data for our analyses. Our primary data came from a larger survey of a stratified random sample of companies in four countries: Australia, Sweden, Mexico, and the Netherlands. We used national databases, trade association membership lists, and business directories to construct our sample. The small-to-medium sized enterprises in our sample were in fourteen industries (i.e. food, wood, printing, rubber, chemicals, machine manufacturing, electronics products, transportation, programming, textile, services, construction, oil and gas, and other). Our primary data were collected using a pragmatic combination of questionnaires and on-site interviews. In Mexico, structured interviews were used due to the unreliability of the postal service; a two-wave mailing process was used in the other countries. Surveys were sent to 1,873 organizations believed to be small-to-medium sized

enterprises: 973 in Australia, 600 in Sweden, and 300 in the Netherlands. A modified on-site interview process was conducted in Mexico (650 organizations). The survey was formulated in English and then translated into the appropriate language. We confirmed the accuracy of translations using a double back-translation process (Brislin, 1980) and pilot tests. The study participants were decision makers - owners or general managers – of their companies.

We obtained a total of 880 responses. The mailing process resulted in 206 (21.2%) returned surveys from Australia, 180 (30.0%) from Sweden, and 131 (43.7%) from Norway. The on-site interviews in Mexico yielded 363 (55.8%) completed surveys. The overall response rate was 34.9% (880/2523). Consistent with the European (European Observatory for SMEs, 1995) and American (US Government Printing Office 1995) definitions of small-to-medium sized enterprises, we constrained the firm size in our sample to between 5 and 500 employees (Steensma et al., 2000). After removing the organizations with fewer than 5 and more than 500 employees, 654 small-to-medium sized enterprises remained.

We used archival data to calculate industrial munificence. Consistent with previous studies (Dess & Beard, 1984; Palmer & Wiseman, 1999), our archival data included industrial indices such as output, employees, value-added, and the number of establishments for the past five years ending in 1998. However, an examination of the available archival datasets revealed that different countries employed different industry codes between 1994 and 1998. After reviewing several potential sources, we determined that the *Structural Statistics* database provided the best fit for the analysis because it yielded the greatest number of consistent industry classifications, including food, wood, printing, rubber, chemicals, machine manufacturing, and electronics. While limiting the sample to these seven manufacturing industries could have reduced the range of munificence in our study, Mizik and Jacobson (2003) found that these seven industries have a broad range of uncertainty, including low industrial uncertainty (i.e., food and wood), moderate industrial uncertainty (i.e., chemicals, machine manufacturing, and rubber), and high industrial uncertainty (i.e., electronics). Narrowing our sample to these seven industries decreased the number of usable responses to 331.

Listwise deletion of firms with missing data resulted in a final sample of 227 firms, consisting of 26 Australian, 84 Swedish, 77 Mexican, and 40 Dutch firms. A comparatively larger proportion of organizations (23.8%) came from the machine manufacturing industry. The proportions of the sample accounted for by other industries were as follows: food (21.6%), printing (15.0%), wood (12.3%), electronics (11.0%), rubber (9.3%), and chemicals (7.0%). Table 1 lists the industry breakdown for each country, as well as for the total sample utilized in this study. (See Table 1)

We tested for non-response bias in each country by contacting a sub-sample of companies whose key decision makers did not return the surveys - or declined interviews in Mexico – in order to test whether these companies were significantly different from the companies in our final sample in terms of demographic measures such as firm size, industry, etc. No bias was detected. Because of the substantial reduction in sample size due to size constraints and missing data, we also conducted two one-way ANOVA analyses to test for bias. The first ANOVA assessed whether there were significant differences between the final sample and the cases excluded for size; the second ANOVA assessed whether there were significant differences in the final sample and the cases deleted due to missing-values. We identified no systematic bias in either test.

3.2 Measures

3.2.1 Goal type complexity.

Empirical analysis applying a complexity perspective generally employs a reductionistic approach. The unit in such analyses is organizational structures or business processes. Complexity is then operationalized as the number of structures or processes involved in organizational dynamics (Boisot & Child, 1999). Burton and Forsyth (1986) identified 14 elements to measure complexity. These elements included the number of product categories, the number of products, and the number of countries in which operations were conducted. Even as computing power has increased, i.e. personal computers have become more powerful, complexity has still been coded as the number of elements, the degree to which a task was programmed, or the number of exceptions (Morel & Ramanujam, 1999).

Consistent with prior empirical studies applying a complexity perspective, we measured goal type complexity as the number of goal types that are important to organizations. Specifically, we asked CEOs to evaluate the importance to their organization of the following strategic goal types: sales level (\$), sales growth rate, cash flow, gross profit, net profit from operations, return on investment (ROI), and the ability to fund business growth from profit. All items were scored on 5-point Likert scales. We identified the goal types rated at the highest level of importance (“5”) as the goal types that were most influential in organizational behaviors and outcomes. Our rationale for this measure was that only the most important goal types would be consistently employed in decision-making and

pursued (Blau & McKinley, 1979). A more pragmatic explanation for our measure is that without a cut-off value for importance, we would have had no variance in the number of goal types across organizations because respondents selected from a predetermined list of seven goal types.

3.2.2 Goal type variability

The standard deviation is the most commonly used measure of spread and variation in data (Bourgeois, 1985; Weiss, 2004). Bourgeois (1985) used the standard deviation to measure the goal diversity among top management team members. Consistent with Bourgeois (1985), we used the standard deviation in importance rating of the seven goal types to assess the prioritization or variability of organizational goal types. Our operationalization – based on the standard deviation – is inversely related to our theoretical construct of goal type variability. That is, the smaller the standard deviation (which indicates all seven goal types are rated similarly in importance), the more complicated the goal system and the higher the goal variability. For example, if an organization attaches an equal weight to each goal type, its goal type structure would be the most complicated, and the standard deviation would be zero. If an organization prioritizes goal types by attaching different ratings of importance to different goal types, the standard deviation would be higher, and the goal variability would be lower. We calculated our variability measure by subtracting the standard deviation from a constant so that the measure's direction would be consistent with our theoretical construct of goal type variability.

An alternative way to operationalize our variability measures would have been to use the composite measure developed by Tosi et al. (1971). However, we deemed the composite measure inappropriate for operationalizing our concept of goal type variability because it includes the mean as the denominator. As a result, organizational elements with the same goal type variability but different means would have different values. Because our conceptualization of goal type variability focuses strictly on the variance in the organizational goal type itself, adjusting the variance based on the variable mean would not be consistent with our conceptualization. For example, organization A might assign all five goal types an importance rating of 3 (on a Likert scale of 1 “not important at all” to 5 “very important”), and organization B may assign them all an importance rating of 5. Even though the mean levels for organization A and B are different, the resources would in principle be allocated equally across the five goals in both cases. Therefore, their goal type variability is the same, and the organizations' measures of goal type variability should also be equal. Our operationalization yields the same result for both; a composite measure would not.

3.2.3 Objective industrial munificence

Following Dess and Beard (1984) and Palmer and Wiseman (1999), we measured objective industrial munificence by regressing industrial sales, total industrial employment, and industrial value-added for each industry for the five years prior to the year of the survey. Munificence was calculated using a ratio of the regression slope coefficients (B) to the mean value of the dependent variables. Consistent with Sutcliffe (1994), the final munificence measure was expressed as the arithmetic average of the three ratios.

3.2.4 Goal type attainment

For the dependent variable in our analyses, we employed a subjective measure of goal type attainment based on seven items that required managers to evaluate the degree to which they were satisfied with their company's performance in terms of seven criteria: sales level (\$), sales growth rate, cash flow, gross profit, net profit from operations, return on investment (ROI), and the ability to fund business growth from profit. All responses were to 5-point Likert scales ranging from “not satisfied at all” to “highly satisfied.” Rather than weighting each type equally, we used each CEO's importance rating for each goal type as a weight. That is, we weighted the attainment responses for each goal type by multiplying each response by the corresponding importance rating, and we then averaged these products to generate our measure of goal type attainment. Weighting goal types by their importance is critical to the validity of our measure because different organizations emphasize different goal types, and a measure of goal type attainment needs to reflect this variance.

We chose to employ subjective rather than objective measures of goal attainment in our study for several reasons. Absolute scores on financial performance criteria are affected by industrial-related and country factors (Miller & Toulouse, 1986). Directly comparing objective measures across industries and countries can thus be misleading (Covin & Slevin, 1989). Subjective measures are presumably less susceptible to distortions from inter-industry differences. In addition, respondents – for a variety of reasons such as taxes, business secrets, or social desirability – cannot or will not provide the desired organization-level performance information (Fiorito & LaForge, 1986). For this reason, subjective performance measures may yield more complete data (Covin & Slevin, 1989). Furthermore, objective financial data for many firms, especially smaller and privately held firms, are simply not publicly available, and this problem is compounded in cross-national studies.

3.3 Control variables

3.3.1 External environment

Consistent with prior research (Dess & Beard, 1984; Palmer & Wiseman, 1999) and in order to control for other elements of environmental uncertainty, we included environmental instability (Miller & Friesen, 1983) and environmental complexity (Downey & Slocum, 1975) as control variables. *Environmental instability* reflects the rate of change in the environment (Miller & Friesen, 1983). We operationalized it as the mean of the ratios of the standard errors of the three regressions used to measure munificence to the mean value of the dependent variables. *Environmental complexity* represents the competitive intensity in each industry (Downey & Slocum, 1975). Our objective environmental complexity measure was obtained by counting the number of the industrial establishments as the proxy of the number of industrial competitors (Palmer & Wiseman, 1999). These additional environmental controls allowed us to account for potential industry effects across countries. We found high correlations between the two environmental variables and the country dummies and industry dummies (VIF varied from 4 to 14); these correlations were not surprising because industrial conditions vary systematically across industries and across countries. Therefore, we included only the two environmental variables as controls because these two measures summarized the information of three country dummies and six industry dummies and, therefore, provided more statistical power.

3.3.2 Firm size

Previous research has argued that smaller firms tend to be at a resource disadvantage compared to their larger counterparts (Calof, 1993). Therefore, we controlled for *firm size*, as measured by the number of employees, to account for each firm's resource sufficiency and economies of scale.

3.3.3 Internationalization

Companies that engage in international trade are less likely to be constrained by the industrial munificence in their home countries. We gauged each company's level of internationalization by asking the percentage of the company's current sales revenue that came from outside of the home country. This variable was included to account for international effects.

3.3.4 Entrepreneurial orientation

Our last control was *entrepreneurial orientation*, which has consistently appeared in research on smaller organizations (Tan & Litschert, 1994; Venkatraman, 1989). Entrepreneurial orientation gauges the strategic posture of organizations; differences in strategic posture may affect attainment of organizational goal types. In accordance with previous research, we applied the established measure of entrepreneurial orientation developed by Miller (1983) and later revised by Covin and Covin (1990), which emphasizes aggressive product-market innovations, risky projects, and a proclivity to pioneer innovations that preempt the competition. We verified the measure's dimensionality using confirmatory factor analysis (LISREL 8.7). The model fitness in terms of GFI, CFI, and NFI was above 0.90, indicating an acceptable measurement model. The reliability of the entrepreneurial orientation measure in our study was 0.78.

4. Analysis

The statistical analyses in our study were divided into three stages. First, we tested the direct impacts of goal type complexity, goal type variability, and industrial munificence on organizational performance (see Model 2 in Table 3). We then included two interaction items (see Model 3 in Table 3): 1) the interaction of goal type complexity and industrial munificence and 2) the interaction of goal type variability and industrial munificence. Finally, we included a three-way interaction item - the interaction of industrial munificence, goal type complexity, and goal type variability - to gauge the moderating effect of goal type variability on the moderating effect of goal type complexity (see Model 4 in Table 3).

Different from previous complexity studies (Burton and Forsyth 1986; Morel and Ramanujam 1999) or goal studies (Blau and McKinley 1979; Bourgeois 1985) which focused only on the number of organizational elements or the content of organizational goals, we examined the effects of both goal type complexity and goal type variability in the same organizational-level model. Even though the number of goal types does not have a linear relationship with the variability as measured by standard deviation, there might still be highly-correlated items that create problems. To prevent such problems, we applied the following two methods in our study. First, we examined the hypothesized effects by including measures for both goal type complexity and goal type variability in the same model. We then included each measure separately in other models in order to see whether the correlation between goal type complexity and goal type variability would change the results. Second, we used mean centered interaction items to decrease the multicollinearity among the interaction items and the main-effect variables (Aiken

& Stephen, 1991; Jaccard, Turrisi, & Choi, 1990).

5. Results

The means, standard deviations, and the correlations of the variables employed in our analyses are listed in Table 2. Our goal type complexity measure was positively and significantly related to the firm size while the goal type variability measure was not. This may indicate that the larger organizations are, the more goals they pursue. The observed relationship between firm size and goal type complexity may indicate an interesting direction for future research. (See Table 2)

Objective munificence and both goal type complexity and goal type variability are included as independent variables in Model 2 (Table 3). The archival measure of the industrial munificence, in accordance with previous research on organizational performance, positively and significantly related to goal type attainment ($\beta = .18$, $p < .05$, two-tailed test). Goal type complexity had a significantly positive impact on goal type attainment ($\beta = .42$, $p < .001$, two-tailed test), suggesting pursuit of multiple goal types supports attainment of goal types. However, goal type variability was not significantly related to goal type attainment ($\beta = .08$, $p > .05$, two-tailed test), suggesting that prioritization of organizational goal types has no direct impact on goal type attainment.

To test H1 and H2, we added two interaction items into the model (see Model 3 in Table 3); these items gauge the moderation effects of goal type complexity and goal type variability on the relationship between industrial munificence and goal type attainment. As shown in Model 3, the interaction item of industrial munificence and goal type complexity had a positive impact on the relationship between industrial munificence and goal type attainment ($\beta = .14$, $p < .05$, two-tailed test), which indicated that the more goal types an organization emphasized, the better it was able to attain desired goal types. Therefore, H1 was supported. The interaction of industrial munificence and goal type variability had an even stronger moderating impact on the relationship between industrial munificence and goal type attainment ($\beta = -.50$, $p < .001$, two-tailed test), supporting H2. By prioritizing goal types, organizations were better able to utilize industrial resources in achieving organizational goal types. To further explore the effect of goal type variability on goal type attainment, we conducted an additional regression analysis in which we included a three-way interaction of industrial munificence, goal type complexity, and goal type variability. This three-way moderation was not significant ($\beta = -.11$, $p > .05$, two-tailed test) although the sign of the regression coefficient was in the right direction (see Model 4 in Table 3). Therefore, H3 was not supported.

Although the collinearity between goal type complexity and goal type variability was not substantial ($VIF < 2$), we nonetheless tested H1 and H2 in separate models as well, one with goal type complexity but not goal type variability, and the other with goal type variability but not goal type complexity. The results confirmed the above findings. Both goal type complexity and goal type variability significantly and positively moderated the relationship between industrial munificence and goal attainment. In adding the three-way interaction item without the two-way interaction items, we again found no significant relationship between goal type variability and goal type attainment. These supplemental analyses confirmed the results shown in Table 3.

6. Limitations

As with any study, our findings are subject to both empirical and theoretical limitations and should be interpreted in light of these limitations. We employed a survey methodology that may be subject to common methods variance. In order to address this potential problem, we employed archival uncertainty measures from a different data source. In addition, we conducted Harmon's one factor test (Podsakoff & Organ, 1986). The items that were used to measure both dependent and independent variables were entered into one exploratory factor analysis. In analyzing the covariance matrix, we found that the first factor accounted for only 16% of the total variance, which suggested that no single factor accounted for the majority of covariance; therefore, common method variance is not solely responsible for our findings. Moreover, items from both endogenous and exogenous variables tended to load on different factors. Thus, common method bias would not explain many interactive relationships between the predictor and outcome variables. A second limitation is that the missing primary and archival data significantly reduced the response rate in terms of useable surveys. While this could have biased the results, statistical comparisons revealed no significant differences in key variables between organizations included in our study and those eliminated due to missing data.

More subtle but no less important are the theoretical limitations of our study. To make possible comparison of goals across organizations, industries, and countries, we focused on goal types rather than goals. However, since the goal type is a relatively novel construct, we had to base much of our discussion on the existing literature that is focused on goals. Goal and goal type are two closely related but subtly different concepts. More research is needed to delineate fully the differences between goal and goal types, but such research will have to overcome the challenge inherent in the idiosyncratic nature of organizational goals. A related issue that is both theoretical and

empirical is that we identified seven goal types *a priori* and requested managers to respond in terms of these seven types. Perhaps there are more types. Perhaps some of our seven should not have been included. Our intention was to select a reasonable and representative set of organizational goal types and to determine what impact, if any, the complexity and variability of these types had on goal attainment. Our seven goal types are at a minimum a reasonable extension of those identified by Cyert and March (1963), but future research using other sets of goal types is needed to confirm the robustness of our findings.

7. Implications and Conclusions

It might seem that organizations would be more successful in attaining their goals if they winnowed their list of goals. Managers could then focus their resources and efforts on achieving their short list of goals. There is certainly a good deal of face validity in the argument that pursuing multiple goals makes goal attainment more difficult. Jack Welch achieved much success as CEO of General Electric while commanding his managers to be number one or two in each market or to divest the business unit. Welch's mantra is consistent with a very narrow focus on just one type of goal, i.e. market share. Organizations have limited resources and are bounded rationality. Pursuit of multiple goals taxes both the resources and rationality that organizations can bring to bear. Perhaps focusing limited resources and managerial capabilities on one goal type, such as market share, yields the best results. But organizations have several types of shareholders, each with different needs (Blau & McKinley, 1979; MacIver, 1955). Organizations must interact with their environments in their pursuit of goals, and forces in their environments, especially competitive pressures, push them in several different directions at once (Bourgeois, 1985; Brown & Eisenhardt, 1997). Interdependence among goals also makes it difficult for organizations to narrow their goals because attainment of one goal might require pursuit of other goals as well, and there may be economies of scope in pursuing related goals. Organizations are thus compelled by stakeholders, environmental pressures, and goal interdependence to pursue several types of goals at the same time. The popularity of Kaplan and Norton's (1996) "balanced scorecard" would seem to confirm that managers believe their organizations must pursue several goals at the same time in order to succeed. But should managers try to maintain a balanced scorecard or should they follow Welch's example of laser-like goal focus?

Although our study does not conclusively resolve the conflict between diversity and focus of organizational goals, it does provide new insight into when and how organizations should pursue multiple goals. While industrial munificence is critical for organizations - especially smaller organizations - to survive and prosper (Dubini, 1988; Gnyawali & Fogel, 1994; Korunka et al., 2003), our study suggests that organizations are better able to exploit munificence when they prioritize goals and strategies (Child, 1972; Starbuck, 1976; Weick, 1979). While there are almost certainly other mechanisms involved, especially for large organizations, we found evidence that smaller organizations are better able to take advantage of the resources and opportunities in their environments when they place high importance on multiple goal types. Differentiating among goal types in terms of their importance, i.e. prioritization or low variability, appears to have a similar, positive effect on exploitation of resources and opportunities. These findings seem to imply that prioritization or low variability among goal types would enhance the positive effect that comes with placing high importance on multiple goal types, but we were not able to confirm this conjecture in the form of a three-way interaction effect. Our results suggest that the effect might be detectable in a larger sample, but we suspect that better operationalizations of goal type complexity and variability might be required. Future research is needed to explore in more detail the relationship between prioritization and complexity of goals. The final answer will probably not be *whether* a balanced scorecard or "Neutron Jack's" advice is better but *when* or *under what conditions* each approach yields the best results.

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Table 1. Useable responses by industry and country

Country/Industry	Australia	Sweden	Mexico	Netherlands	Total	Percentage (%)
Food	2	14	29	4	49	21.6
Wood	1	17	4	6	28	12.3
Print	0	21	4	9	34	15.0
Rubber	3	8	6	4	21	9.3
Chemicals	0	3	9	4	16	7.0
Machine	13	18	13	10	54	23.8
Electronics	7	3	12	3	25	11.0
Total	26	84	77	40	227	100
Percentage (%)	11.5	37.0	33.9	17.6	100	

Table 2. Means, standard deviations, and correlations

	1	2	3	4	5	6	7	8	9
Mean	85.43	2.36	9.39	.10	.02	15419.41	61.14	22.18	24.31
S.D.	29.22	2.22	.78	.07	.01	29424.53	79.02	30.36	5.91
1. Goal Attainment	1								
2. Goal Complexity	.43***	1							
3. Goal Diversity	-.05	.11	1						
4. Industrial Munificence	.20**	.10	-.06	1					
5. Industrial Dynamism	-.039	-.06	-.00	.56***	1				
6. Industrial Complexity	.15*	.18**	.09	.26***	.02	1			
7. Firm Size	.26***	.15*	-.11	.35***	.03	.27***	1		
8. Internationalization	.004	-.04	-.15*	.33***	.15*	-.08	.41***	1	
9. Entrepreneurial Orientation	.120 [†]	.07	.11 [†]	.17**	.03	.04	.24***	.13*	1

[†] p < .10 (2-tailed).

* p < .05 (2-tailed).

** p < .01 level (2-tailed).

*** p < .001 (2-tailed).

Table 3. Results from regression analyses

Dependent Variable = Goal Attainment				
	Model 1	Model 2	Model 3	Model 4
Controls				
Size	.28*** (.03)	.18** (.03)	.17** (.02)	.18** (.02)
Internationalization	-.12 [†] (.07)	-.13* (.06)	-.13* (.06)	-.13* (.06)
Entrepreneurial Orientation	.07 (.32)	.05 (.29)	.08 (.28)	.09 (.28)
Industrial Complexity	.08 (.00)	-.00 (.00)	-.01 (.00)	-.01 (.00)
Industrial Dynamism	-.04 (165.70)	-.11 (182.03)	-.09 (174.08)	-.09 (173.86)
Independent Variables				
Industrial Munificence		.18* (31.62)	.17* (31.22)	.18* (31.21)
Goal Complexity		.42*** (.78)	.39*** (.75)	.38*** (.75)
Goal Diversity		-.08 (2.19)	.34** (4.01)	.29* (4.26)
Two-Way Moderation Effects				
Munificence * Goal Complexity			.14* (9.71)	.21** (12.63)
Munificence * Goal Diversity			-.50*** (47.95)	-.48*** (48.56)
Three-Way Moderation Effect				
Munificence * Goal Complexity * Goal Diversity				-.11 (30.27)
Model Fitness				
R ²	.10	.30	.37	.38
Adj. R ²	.08	.27	.34	.34
F-value	4.94***	11.44***	12.53***	11.61***
d.f.	(5, 221)	(8, 218)	(10, 216)	(11, 215)
Δ R ²		.20	.07	.01
Δ F		20.12***	12.18***	1.84
Δ d.f.		3	2	1
[†] p < .10 (2-tailed), * p < .05 (2-tailed), ** p < .01 level (2-tailed), *** p < .001 (2-tailed).				

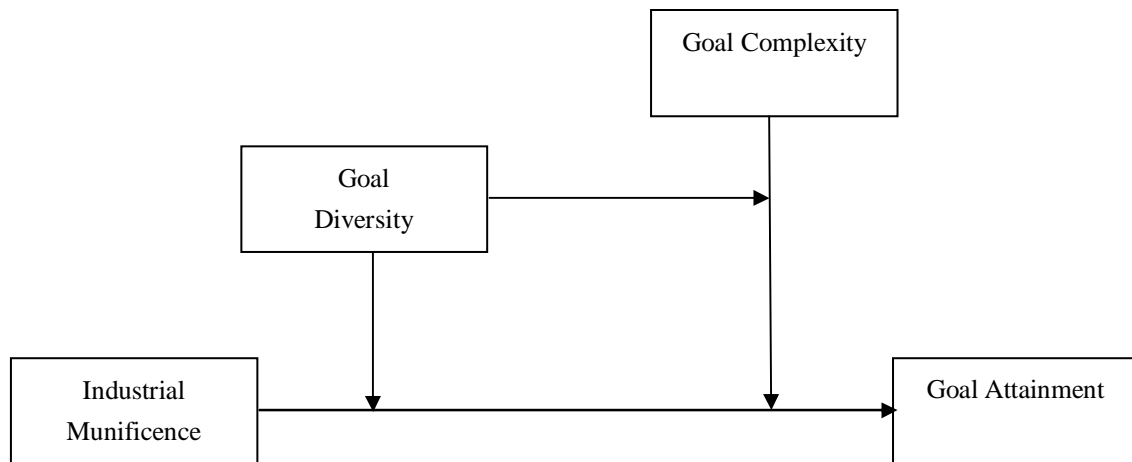


Figure 1. Conceptual Model

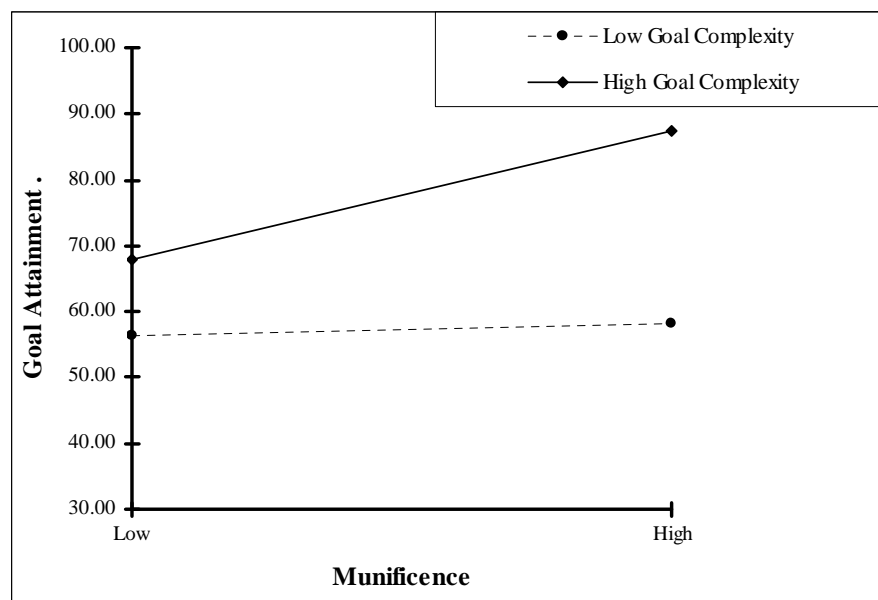


Figure 2. Interaction of Goal Complexity

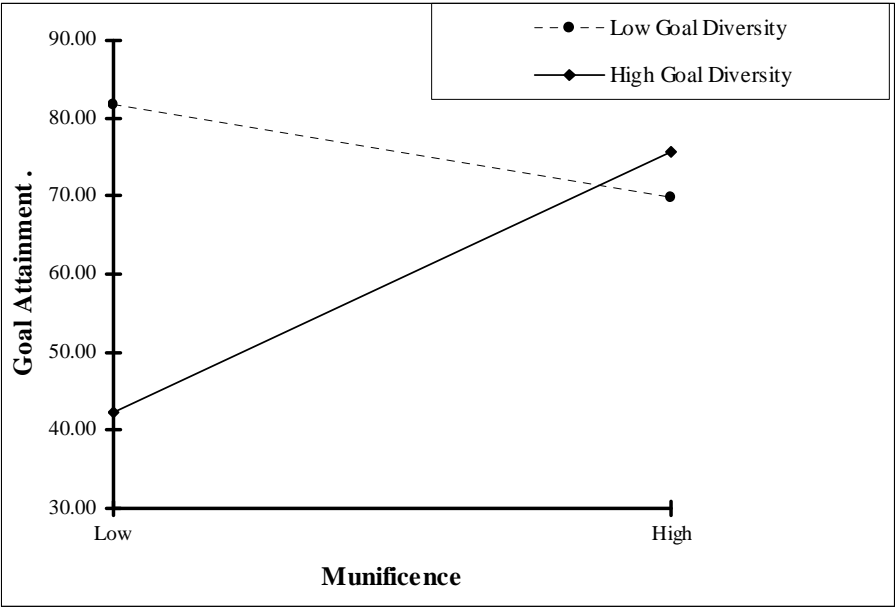


Figure 3. Interaction of Goal Diversity

Thinking about the Creativity Based on System Approach

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Abstract

Creativity is an essential element of success in contemporary organizations, yet much remains to be discovered about how creativity happens. Based on the system approach, this paper tries to explore how the creativity happens in the minds of individuals. Then it gives three cases to discuss the process of an idea for new product or new technology. And finally, it shows the result of creating knowledge is not an individual's activity but continual interaction standing in individuals or between system and its environment.

Keywords: Creativity, System approach, Interaction

1. Basic concepts and principles of system theory

The system theory is one of the methodological trends in modern science. It thinks that behaviors or characteristics of system depend on both the elements and the interaction in elements (Bertalanffy 1969). Broadly speaking, the interaction means the exchange of both energy and materials in system elements as well as system with its environment. In a system of developing creative thinking, the interaction can be performed in many activities such as argument, discussion, learning, talking, showing, exhibitions and so on. And the exchange of energy and materials can be understood as exchange of insights, institutions, knowledge, information, thoughts and so on. To better understand how the interaction in elements promotes to happen creativity, we first brief give the system knowledge.

Bertalanffy pointed out that a system can be defined as a complex of elements standing in interacting (Bertalanffy, 1969). In dealing with the interaction in elements, the following Figure.1 can give a simple graphical illustration. (See Figure 1)

In case *a* and *b*, the complex is not a system and it may be only understood as the sum of elements considered in isolation because of no interaction between them. The behaviors of the complex may be directly derived from the behavior of the parts when the total of parts contained in a complex is known. In case *c*, the complex may be thought as a system because of elements in complex standing in interacting and may be able to emerge some new characteristics derived from the interaction in elements. System knowledge thinks that the characteristics and behavior of a system are dependent on not only the elements, but also the relations within the complex. They can be described with the following mainly properties (Bertalanffy, 1969; V.Blauberger, 1977)

1.1 Constitutive

The constitutive characteristics are rooted in continually dynamic interaction within the complex, for understanding such characteristics we therefore must know not only the elements in the system, but also the relations in elements.

1.2 Wholeness

It means that "the whole is more than the sum of parts". In other words, the characteristics and behaviors of a system may not be simply derived from the characteristics of isolated parts. The characteristics of the complex, therefore, compared to those of the elements, appear as "new" or "emergent". For example, the non-inflammation of H₂O molecule is a new characteristic emerged from the interaction between an atom of hydrogen (inflammation) and an atom of oxygen (combustibility) and this characteristic is not available for isolated hydrogen or oxygen element.

1.3 Openness

This characteristic shows that there is a continual exchange of energy and matter happen between system and its environment. Any variation in environment irritates the system and its all elements and brings about a variation in the whole system, and vice versa, variations of the system and any element affect the environment around the system.

Dynamic interaction existed in elementary reactions in parts and in continual exchange of energy and matter

between system and its environment is proved to be the most important feature of system and to be the drive of evolution and development of system.

2. Creativity knowledge of systems theory

Based on the approach of system science, we can explain how the creativity happens in the minds of individuals or in group processes. Thinking a group or individuals making ideas or creating knowledge as a whole, we describe that the members or the individuals are the elements of system, that the interaction is presented in exchange of knowledge, insights, information in members or in individuals or between system and its environment and that system characteristics is creativity depended on not only the individuals, but also continually dynamics relations in individuals.

From a view of system, creating knowledge is not an individual's activity but continual interaction standing in individuals or between system and its environment although new knowledge maybe begin with an individual's personal highly subjective and vague insight. Presuming some meaning but vague ideas for new product or new technology are come up with from an individual at a project-development team. And these ideas would directly stimulate other members in the team to further think and argue what the vague idea might possibly mean. In response of the argument, the initial vague ideas are inspired and improved in the form of yet clear ideas and in turn the clear ideas further enrich and add them. During this process, team members broaden, extend, and enrich their knowledge toward more clear ideas. Then they put together what they knew in new ways and argue the advantages and disadvantages of the improved-ideas again, but this time at a higher level. Such, a spiral of ideas for new knowledge or new product is eventually formed, from vague to clear and then more clear and finally an actual model which may make innovative product and technology. In the process of active argument and discussion, the exchange of thought and knowledge in members plays a catalyst and important role. So it can be said that creativity is from the result of strong interaction in members. Similarly, when the environment takes place change such as market shifting, technologies proliferating, competitors multiplying, it may bring the system members new intuitions and insights. To adjust themselves to changed environment, the members of project-development system would further discuss and then respond them with more clear concepts. As a result, the team rewards the changed-environment by providing quality products or better service. It is the interaction in members that inspires or perfects vague ideas into valuable product concepts and create knowledge about new products and new technologies. This explains well that any an individual alone is not enough to complete new knowledge-creating but the product of dynamic interaction among team members because any individual is only good at his own narrow perspective while losing sight of broader context. To understand the potential of this interaction in creativity development, consider the following company names: Honda, the maker of automobile, Japan; China Mobile Company, a mobile communications company; Shaoxing Textile County, China textile center. Although they all operate at different industries, they have something in common: each perfected models of new products development or knowledge creating from vague ideas through continual interaction in individuals.

3. How three companies do it

3.1 Honda Company

Honda's Accord car models were and are familiar to all of us. They were good examples to understand how a vague idea was converted into a new product through interaction in team individuals (Ikujiro Nonaka, 2007).

To develop a favor car for the new postwar generation in Japan, a vogue idea "Let's gamble" was begun with top management at Honda in 1978. To transfer the idea into real product, Honda Company formed a new-product development team which was given only two instructions: one was to come up with a product concept fundamentally different from anything the company had ever done before; and second was to make a car that was inexpensive but not cheap. Following the instructions, team members proposed the first insight "inventing something totally new". Thus "What's totally new" and "How to be new" became main topics argued and discussed by team members. After continual exchange, feedback and collision of knowledge, insights and information, team members converted the slogan into "theory of automobile evolution" and then eventually came to get a more clear concept of ideal cars "man-maximum and machine-minimum" totally contradicting the traditional wisdom about automobile design at that time, which emphasized long, low sedans. Further arguing, they reasoned that "man-maximum" meant that new car could provide the most room for the passenger but not sacrifice comfort and "machine-minimum" meant that new car should minimize the space taken up by the engine and other mechanical systems and be cheaper and lighter but also more solid than traditional cars. As a result, a product concept called "Tall Boy" was given birth and then led to an actual and revolutionary styling car Honda City, which has become the company's distinctive urban car for its taking up the least amount of space on the road and has resulted in the new generation of "tall and short" cars now quite prevalent.

3.2 China Mobile Communications Corporation (short for China Mobile)

China Mobile's many new service ideas originated from its customers and then were step by step come true in exchange of ideas and information between the company researchers with its customers (Wang Qiyun, 2006).

For instance, mobile value-added service called M-zone catering for younger fashionable people was developed from a vogue insight which mobile phone should hold multi-function like Switzerland Knife through interaction in members. "What's the preference of the younger in mobile services? They are a fun group who seeks for being fashion, personalizing, feeling excited, liking consumption but lesser money". Thus, it became critical for the company how to express this knowledge and how to embody this knowledge into younger's favor service. The company began the service development with holding many interesting activities on university campus, such as mobile interactive message service match, special performance for university students, and campus-dance which was directly joined by over 6 millions campus-students with enthusiasm. Through these mutual activities, the company further cleared the multi-function service for campus-students mainly in two ways: one was various innovative personalized services and the other was various fee packages of cheaper unit service price but series service consumption required. In extending service, the company was fully use wireless function to provide not only sounds service such as giving calls, receiving calls and leaving message but also pictures or letters service such as online entertainment, downloading personalized ring tones and pictures, transferring pictures or letters each other, games treasure, enjoying various special information services such as weather, restaurant, sports or other interested by users. Inspired by the successful cooperation with McDonald, the company confidently declared that it is possible for the company to provide more special services for younger generation according to their preference. In price, M-zone service provided extra-value service which was free month-rent, 500 mobile-letters for only RMB¥30 dollars, average one mobile-letter for RMB¥0.6 dollars lesser than regular at least RMB¥1.0 dollar for one. These services developed with extra-value and low unit price but series consumption could made the younger generation enjoy entertainment possible at any places, on the ways or at home, and at any time, by day or at night and could meet very well the needs of younger persons. What's more, they were very fit the live style of campus students. In the short 15 months from the beginning, M-zone has "moved" over 20 millions younger to enjoy these services, averagely increasing one more customer in every 3 seconds and become one of three main services in the company.

3.3 Shaoxin Textile County

Shaoxin Textile County's development from a traditional small textile county into China Textile Center was also result of interaction among multi-actors such as enterprises, government, intellectuals, researchers, and so on (Dai Hongmei, 2006).

Shaoxin county is one of top ten industry counties in China. Its 70% of the total revenue came from textile industry so that it was reputed to be an industry county on a cloth. But recent years, Shaoxing textile industry has met critical challenge from the cost of raw materials in production highly increased, the technologies in textile industry backward and the trade friction often happened in international markets. In these situations, "what to do and How to do for Shaoxing's textile industry" were fiercely discussed among the entrepreneurs, government officers, researchers and intellectuals. Investigating, arguing, and then investigating, arguing again, over and over, they gradually recognized that Shaoxing Textile County would orientate as China Textile Silicon and improve toward two directions: one was to extend textile industrial chain and the other was to develop new products with modern technologies. In extending industrial chain, they developed from past single clothing production to present products on whole textile chain including PTA (Pure Terephthalic Acid), polyester, chemical fiber, clothing and apparel. In new products, they expanded cloth products from previous only for clothing to present for automobile cloth, surgical clothing, farm cloth, wet towel, and lint lenses. These achievements were made mainly from the interaction among members on the "Innovation Platform of Modern Textile and Equipment, Zhejiang" which was not a special department or organization but a flexible structure. According to project, actors were dynamically constituted to a team who exchanged insights, information, and knowledge. And then new ideas from discussion were quickly put into practice at local medium-small enterprises to test if they could be converted into meaning products. By these ways, they developed many new value products. In 2005, the revenue from textile industries reached over RMB¥100 billions in Shaoxing Textile County.

4. Managerial implications

Each of three companies got the ideas of products-developed or services-developed by the different ways of interaction at different scopes. For Hodon, the interaction was fallen on the members of new products-developed team. In the case of China Mobile, for developing new service, its interaction was extended from the company's researchers to younger consumers. Shaoxin Textile County dynamically aggregated relative actors to join the interaction according to the needs of different projects.

Generally speaking, a value idea maybe begin with someone' vague insight but must be gradually perfected through continual exchange of energy and knowledge in members, in other words through interaction in elements of system because an individual's knowledge is very limited. As a system of knowledge-creating, converting new ideas into value products concepts or models must be eventually completed in elements' continual interaction which is a good platform of knowledge integration. Such as Albert Einstein said that the most essential characteristics of creativity is knowledge integration. Therefore, making a liberal atmosphere for the actors to join interaction is most fundamental because creators in safety and freedom of mind can fully and effectively stimulate and trigger one another. Thus, various knowledge and insights are synthesized and improved during actively discussion and argument and then new and value concepts are be able to be perfected. if people' creating thoughts are often inspired and encouraged by their environment, they will become men with creativity (Peter, 2002). Then members to join value thought-developed teams are also required with different knowledge and information because the creativity is, in fact, a kind of ability integrating many insights to form value idea whereas homogeneous elements could not form a system which emerges new characteristics. An example in life is a good explanation. Many automobile engines even with most excellent quality put together could not be assembled an automobile car but the sum of engines considered in isolation. Whereas an engine is combined with other automobile parts of different function such as automobile chassis, body, and electrical equipment, this can emerge a function of automobile car.

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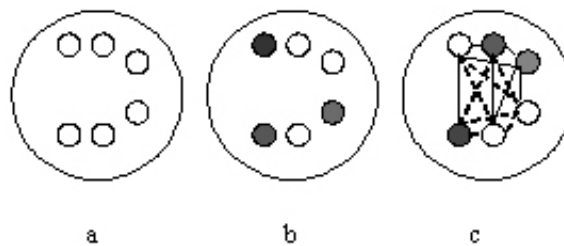


Figure 1. A System of Graphical Illustration

Focus Shift and Outsourcing in University Libraries' Acquisition and Cataloguing

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Abstract

Focus shift and outsourcing in university libraries' acquisition and cataloguing, which are the trends of re-composition and optimized allocation of social resources in market mechanism, will help to improve the quality of document construction as well as the efficiency of acquisition and cataloguing and allocate human resources in a more reasonable way. Nowadays, outsourcing of books has become usual practice in libraries. It should be the future focus to construct scientific and reasonable collection structure, acquire books in different channels, forms and at different levels and to extend acquisition and cataloguing services.

Keywords: University library, Acquisition and cataloguing, Outsourcing, Document resources construction, Market mechanism, Human resources allocation

1. Introduction

It is the difficult as well as key point for libraries to construct their resources in a scientific and reasonable way and to improve the rate of protection and utilization of these resources. At 1st National Seminar on Document Acquisition held in Kunming in 2005, the issues of "digital document resources Acquisition" and "how to relocate the cataloguing department" were put forward to call on a joint effort for solutions. Library acquisition should be supported in theory, through which all libraries' successful experience and patterns can be learned and perfected by others. From our library beginning to outsource some services in 2004 to our acquisition of over 350,000 foreign and Chinese books (including 160,000 special offers) and then to our inspection of 320,000 processed books, there has been no increase in the acquisition and cataloguing staff. What's more, there has been obvious improvement in the quality of processing and cataloguing data and acquisition has had richer forms and more profound contents. Although the issue on outsourcing is on longer new for us, it is still necessary to explore it from the perspectives of reasonable allocation of social resources, re-composition of acquisition service and reasonable allocation of human resources in market mechanism.

Originating from industrial enterprises in 1980s, outsourcing has been an innovative management method. By employing this strategy effectively, enterprises are able to avoid unlimited expansion, and achieve their goals of downsizing and paying more attention to their professional fields. Not until the middle and late 1980s did outsourcing begin to be accepted by most libraries. In the west, many libraries outsource their routine tasks, such as cleaning, security guard, unpacking, attaching labels, binding, putting book onto and off shelves. Furthermore, they even outsource some professional tasks to some professional companies, such as data base construction, computer system management and equipment maintenance and so on. This service reached its peak in the middle and late 1990s, when the outsourcing of a whole library caused heated controversy. In China, outsourcing began to be employed in the 1990s with its focus mainly on routine tasks and catalogue compilation.

2. Practice and Experience of Outsourcing in Libraries

Here outsourcing in libraries means that some services in libraries are entrusted to the middlemen according to contracts. Outsourcing can be achieved in interviewing, catalogue compiling, processing, periodical binding, cleaning and security guard, management of reading rooms and so on (Fucheng Zhu, 2000). Employing this method, all processing services, including attaching magnetic stripes, stamping, fixing bar codes and labels and so on, will be done by the middlemen. In most cases, the middlemen organize their staff to work on the spot, whose work will be examined by the library staff in order to improve their efficiency and processing quality. However, an out-of-town middleman will have to deal with the whole processing course in his place, hence lacking in libraries' control and examination.

During the outsourcing course, libraries are expected to undertake some tasks such as planning, laying down goals

and standards, monitoring, evaluating quality and perfecting processes and so on. All in all, the following aspects should be included:

Libraries are expected to assess the middlemen's credit, including their finance, human resources, credit, management control and efficiency, service quality, price and so on.

How to choose a middleman is quite important for the final result of the outsourcing practice. To be more specific, quite a few aspects of a middleman should be taken into consideration, including its scale, staff number, reputation, efficiency, service quality, work experience, professionals in processing, after-sale services, price and so on. In addition, management of the whole outsourcing process, especially the technical part should be attached much importance to. And an efficient feedback system should be set up to realize timely communication and adjustment.

Libraries should be careful in signing their outsourcing contracts, which include their goals, the expected profit, the category of cooperation, operational methods, division of duties, ownership, amendment and suspension of the contracts, payment, compensation and so on. Actually, libraries should include the processing service in their contracts when inviting public bidding for book acquisition. When checking the processed books, overall quality management should be employed and the national standard for books as well as libraries' internal standard for books should be referred to.

They are also expected to monitor the quality of processing. First, they should lay down some detailed rules for book processing according to the real situations, including the deadline, the position to attach labels and bar codes, the position and number of stamps, the number, brand and function of magnetic stripes, the position to put the table of returning deadlines, the disposal of enclosed disks and so on; second, they should give the middlemen some book samples for their references in rough and refined processing; third, the checking staff in libraries should examine the roughly-processed books (with magnetic stripes, stamps, bar codes and so on) and return those with problems; fourth, after finishing the compilation of catalogues and collecting, some refined processing tasks should be finished. In addition, the circulation department should check the processed books again finally to guarantee the processing quality.

They are also expected to do something in the economic accounting of cost and profit as well as communicative tasks. Before outsourcing their services, libraries should have a detailed analysis about the tasks and their human resources and reach a conclusion about which services are not so closely related to their core business, which services are difficult for them to complement, or which services will cost them too much and so on. After outsourcing their services, instead of getting out of touch, they should keep a close eye on the whole processing course to conduct supervision and management when necessary. (Fenge Wang, 2006) In addition, a feedback system, including suggestion boxes, electronic bulletin boards and comment boards and so on should be set up to enable readers to communicate with libraries. Due to the mutual benefit shared by libraries and the middlemen, they are expected to understand each other and increase their cooperation in order to ensure the smooth development of their services.

In short, the following goals should be achieved in outsourcing: not involving the management of libraries; encouraging the external positive factors and taking full advantage of human resources of the whole society; helping to reduce the cost and time spent in acquisition and cataloguing and therefore accumulating time and effort to achieve the construction of document resources.

3. Shifting Work Focus to Acquisition

With the adoption of outsourcing, libraries will shift their focus to acquisition, and accordingly, the acquisition and cataloguing department will be able to pay more attention to the construction of document resources following universities' requests in teaching, research and the construction of branches. Three conversions should be achieved with great effort.

3.1 Constructing Scientific and Reasonable Collection Structure

When purchasing books, some surveys about collection structure, the utilization of books, the ratio of teachers to students, development of scientific branches should be conducted and the offered specialties and the construction of key branches should be referred to to form a plan for the year's document resources construction. In order to form special collection characteristics, the structure of current document resources, different document types, different periods should be analyzed and then some special document resources should be purchased with the regional, resource and academic advantages. In addition, the percentage of students from different departments as well as their demands for books should be taken into consideration when planning for book acquisition. The number of copies should also be laid down according to the above information. For example, our university is professional in science with meteorology as a long-established major. Accordingly, in our plan for book collection, books on

atmospheric environment should be collected thoroughly; those on some key branches such as computer technology and electronic communication should be collected as an important part; those on mathematics, management, electronic business should be increased reasonably and those on literature and arts can be collected in an average number.

3.2 Shifting to Acquisition in Various Channels, Forms and at Different Levels

In order to improve the pertinency of our document resources acquisition, the systems of “acquisition in different branches” and “books chosen by experts” should be conducted with great effort. According to the former system, acquisition should be made in different branches of study. The acquisition staff is expected to collect those printed and digital document resources and purchase the ownership and utilization of these resources related to different branches. According to the latter, some consultants with passion in document construction, academic specialty in different fields and ability to grasp the trends of researches in their specialties will be chosen to give some advice on what books to choose. In this way, libraries are expected to break the former way in which the acquisition staff was divided according to document types and different languages. Rather, the acquisition staff divided according to different academic fields should form dynamic acquisition groups together with the committee of libraries and the experts in different fields to finish the acquisition task together. The acquisition staff of libraries should try to collect as much information about books as possible, classify it according to the key words provided by different departments and deliver it to experts in different departments or sometimes experts deliver the information about the demanded books to the relevant acquisition staff to put them in the purchase plan. In this way, experts’ enthusiasm for choosing books will be encouraged, and the utilization degree of the collected books will be increased as well. In addition, in the purchasing course, publishing houses should take dominance with suppliers serving as an auxiliary part. On one hand, it will take us less time and energy to get most books we need by turning to publishing houses as the main sources; on the other hand, suppliers will help us to find those document resources published by minor publishing houses in a short time.

3.3 Extending Acquisition and Cataloguing in Various aspects

First comes the extension in the ways of acquisition. Online acquisition (searching for document information--- selecting and ordering--- placing an order--- payment--- receiving document resources) can be used to shorten the purchasing period, hence more convenient and faster than the traditional ways. Second is the extension in the channels to learn about readers’ feedback. The former ways to have face-to-face surveys or fill in forms suffered from low efficiency, low accuracy, too many omissions and failures to satisfy readers’ demands. Instead, readers’ demands for books can be learned about through online forums, E-mail and BBS with high speed and high efficiency. Therefore, their demands tend to be satisfied better now. Third is the extension in catalogued materials. For example, disordered online information resources can be arranged to ensure their correctness and availability; the cataloguing of relevant information in collection shows certain document’s location in various carriers and links to relevant information. Some fields in MARC such as 307,753,856 should be put importance to in association searching in order to reveal the relevance among different document resources. Last is the extension in cataloguing objects. On one hand, cataloguing members will have greater convenience to process, describe and reveal document resources in a more profound way; on the other hand, readers’ deep-level demands to search for documents thoroughly and acquire relevant information more conveniently will be fulfilled.

4. Problems and Countermeasures in Focus Shift and Outsourcing

Nothing can be perfect, neither is outsourcing. Although it plays a quite important role in the improvement of efficiency and core competitiveness, it also suffers from some problems. For example, the acquisition and cataloguing staff will rely too much on the external technical power with a lot of services outsourced to the middlemen; with the cataloguing staff hired by the middlemen delivering and cataloguing document materials for clients, the books and data can be matched well but the unsteady quality of catalogued data will influence the standardization of cataloguing formats; the data collected by some authoritative institutions, such as China National Library, has been out of date in spite of its reliable quality; different middlemen process document resources in the same place at the same time, causing the possible occurrence of errors resulted from carelessness. In order to solve these problems, overall quality management should be conducted in the outsourced minor services. Adopting the idea of “systematic project”, the relevant departments should try to refine the operational flow and carry out “quota management” and guarantee orderly taking-over procedures. Special importance should be attached to data quality management, in which a permitted error rate is given and a universal standard for quality management should be given when using external data. To be more specific, Book Classification in China National Library can be used for classification indexes of Chinese books and Chinese Subject Thesaurus can be used for subject indexes. In addition, China Machine Readable Catalogue Handbook (CNMARC) can be employed to register Chinese document data, to check the copied data word by word and correct errors or contents not in conformity with the library’s detailed rules

and to expand the collection according to the reality. What's more, libraries should keep constant touch with the middlemen to guarantee the average checking amount and publishing amount of documents every month. When paying for services, the quality standard should be stuck to first.

5. Evaluation and Prospects

By turning to focus shift and outsourcing in libraries' acquisition and cataloguing, we are integrating and optimizing our social resources in market mechanism in order to improve libraries' efficiency and realize a management model in which libraries and the middlemen cooperate with their respective advantages. In spite of some problems in the present outsourcing practice of libraries, it reflects the trends for the re-division of some library functions. With the modernization and networking of libraries, the increase in the proportion of virtual collections and the popularity of online cataloguing, the staff in processing and data processing will give way to those in developing deep-level resources and guaranteeing document information. Actually, the outsourcing practice will not only encourage libraries to think over how to save their costs and improve their efficiency but also help them to renovate their operational processes and conduct their re-composition. With the changes in libraries' functions in this information era, it is an inevitable trend for modern libraries to shift their focuses and outsource their services. It is believed that outsourcing will have greater scope for development with the modernization of university libraries now and in the future.

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Theoretical and Practical Review of Capital Structure and its Determinants

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Abstract

Capital structure is the mixture of debt and equity financing. Its choice and determinants related to many different factors. This thesis firstly present several traditional theories discussed on capital structure, such as trade-off theory, agency cost theory and theory of pecking-order. Then the paper concluded seven determined factors from practical aspects and discussed on the correlations among these factors and the choice of capital structure.

Keywords: Capital structure, Pecking-order theory, Agency costs, Tangibility, Growth opportunity

1. Introduction

The capital structure of a firm describes the way in which a firm raised capital needed to establish and expand its business activities. It is a mixture of various types of equity and debt capital a firm maintained resulting from the firm's financing decisions.

More than four decades ago the modern theory of capital structure established after the publication of the celebrated paper of Modigliani and Miller (1958). Capital structure choice has inspired and fascinated many researchers. Countless studies investigated into the explanations of firms' capital structure choice, both theoretical studies and empirical ones. There still remains no clear answer to Myers 20 years old question (1984, p575) "How do firms choose their capital structure?" Different theories answer this question from different point of view. For instance, traditional trade-off theory postulates the existing of an optimal capital structure, which indicates the optimal choice of capital structure by firms is a balance of corporate tax shield against the bankruptcy cost and agency cost. However pecking order theory throws doubt on the existence of target capital structure, suggesting that firms use debt only when the internal financing is not available.

Previous studies concluded that firms' leverage ratio closely related to firm-level characteristics. For an instance, Harris and Raviv (1991) summarize that "leverage increases with fixed assets, non-debt tax shields, investment opportunities and firm size and decreases with volatility, advertising expenditure, the probability of bankruptcy, profitability and uniqueness of the product." Most of previous empirical evidences were based on US firms with few notable exceptions. However, the experience of a single country may cover the effects of different financial system and economic tradition on capital structure choice. Cross-country comparisons are essential for the understanding of the difference in leverage choices across countries. And also cross-country comparison can be used to suggest linkages between institutional differences and empirical results about capital structure.

Among the notable exceptions, Rajan and Zingales (1995) investigated the leverage ratios and capital structure determinants in G-7 countries. They found that although belonging to different financial systems, the firms are levered similarly across G-7 countries at the aggregate level with only U.K and Germany being less levered. And the factors related to leverage identified by studies in the United States seems similarly related to the leverage choice in G-7 countries as well.

The variation in the results suggests that the institutional differences contribute to the capital structure choice of the firms.

2. Theory Review of Capital Structure and its Determinants

2.1 MM Theory

Regarded as the starting of modern theory of capital structure, Modigliani and Miller (1958) illustrates that under certain key assumptions, firm's value is unaffected by its capital structure. Capital market is assumed to be perfect in MM world, where insiders and outsiders have symmetric information; no transactions cost, bankruptcy cost or distortionary taxation exist; equity and debt choice becomes irrelevant and internal and external funds can be perfectly substituted. If these key assumptions are relaxed, capital structure may become relevant to the firm's value. So following research efforts have been contributed to relaxing the ideal assumptions and describing the consequences.

2.2 Static Trade-off Theory

In a static trade-off framework, the firm is viewed as setting a target debt-equity ratio and gradually moving towards it. Debt financing has one important advantage over equity: the interests that firm pays are tax-deductible while equity income is subject to corporate tax. But debt also increases financial risk that makes debt-financing choice not cheaper than equity. So, in a static trade-off consideration, managers regard the firm's debt-equity decision as a trade-off between interest tax shields of debt and the costs of financial distress. In particular, capital structure moves towards targets that reflect tax rates, assets type, business risk, profitability and bankruptcy costs. Actually, the firm is balancing the costs and benefits of borrowings, holding its assets and investment plans constant (Myers, 1984, p.577).

The general results of various work in this aspect of leverage choice is that if there are significant "leverage-related" costs, such as bankruptcy costs, agency costs of debt, and loss of non-debt tax shields, and if the income from equity is untaxed, then the marginal bondholder's tax rate will be less than the corporate rate and there will be a positive net tax advantage to corporate debt financing. The firm's optimal capital structure will involve the trade-off between the tax advantage of debt and various leverage-related costs.

Due to the distinctions in firm-specific characteristics, target leverage ratios will vary from company to company. Institutional differences, such as different financial systems, tax rate and bankruptcy law etc, will also lead the target ratio to differ across countries. The trade-off theory predicts that safe firms, firms with more tangible assets and more taxable income to shield should have high debt ratios. While risky firms, firms with more intangible assets that the value will disappear in case of liquidation, ought to rely more on equity financing. In terms of profitability, trade-off theory predicts that more profitable firms should mean more debt-serving capacity and more taxable income to shield, therefore a higher debt ratio will be anticipated. Under trade-off theory, the firms with high growth opportunities should borrow less because it is more likely to lose value in financial distress.

2.3 Agency costs based theory

Theory based on agency costs illustrates that firm's capital structure is determined by agency costs, which includes the costs for both debt and equity issue. The costs related to equity issue may include: i) the monitoring expenses of the principal (the equity holders); ii) the bonding expenses of the agent (the manager); iii) reduced welfare for principal due to the divergence of agent's decisions from those which maximize the welfare of the principal. Besides, debt issue increases the owner-manager's incentive to invest in high-risk projects that yield high returns to the owner-manager but increase the likelihood of failure that the debt holders have to share if it is realized. If debtholders anticipate this, a higher premium will be required, which in turns increase the costs of debt. Then, the agency costs of debt include the opportunity costs caused by the impact of debt on the investment decisions of the firm; the monitoring and bond expenditures by both the bondholders and the owner-manager; and the costs associated with bankruptcy and reorganization (See Hunsaker 1999). Since both equity and debt incur agency costs, the optimal debt-equity ratio involves a trade-off between the two types of cost.

Agency costs arise due to the conflicts of interest between firm's owners and managers. Jensen and Meckling (1976) introduce two types of conflicts: conflicts between shareholders and managers; and conflicts between shareholders and bondholders:

2.3.1 Shareholders-managers conflicts

This kind of conflict stems from the separation of ownership and control. If managers do not own 100% of the firm, they can only capture a fraction of the gain earned from their value enhancement activities but they need to bear the entire costs of these activities. The shareholders-managers conflicts take several distinct forms: the first (Jensen and Meckling (1976)) is that divergent from the shareholder's interest of firm value maximization, managers prefer to exert less effort and have greater perquisite levels, such as luxuriant office and corporate jets, etc. In this case, increasing the managers' equity holdings will help to align the interests of shareholders and managers. Or, keeping managers equity investment constant, increasing the debt level also helps to mitigate the loss of conflicts between shareholders and managers. Since debt forces managers to pay out cash, reducing the free cash flow managers can waste on the perquisites. The second (Masulis (1988)) arises because managers may prefer short-term projects, which produce results early and enhance their reputation quickly, rather than more profitable long-term projects. Third, managers may prefer less risky investments and lower leverage to reduce the probability of bankruptcy (see Hunsaker (1999)). Fourth, according to Garvey and Hanka (1998), managers want to stay in their positions, so they wish to minimize the likelihood of employment termination. As this increases with changes in corporate control, management may resist takeovers, irrespective of their effect on shareholder value. On operating decisions, managers and shareholders may also have different preferences: Harris and Raviv (1990) observe that managers will

typically wish to continue operating the firm even if liquidation is preferred by shareholders; Stulz (1991) observes that managers prefer to invest all available funds even if shareholders want to be paid dividends.

A special case of the conflicts between shareholders and managers is the overinvestment problem. Jensen (1986) argues that, instead of working under shareholders interests to maximize firm's value, managers prefer to increase firm's size to enjoy the benefit of control. In this case, managers have incentives to cause their firm to grow beyond the optimal size and accept negative net present value (NPV) projects. Jensen argues that the overinvestment problem can be aggravated by more free cash flow and less growth opportunities. Issuing debt helps to mitigate agency problems that arise from managerial behavior under divergent interests between shareholders and managers. For example, the overinvestment problem can be mitigated by issuing debt since debt commits firm to pay out cash so prevents managers from investing in negative NPV projects. Jensen refers to the non-discretionary nature of debt as the disciplining role of debt. As Hunsaker (1999) points out, an increase in debt also increases the risk of bankruptcy, therefore limits management's consumption of perquisites. Besides, issue convertible debt also helps to discipline managers' behavior because they give managers a chance to share in a firm's profits in case of good performance and thus reduces the monitoring costs.

2.3.2 Shareholder-bondholder conflicts

The typical phenomenon of these conflicts is that the shareholders or their representatives make decisions transferring wealth from bondholders to shareholders. Certainly, the bondholders are aware of the situations in which this wealth expropriation may occur, therefore, will demand a higher return on their bonds or debts. Debt aggravates agency conflicts between shareholders and bondholders in three distinguished categories that have been theoretically analyzed: i) The direct wealth-transfer from bondholders to shareholders (Smith and Warner (1979)): Shareholders can increase their wealth at the expense of bondholders' interests by increasing the dividend payment; The issuance of debt with higher priority will expropriate wealth from current bondholders. ii) Asset-substitution is another source of the conflicts (see Jensen and Meckling (1976) and Smith and Warner (1979)): When signing debt contracts, bondholders demand an interest rate according to the riskness of the firm's investment activities. While debt contracts gives shareholders an incentive to invest in risky projects because if it succeeds the returns above the face value of debt will be owned by shareholders and in case of failure, the consequence is mainly born by bondholders because of shareholders' limited liability. This excessive return from risky projects makes safe projects less attractive to shareholders since returns from the safe projects suffice to pay the bondholders. If bondholders can anticipate shareholders incentive of substituting safe projects by risky projects, they will ask for a higher risk premium. Also the anticipation of wealth expropriation will lead to the increase in risk premium. The increased costs of debt are then born by shareholders since they are residual claimants of the firm; iii) Underinvestment problem is another agency problem results in shareholder-bondholder conflicts (Myers (1977)): Underinvestment problem mostly incurs in financial distress. The overhang of debt decreases the shareholders incentives to invest in new projects (even the projects with high growth opportunities will be passed through) because the profits from these projects will be exhausted in debt repayment.

One way to minimize these conflicts is that firms with high growth opportunities should have lower leverage and use a greater amount of long-term debt than firms in more mature industries. The conflicts can also be mitigated by adjusting the properties of the debt contracts, for example, the adjustment can be done by including covenants such as adding limits on the dividends payment or setting restrictions on the disposition of assets as discussed by Smith and Warner (1979). Alternatively, debt can be secured by collateralization of tangible assets in the debt contracts that are thoroughly discussed in Stulz and Johnson (1985). The issue of convertible debt or debt with warrants can serve as another way of mitigating the conflicts as shown by Jensen and Meckling (1976) or Green (1984), because they argue that convertible debt will have lower agency costs than plain debt.

2.4 Asymmetric information

Theories based on asymmetric information assumed that firm managers and insiders possess private information about the firm's characteristics of return stream or investment opportunities that are rarely known by outside investors. Leverage choice under this framework is either designed to mitigate the inefficiencies of investment decisions that are caused by information asymmetry (Myers and Majluf (1984)) or used as a signal to outside investors about the information of insiders (Ross(1977)). And the pecking order theory results from asymmetric information will also be discussed in this section.

Myers and Majluf (1984) draw attention to the use of debt to avoid the inefficiencies in a firm's investment decisions that would otherwise result from information asymmetries. The nature of the asymmetric information in this case is that insiders (managers) know more about the companies' prospects, risks and values than do outside investors. Because this information asymmetry between investors and firm insiders, if firms need to finance the new

projects by issuing equity, the equity may be under-priced by the market. This has the effect of also under-pricing new equity which is used to finance new investment projects. Since theory under asymmetric information assumes that managers act at the interests of existing shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity, since this would give much of the project's value to new shareholders at the expense of the old. (Myers and Majluf, 1984)

The fact that firms prefer internal to external financing and debt to equity if they issue securities is known as the hypothesis of pecking order (Myers (1984)). As internal funds (retained earnings) incur no flotation costs and require no additional disclosure financial information about the firms' investment opportunities and their potential profits that managers don't want to be made public. If a firm must use external funds, the preference is to use the following order of financing sources: debt, convertible securities, preferred stock, and common stock. Since only common stocks hold the right in the management, this preference reflects managers' incentives to retain control of the firms and willingness to avoid the negative market reaction to an announcement of a new equity issue. Myers (1984) also presents an asymmetric information model to explain this financing hierarchy. Firms prefer to finance real investment by issue less risky securities--bonds other than equity. In case of equity issuing, firms will fall into the dilemma of either passing up positive-NPV projects or issuing stocks at a price they think is too low.

3. Empirical Evidence on Capital Structure Determinants

Previous studies have shown that a number of factors affect firm's capital structure choice, such as tangibility, tax, size, profitability, growth opportunities and volatility etc. In their distinguished works, Harris and Raviv (1991) summarize that "leverage increases with fixed assets, non-debt tax shields, investment opportunities and firm size and decreases with volatility of earnings, advertising expenditure, the probability of bankruptcy, profitability and uniqueness of the product." However, the relationship between the factors and capital structure is not consistent. The empirical results vary, and sometimes contradict in many studies. Moreover, comparisons of capital structure across countries reveal that institutional differences may affect the cross-sectional relation between leverage and factors. In the next sub-section, we will present the proxies used in this thesis to test the determinants of corporate leverage choice in U.K and Germany, the two countries that are homogeneous in their level of economic development but follow different institutional traditions.

3.1 Tangibility

Theories generally state that tangibility is positively related to leverage. Since the tangible assets can be used as collateral in external borrowing, the presence of a large fraction of tangible assets of a firm help to get bank loans at a lower interest rate and it also helps to reduce the risk the lender suffering from the agency cost of debt. Since the debts can be secured by the collateralization of tangible assets, the firm's opportunity to engage in asset substitution is reduced by the presence of a large fraction of secured debts. (Stulz and Johnson (1985); Johnson (1997)) For firms with more intangible assets, the costs of capital are higher since monitoring is more difficult. Hence, a firm with a large fraction of tangible assets is expected to have more debt. We define tangibility as the book value of property, plants and equipment -total net (PPENT) scaled by total assets.

3.2 Effective tax rate

The effect of tax rate on leverage ratio is rather mixed. On one hand, as the interest from loan is tax-deductible, firms with higher taxable income ought to have more debt to benefit from tax-shield gain. (Hauge and Senbet, 1986). As a result, effective tax rate is expected to be positively associated with the level of debt. While on the other hand, higher effective tax rate also reduce internal funds and increase the cost of capital. Therefore a negative relationship between effective tax rate and level of debt is expected. Among others, Titman and Wessel (1988) find no significant relation between effective tax rate and leverage ratio. We test the relationship between effective tax rate and leverage ratio by deriving the "tax rate" from *Compustat* to use as a proxy of effective tax rate. "Tax rate" is calculated by dividing the sum of income taxes by the pretax income less appropriations to untaxed reserves.

3.3 Size

It is generally agreed that size is positively associated with leverage. On one hand, size may be an inverse proxy for the probability of bankruptcy. Larger firms are usually more diversified and have more stable cash flow. So the probability of bankruptcy is smaller for large firms compared with smaller ones. Furthermore, many studies suggest that large firms prefer to issue long-term debt while small firms choose short-term debt to finance their projects. And because of the advantage of economies of scale and bargaining power with creditors, large firms bear lower costs in issuing debt and equity compared with small firms (Michaelas et al. (1999)). This positive relation is verified by most studies with a few exceptions. For example, Rajan and Zingales (1995) found size to be positively associated with leverage in G-7 countries except Germany and this exception is hard to explain from the view of institutional differences. Since liquidation occurs more often in Germany than other countries, under the assumption

that liquidation is costly and firm is valued less in liquidation than going on operating, bankruptcy is potentially more costly in Germany and a stronger positive relationship between size and leverage is expected. On the other hand, size may also be a proxy information asymmetry between insiders and outsiders. Large firms are thought to be associated with lower degree of information asymmetry compared with smaller ones. Fama and Jensen (1983) argue that larger firms provide more information to outside investors than smaller firms. Benefiting from the low information asymmetry, larger firms are expected to have easier access to debt market and borrow at a lower cost. To capture the size effect on firm's leverage choice, we employ two measures--natural logarithm of total sales and natural logarithm of total assets proxies of firm's size.

3.4 Growth Opportunities

Theoretical studies generally suggest that there is a negative relationship between growth opportunities and leverage. In an underinvestment situation, firms with high growth opportunities may forgo positive NPV projects because the existing of outstanding debt (Myers(1977)). Since the returns from such investment will be transferred to debtholders rather than shareholders. If management pursues growth objectives, management and shareholder interests tend to coincide for firms with strong investment opportunities. In case of overinvestment, in which firms lacking investment opportunities, debt limits the agency costs of managerial discretion. So firms with high growth opportunity may not issue debt in the first place and an inverse relationship between growth opportunities and leverage is expected to hold. In their studies, Rajan and Zingales (1995) use market-to-book ratio (defined as market value of assets over book value of assets) as a proxy of growth opportunities and argue two main reasons why market-to-book ratio is negatively related leverage: First, firms with high market-to-book ratios suffer higher costs of financial distress; Second, firms prefer to issue stock when the stocks are overvalued.

In this study, another market-to-book ratio (defined as market value of equity over book value of equity) is adopted to measure growth opportunities of firms.

3.5 Profitability

Theoretical predictions yield no consistent conclusions for the correlation between profitability and leverage. Trade-off models argue that profitable firms have greater needs to shield income from corporate tax and should borrow more than less profitable firms. While pecking order theory suggests an inverse relationship between profitability and the level of debt. Firms are assumed to prefer internal financing to external financing in a pecking order framework. This preference leads firms to use retained earnings first as investment funds and move to external financing only when retained earnings are insufficient. When facing the choice between bonds and equity, firms will prefer debt issue to equity issue. In this case, profitable firms are expected to have less debt. Agency-based models give predictions upon this issue in the following ways: in the free cash flow theory, Jensen (1986) defines debt as a discipline device to enforce managers to pay out profits and as a result the cash flow wasted in empire-building is reduced. Therefore, a positive correlation between profitability and leverage is implied; in a signaling framework, profitable firms are assumed to use debt as a signal of the firm's quality, this theory also predicts a positive relationship.

However, most empirical studies confirm the negative correlation between profitability and leverage (See Titman and Wessels (1988), Rajan and Zingales (1995), Wald (1999) etc.) while the positive relationship are rarely supported by empirical studies. In this thesis, we use return on assets (defined as earnings before interest and tax (EBIT) over total assets) as a proxy for profitability.

3.6 Volatility of earnings

Volatility or business risk is a proxy for the probability of financial distress and it is generally expected to be inversely correlated with leverage. Several measures of volatility have been used in empirical studies such as standard deviation of the return on sales, standard deviation of the first difference in operating cash flow scaled by total assets, or standard deviation of the percentage change in operating income. Here we use standard deviation of returns on assets suggested by Booth et al. (2001) to measure volatility.

Firms with high volatility in earnings face a higher risk that earnings level drops below the debt service commitment. This may force firms to arrange funds at high cost to pay the debt or go to bankruptcy in an extreme case. However, if financed by equity, firms can choose to forgo dividends payments during the period of financial distress. This indicates that firms with high earnings volatility will borrow least and prefer equity to debt when facing external financing choices. Thus an inverse relationship between volatility and leverage is expected.

However, the potential cost occurs in time of financial distress may be reduced if firms have close relation with their lenders. Hence, German firms are expected to suffer less from the potential cost of failing to service the debt. While

the cost is high for the British counterparts since they raise funds from capital market and have arm length relation with the lenders.

3.7 Liquidity

As suggested by pecking-order theory, firms prefer internal financing to external financing. Therefore, firms are likely to create liquid reserves from retained earnings. If liquid assets are sufficient to finance the investments, firms will have no need to raise external funds. Hence, liquidity is expected to be negatively related to leverage.

Here we use current ratio (calculated as current assets over current liabilities) as a proxy of liquidity.

Now we summarize the firm-level determinants of capital structure, definitions and theoretical predicted signs in Table 1.

Table 1. Summaries of determinants of capital structure, definitions and theoretical predicted signs

Proxy (Abbreviation)	Definitions	Theoretical Predicted Signs
Tangibility (TANG)	Book value of plants and equipment -total net (PPENT) scaled by total assets.	+
Tax (TAX)	Effective tax rate	+/-
Size (SIZE)	Natural logarithm of total sales	+
Profitability (ROA)	Earnings before interest and tax divided	+/-
Growth opportunities (MTB)	Market value of assets over book value of assets	-
Volatility (VOL)	Standard deviation of ROA	-
Liquidity (LIQ)	Current assets divided by current liabilities	-

Note: “+” means that leverage increases with the factor.

“-” means that leverage decreases with the factor.

“+/-” means that both positive and negative relations between leverage and the factor are possible.

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