

EFFECT OF FIRM'S AWARD BEHAVIOR ON BUSINESS PERFORMANCE: TAIWAN SEMICONDUCTOR INDUSTRY

Tsung-Chun Chen¹, Dong-Qiang Guo², Hsiao-Min Chen^{3*} and Yen-Chung Huang⁴

^{1,2}Department of Business Administration, Huaqiao University, China. Email: cbentsungchun@hotmail.com; gdq@hqu.edu.cn

^{3*}Department of Industrial and System Engineering, Chung Yuan Christian University, Taiwan, (R.O.C.), Email: brooksmmin@hotmail.com

⁴National Chung Shan Institute of Science and Technology, Taiwan, (R.O.C.). Email: adrianbyz@gmail.com

Abstract: Firm frequently use to financial motivates to motivate employees, it is an organizational behavior, and increase capital expenditures corresponding reduce profitability. Why should enterprises do this? This study makes a theoretical between award behavior, human capital and performance. The concept of human capital extractives (VAHCTM) for intangible asset, use data panel model to capture the statements data from 2002 to 2014 as empirical verification.

Taking the firm financial reward behavior as dummy variable, it is found that firm's human capital to the enterprise when it has rewarding behavior in the year is higher than that of the firm with no financial reward in the business performance. Companies with higher VAHCTM better business performance. In addition, positive correlation between financial reward, human capital and performance. Human capital has mediating effect on reward behavior, performance. There is a lag effect between the three.

Firm rewards enhancing employees' enthusiasm for the work and enthusiasm, encouraging employees more willing to share knowledge, that is an important factor in the accumulation of human capital. Enterprises should pay attention to employees' financial benefits and enhance the impact of human capital on business operations. Enterprises with high human capital can bring higher performance.

Keywords: Business performance, Human Capital, Motivation theory, Knowledge transfer, Panel data.

1. INTRODUCTION

Financial rewards for employees is a kind of capital expenditure, a cost, the corresponding may reduce the profitability of enterprises and the infringement of shareholder rights, then why companies still exist and often use financial rewards as a common way to reward employees? Is simply need to use the motivate management methods can enhance employees to work hard and enthusiasm will be able to enhance business performance? And why the increase in business costs make business performance has improved? Based on the above hair, which must be related, it is carried out Relevant theoretical discussions, model building and empirical verification.

Enterprises often take a series of related rewards to enhance employees' centripetal force and further their

good work efficiency so as to enhance their performance and productivity (Jenkins & Shaw, 1998). (De Gieter & Hofmans, 2015) Rewards are divided into: financial rewards, material rewards or benefits, psychological reward, Among the financial rewards: Businesses need to ensure that employees are not dissatisfied with their financial returns, as this status may result in increased intention to leave. Whatever the type of rewards used, it should be appropriate to the needs of the employees so that both the company and employees can benefit (Govindarajulu & Daily, 2004). Narrow rewards focus on financial rewards and this is a commonly used methods (Fu & Deshpande, 2014). (Aguinis, 2013; Young, 2012) The effectiveness of rewards depends on what the rewarded person believes to be consistent with their work related values and needs, and will help them transform their teams into competitive

human capital strengths that become irreplaceable and sustainable sources. (S. Wang, 2014) Enterprises in the development of motivate mechanism goal is to achieve the transfer of knowledge at the knowledge level. Reward Behavior It confirms the role of learning at the individual and organizational level in improving organizational performance, which opens up the possibility of a more direct and clear relationship between the learning and rewards of an organization's performance management system (Rowland & Hall, 2014). Human capital is the sum of the professional knowledge and skills of all the employees in the organization. It is an intangible asset and affects the business performance of the enterprise (Buller, 2012; Joia, 2000; Youndt, 2004). Employees play a central role in corporate knowledge transfer. Firms should be rewarded Employees take part in meetings, seminars or participation in projects and perform different key tasks; they are responsible for collecting and assimilating internal advice and achieving new knowledge generation among employees (Aledo, 2017; Ding, 2016). Therefore, motivation for employees or teams to stimulate rewards have increased the willingness of employees to promote organizational learning, thereby enhancing of knowledge transfer and human capital accumulation. Human capital accumulation can improve organizational performance goals (Birasnav, 2014). (Harrison & Sullivan, 2000) The value created by any knowledge-based firm derives from the innovations led by human capital.

Therefore, this paper assumes that the theory of the relationship between the reward of the employees and the employees, the human capital, and the financial performance of the enterprises is discussed theoretically. The motivate of the employees to the employees plays an intermediary role in the performance of the enterprises. However, Rewards, knowledge transfer and accumulation of human capital on business performance should have lag effect, and enterprises with high VAHCTM on business conditions will have any effect? The article is based on the human capital coefficient of additional intangible assets concept (VAHCTM) on behalf of the human capital, the knowledge transfer perspective, and to track the data panel model as research methods. From 2002 to 2014, 13 years, the semiconductor industry in China's taiwan, which needs high knowledge density and high knowledge needs, is taken as the verification object.

2. LITERATURE REVIEW AND ASSUMPTIONS

Motivation Theory

Motivation refers to the rewards provided in advance, the purpose is to improve the performance of the business, and the reward is usually given after successful performance (Pinder, 1976). Employee expectations of rewards can lead to increased effort, performance and behavior for various cognitive tasks (Bonner & Sprinkle, 2002). Motivation is a psychological process that can continuously motivate "human" motivations. For the motivation of employees to stimulate their work, improve their ability to work and actively perform their duties within the mandate to release their potential to improve the quality of human resources management and high efficiency of business management, if we can effectively use the motivate method to achieve Personal and business goals and sound development are very effective.

The ways in which an firm's motivates employees include: (Fu & Deshpande, 2014) Senior management of the company can use material measures to motivate employees, such as business bonuses, performance bonuses, travel awards, etc., because material rewards effectively induce employees to work in the job. (De Gieter & Hofmans, 2015) There are three types of rewards: First, financial rewards (basic salary, bonuses): The currency can be exchanged for the desired goods and services. Second, material rewards or benefits do not necessarily benefit employees in monetary terms, although monetary value (training opportunities, health insurance) is a tangible reward. Third, psychological reward (praise from the boss, colleagues praise). (Gambardella, 2015; Hewett, 2016) (Bartling, 2014) Enterprises should be authorized to allow employees to have some of the autonomy as a reward method, will help business development.

(Alpkan, 2010) Appropriate rewards and rewards are required for the proper organizational environment in which an in-house activity thrives. Proper use of rewards in the context of success, and no punishment or insult when the ideas and projects of those people fail. If management tries to persuade employees to behave like insiders, then they must be willing to treat them as entrepreneurs. If employees have a high degree of trust in

the organization's reward, they will want to see the success of the organization. The success of the parties leads to a win-win situation, so their commitment to innovation is even greater as they are willing to take on the risks associated with internal activities within the enterprise. (Gallus & Frey, 2016) As the size of the company and the scope of work expanded, personal performance pay became less attractive and rewards became more appropriate, so rewards were seen as compensation for parity wages. Firm can motivate and acknowledge special productivity by rewarded. (Pearsall, 2010) Tasks that are less interdependent should emphasize personal rewards. For tasks that require a high degree of interdependence and mutual cooperation, rewards can promote teamwork behaviors that are highly interdependent among team members and perform tasks more efficiently. But (De Gieter & Hofmans, 2015) It is not recommended that organizations pay too much attention to the financial returns on employees because satisfying this type of reward does not improve organizational performance.

Motivating and Business Performance: motivates are the methods used by the organization to enhance the employee's willingness to achieve organizational goals (Young, 2012). The effectiveness of a financial awards depends on the degree to which the recipient of the rewards is perceived to be consistent with his or her job-related values and needs. Motivate system is generally summarized as generalized motivate system and narrow motivate system. Generalized Motivate system refers to all human resources activities, while narrowly defined motivate system focuses on financial rewards, mostly monetary rewards (Fu & Deshpande, 2014). Rewards at the material level can be one of the relative costs and commonly used methods for companies to use manpower (Gambardella, 2010). With an open and fair motivate system, employees can be encouraged to work in a centripetal, loyal and productive manner to create more opportunities and value for their businesses, promote their business to upgrade, enhance their competitiveness and achieve better competitive advantages. However, whatever the hidden advantages or worries of the motivate to motivate employees, they eventually turn to financial contributions to the company.

Based on the above discussion, this paper argues that when the existence of a fair, just and institutionalized

rewards in the corporate culture is more motivate to motivate employees, employees will be more willing to sacrifice their lives for the business, and the result will be helpful to the business performance promotion. Therefore research hypothesis:

H1: Firm's motivates to employees as an motivate to business performance has positive correlation.

Human Capital Theory

(Brooking, 1996) Defining human capital as a people-centered asset is the collective knowledge, problem solving, innovation, leadership, entrepreneurship and management skills of the employee's organization, which is reflected in the organization of employees. (Alpkan, 2010) Human capital is the sum of personal knowledge, and the skills and abilities to organize human resources constitute the necessary knowledge base for entrepreneurship, innovation and quality improvement. (Buller & McEvoy, 2012) Human capital, knowledge, skills and abilities contained in human resources of enterprises, directly affects the performance of enterprises. While human capital has its own characteristics: (1) Uniqueness and cannot be duplicated: Employees may either recruit the same number of people with the same education qualifications as each other, but cannot guarantee the same performance because Everyone is unique and cannot be copied (Mention & Bontis, 2013). (2) Accumulation of knowledge: Changes in the personality and cognitive ability of employees in the human capital will change as the training and experience accumulation of specific human capital in the organization changes, resulting in changes in the performance and performance of the employee's work services (Ployhart, 2011).

Motivation and Human Capital

(Aguinis, 2013) Firm's reward individuals and team performance to enhance individual and team performance and the alignment of individuals, teams and organizational goals that will help companies transform their teams into competitive human capital strengths that are irreplaceable and sustainable source. In regards to organizational learning and knowledge transfer for the accumulation of human capital: organizational learning and organizational

relearning are indispensable elements of dynamic knowledge management. If rewards related to business performance are contributing to organizational success, the proposition that organizational learning and use must be measured to reflect the latest developments in human motivation theory is rewarded (Rowland, 2014). (Zhao, 2013) Organizational learning positively Effects dynamic knowledge management, helping organizations to discard outdated and useless knowledge by re-learning new knowledge, and organizational learning, by acquiring new knowledge, has a positive impact on dynamic knowledge management. Organizational learning and organizational relearning have synergistic effects on dynamic knowledge management. (Wang, 2014) Based on the perspective of interpersonal psychology, the goal of enterprises in carrying out motivate activities is to realize knowledge transfer at the level of knowledge. (Aledo, 2017) Business managers should properly help employees forget old habits and should allow them to gather and incorporate internal advice through participating in meetings, conferences and seminars or working with one another through teams, participating in projects and implementing different key tasks Achievements generate new knowledge among employees. Employees play a central role in corporate knowledge transfer (Ding, 2016). Therefore, to explore how Firm's rewards to employees and how these factors affect the transfer of knowledge of employees, but also test the employee's knowledge transfer intention at the enterprise level into a better knowledge transfer effect. Rewards increase employee willingness to transfer knowledge, thereby enhancing knowledge transfer performance and human capital accumulation. Therefore, this study deduces that when enterprises implement financial rewards for their employees, they will contribute to the accumulation and promotion of their human capital. Therefore research hypothesis:

H2: Firm's financial rewards behavior and human capital has positive correlation.

Human Capital and Business Performance

Enterprises to provide continuous learning pipeline to strengthen staff knowledge and skills, human capital continued to accumulate and update, but also can

improve employee motivation and attitude.(Ji, 2012; Vidal-Salazar, 2012). This is also the most common and commonly used strategy for human capital accumulation. Corporate training can improve employees' knowledge, skills and attitudes and is an important investment in human capital. Therefore, this paper argues that, through human resources management activities, enterprises can not only convert their knowledge, skills and knowledge into real output, but also transform human capital into their competitive advantages. Firms accumulate more human capital stock, but also for Firms to create better results and improve the expected value of the future. This means that when company's salary strategy is paid above market salaries or rewards, it will motivate employees to have higher morale and motivation. The company's employees with the same qualifications and years of seniority will not be able to obtain comparable salary or reward in the market and will continue to choose to remain in the company to continuously pursue growth and contribute to their productivity so as to achieve a higher output value for the company. Based on the above discussion, this paper argues that when employees exert more motivate to employees as an motivate to help employees automatically and spontaneously improve their own knowledge of "skills" of their own quality further enhance the overall human capital of the organization, which will contribute to the production efficiency Further reflected in the growth of financial performance, and enterprise investment in human capital should be sustained, the ownership of human capital requires continuous investment and accumulation ability, therefore research hypothesis:

H3: The accumulation of human capital has a positive and positive impact on business performance.

Between of Reward, Human Capital and Business Performance

The emergence of new knowledge leads to changes in the structure of knowledge (knowledge needs, knowledge gaps), companies need to create new courses to help them improve their skills and performance (Zhao, 2013). Therefore, the management of the enterprise management must support employees to absorb and transfer new or updated knowledge by encouraging employees to share

knowledge with other employees. In this way, they help to accumulate capital and improve organizational performance (Birasnav, 2014). (Alpkan, 2010) Human capital may play a similar anchor role in the relationship between operating systems and innovative capabilities. In this regard, we may think that thanks to the knowledge, skills and abilities of high-quality staff owned by the organization, it is one of the major motivations for creating and implementing new ideas, providing more support for this human capital in time, rewards, Good management relations, discretion, etc., will create a better environment for innovation. In other words, if organizations with higher quality of human capital allocate more time to their human capital, if they make good use of rewards for employees to manage their rewards, allow employees to exercise some discretion, etc., their Innovation performance will further increase. The ability of human capital in knowledge, skills, and staff contributes to the organization's ability and performance to innovate and take risks through investment that reduces risk and increases returns (Hayton & Kelley, 2006). As a result, human capital is a valuable resource that, in addition to having a direct impact on business performance, may also create a good business environment that generates higher productivity and contributes to organizational performance.

Based on the above, this study argues that firms' behavior of rewarding employees with financial rewards will contribute to the improvement of organizational performance, which can be achieved by stimulating the improvement of human capital and driving the accumulation of human capital, Promotion, meaning that the motivate and the business performance of the relevance of human capital has an mediating effect, establishment of hypothesis 4:

H4: Mediation effect of human capital exists between rewards behavior and business performance.

3. RESEARCH METHODS AND MODEL DESIGN

Data Source

This study takes the semiconductor market in Taiwan's Stock Exchange as an empirical research and mainly

discusses the correlation between the implementation of motivate mechanism, human capital and business performance. All the financial data are selected from Taiwan's new economic database (TEJ). Due to the logic of causality test among variables and the delaying effects of firms' financial awards behavior (BON) and human capital (VAHCTM) on business performance promotion, 1 year), VAHCTM accumulation for the next year (year 2), and business performance improvement for the next year (year 3), the study period for 2002 to 2014 has 13 years. The distinction between industries is based on the stock exchange. According to the definition of the research variables, and gradually confirm each company's annual information is complete, excluding incomplete information on the company's annual data to ensure the integrity of the data. In addition, corporate data with less than 6 years of data are excluded because the study model considers the individual effects of different companies. The number of firms 127, observations 1476.

Variable Measurement

Dependent Variable: Business Performance: Generally, firms usually use the Return On Equity (ROE) and Earnings Per Share (EPS) as the indicators of their business performance and profitability, Operating conditions to maximize asset utilization efficiency and measure the efficiency of the company to make money for the shareholders return on equity. (ROE) = (net profit after tax/shareholders' equity); (EPS) = (Annual surplus - special dividend)/shares outstanding (usually weighted average). (Wang & Chien, 2016) use EPS, ROE to measure of manufacturing performance indicators.

Independent Variable:

1. **Financial Rewards:** In order to quantify whether an enterprise encourages its employees, financial rewards are used as rewards for employees to Effect the performance of enterprises and the accumulation of human capital. In order to quantify whether an enterprise encourages employees, Equity and employee bonus shares, etc., are considered as the financial rewards for the employees of

the enterprise. Reference is made to (Jones & Kato, 1995) practice. The dummy variables are used as proxy variables of BON. The value of 1 indicates the firm's current year. There are financial rewards to implement, not implement show 0.

2. **Human Capital:** Adopting the VAHCTM proposed by (Pulic, 1998, 2000) as the proxy for human capital. In recent years, several articles have used human capital value-added coefficient as an indicator of human capital on Financial Performance. (Ahmad, 2016; Mavridis, 2004; Phusavat, 2011; Sharma, 2012).

Control Variables:

1. **Firm Size (SIZE):** A manufacturer with a larger total assets has a relatively larger amount of enterprise resources relative to a smaller manufacturer, which will affect the operation mode and business performance of the enterprise. Firm Size = LN (total assets). Take the natural logarithm.
2. **Debt-to-equity ratio (LEV):** The gearing ratio is a common factor used to measure business performance and operational risk. The debt ratio into the control variables to measure its impact on corporate performance (Choi, 2008). Debt ratio = (Total Liabilities/ Total Assets) × 100%.
3. **R & D Expenses (RD):** The R & D expenditure is one of the main requirements for initiating knowledge transfer, and the transfer of knowledge helps to enhance the human capital of intangible assets and promote the growth of business performance. (Iovino, 2008) This correlation exists between RD, knowledge stock and firm performance. (Jaisinghani, 2016) Firm's R & D expenses can enhance profitability.
4. **Total asset growth rate (TAGR):** Reflects the growing trend of a company and can be estimated as follows: ((Total assets of current time range - Total assets of previous time

range)/(Total assets of previous time range) × 100%.

Analytical Methods and Research Models

We performed an empirical analysis using panel data. First, we conducted the LLC (Levin, 2002) and IPS (Im, 2003) panel unit root tests to verify the stationarity of the variables. In this study, panel data was used for analysis. Panel data, also known as "vertical and horizontal data", this analysis combined with cross-sectional data and time series data analysis method, for each study of the company for a period of continuous observation, the observed data is vertical and horizontal information. Different from multiple regression analysis or time series analysis, the cross-sectional data or time series data can be processed alone. The panel data model not only has the dynamic analysis of time series, but also takes into account the characteristics of different companies in order to avoid the estimation formula offset. Panel data model can be divided into fixed effect model and random effect model. In the choice of fixed or random effect model, Hausman test can be performed first. If the test statistic rejects null hypothesis, Establish a fixed effect model; if you cannot reject the null hypothesis, the use of random effects model. According to the test results, we use the fixed effects model in panel data to analyze the effects of unobserved variables on the model by adding dummy variables to measure the differences among different companies. The fixed effects model Also known as Least Square Dummy Variable Model (LSDV). Therefore, this study adds the inter-item coefficient of different companies to the model so as to control the constant traits that individual companies cannot easily be measured, such as management ability or other human resource management practices. In the meantime, Dummy variables, in order to control the impact of different years. ϵ_t is the residual of time period t , and use Durbin-Watson statistics to test for the presence or absence of autocorrelation in errors.

Model Establishment

Rewards can make their employees more eager to work, improve knowledge sharing and transfer, in order to increase the willingness of knowledge transfer between employees or teams, enhance the accumulation of

human capital and further affect the competitiveness and performance of the enterprises. High tech enterprises There are also many fuzzy results that are hard to quantify for the transfer of knowledge intensive activities in knowledge related activities, such as the basic ability of employees, the ability to absorb knowledge, the threshold of knowledge, the size of enterprise resources, and the availability of new knowledge needs, These processes need to be invested by the time spent training staff to develop ability to run the old and new knowledge and new technology, to improve knowledge or skills, these need to have the waiting period is not immediately get the real effect, there are There will be this lag effect. (Gambardella, 2015) The results of knowledge-intensive activities tend to be observable over time, but the typical two or three year lag in research or management programs may be too long. As well as rewards in advance rewards and ex post rewards and behavior to implement . Therefore, this study considered the related issues of deferred effect, and included the consideration of the deferred effect factor in the model construction concept when constructing the empirical model. Where $G_{i,(t+2)}$ is the firm's business performance of the i -th company in year $t + 2$, and the proxy variables are EPS and ROE; $BON_{i,t}$ is whether the i -th company has implemented the financial On the motivate behavior, the financial rewards are assumed to be employees cash dividends, bonus shares, employee stock options; $VAHC_{i,(t+1)}$ for the first i -year company in the first year of human capital ($VAHC^{TM}$); $SIZE_{i,t}$ is the natural logarithm of the total assets of the i th company in year t ; $LEV_{i,t}$ is the debt-to-equity ratio of the i th company in year t ; $RD_{i,t}$ is the R & D expenditure of the i th company in year t ; $TAGR_{i,t}$ is the total assets growth rate of the i th company in the year t ; α_i is the intercept factor of the i th company, representing the individual effects of different companies, whose value does not change with time; finally, D_t is the t years of dummy variables.

In order to test whether there is a positive correlation between the firm's financial awards behavior and the business performance, a research model 1:

$$G_{i,(t+2)} = \beta_{1,t}SIZE_{i,t} + \beta_{2,t}LEV_{i,t} + \beta_{3,t}TAGR_{i,t} + \beta_{4,t}RD_{i,t} + \beta_{5,t}BON_{i,t} + \alpha_i + \gamma_t D_t + \epsilon_{i,t} \quad (1)$$

In order to test whether firms' financial rewards have a positive correlation with human capital, develop a research model 2.

$$VAHC_{i,(t+1)} = \beta_{1,t}SIZE_{i,t} + \beta_{2,t}LEV_{i,t} + \beta_{3,t}TAGR_{i,t} + \beta_{4,t}RD_{i,t} + \beta_{5,t}BON_{i,t} + \alpha_i + \gamma_t D_t + \epsilon_{i,t} \quad (2)$$

To test whether there is a positive correlation between human capital and business performance, a research model is developed model 3.

$$G_{i,(t+2)} = \beta_{1,t}SIZE_{i,t} + \beta_{2,t}LEV_{i,t} + \beta_{3,t}TAGR_{i,t} + \beta_{4,t}RD_{i,t} + \beta_{5,t}VAHC_{i,(t+1)} + \alpha_i + \gamma_t D_t + \epsilon_{i,t} \quad (3)$$

Finally, to test whether firms' financial awards behavior is positively related to business performance through the mediating effect of human capital, the research model 4.

$$G_{i,(t+2)} = \beta_{1,t}SIZE_{i,t} + \beta_{2,t}LEV_{i,t} + \beta_{3,t}TAGR_{i,t} + \beta_{4,t}RD_{i,t} + \beta_{5,t}BON_{i,t} + \beta_{6,t}VAHC_{i,(t+1)} + \alpha_i + \gamma_t D_t + \epsilon_{i,t} \quad (4)$$

4. EMPIRICAL ANALYSIS

Descriptive Statistics and Correlation Analysis

Table 1 shows the basic information and related analysis of BON, $VAHC^{TM}$ and EPS of the sample companies. As can be seen from Table 1, the current firm's existence of this financial awards behavior ($VAHC^{TM} = 2.897$), the accumulated human capital is higher than the average non-motivate firms ($VAHC^{TM} = 0.397$). As for the business performance part, when the current vendors have this financial awards, the average performance index of each company (EPS = 3.755, ROE = 0.186) is significantly higher than those without this motivate (EPS = -0.447, ROE = -0.082). In the correlation coefficient analysis, there was a positive correlation between BON and $VAHC^{TM}$ ($r = 0.408, p < 0.01$); BON and performance indicators EPS ($r = 0.553, p < 0.01$), and there was a positive correlation between human capital and performance indicators EPS ($r = 0.536, p < 0.01$) and ROE ($r = 0.584, p < 0.01$).

Table 1
Descriptive statistics and correlation analysis

	All	BON=0		BON=1								
	Mean (S.D)	Mean (S.D)	Mean (S.D)	1	2	3	4	5	6	7	8	
1. BON	0.543 (0.498)	0 -	1 -	1 -								
2. VAHC	1.756 (3.089)	0.397 (2.061)	2.897 (3.338)	0.408*** (16.233)	1 -							
3. ROE	0.064 (0.229)	-0.082 (0.239)	0.186 (0.125)	0.595*** (26.847)	0.584*** (26.095)	1 -						
4. EPS	1.836 (3.808)	-0.447 (2.221)	3.755 (3.805)	0.553*** (24.088)	0.536*** (23.06)	0.707*** (36.225)	1 -					
5. SIZE	15.062 (1.591)	14.687 (1.518)	15.378 (1.583)	0.191*** (7.069)	0.11*** (4.011)	0.154*** (5.67)	0.234*** (8.712)	1 -				
6. LEV	0.276 (0.157)	0.28 (0.18)	0.273 (0.135)	-0.036 (-1.303)	-0.090*** (-3.294)	-0.141*** (-5.159)	-0.107*** (-3.907)	0.154*** (5.64)	1 -			
7. TAGR	12.276 (32.061)	1.47 (28.161)	21.357 (32.337)	0.356*** (13.818)	0.32*** (12.251)	0.496*** (20.702)	0.432*** (17.359)	-0.022 (-0.815)	0.116*** (4.221)	1 -		
8. RD	11.155 (3.247)	10.441 (3.611)	11.755 (2.770)	0.203*** (7.507)	0.074*** (2.695)	0.073*** (2.638)	0.245*** (9.183)	0.674*** (33.072)	-0.081*** (-2.949)	-0.089*** (-3.229)	1 -	
Obs	1476	674	802	1476	1476	1476	1476	1476	1476	1476	1476	1476

Note: *** $p < 0.01$; ** $p < 0.05$, * $p < 0.1$, BON = the dummy variables of the financial awards activities such as employee bonus, cash dividend, employee stock option, etc., when BON = 1 means that the firm has the financial awards for the employees in the year; BON = 0 means that when the firm of the year No financial rewards; Except Spearman's correlation coefficient, the Pearson's correlation coefficient was used among the other variables except the correlation between BON and other variables.

We use the average value added value of human capital to divide into two groups: high human capital and low human capital, and measure the performance of two groups of enterprises at the same time. This can distort the research caused by the sudden change

of the overall economic environment. For example, in the financial tsunami in 2008, we found that the firms operating in high VAHCTM groups had higher EPS than those in the low-level human capital group, as shown in Figure 1.

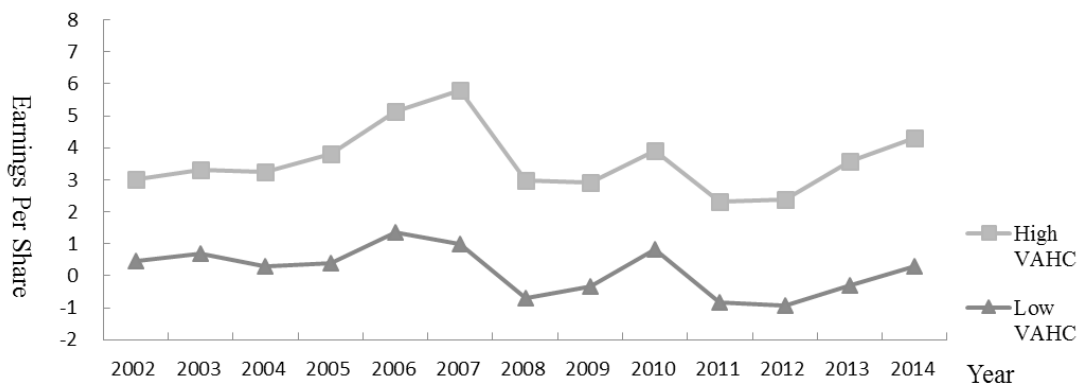


Figure 1: Human Capital and Firm Performance

Table 2 presents the unit root test of each variable for the LLC and IPS tests. We found that the p -values of all the variables are less than 0.1, indicating statistical stationarity.

Panel Data Model Empirical Analysis:

The Hausman test is performed prior to Panel Data model analysis as a basis for selecting fixed or random

effects models. (Table 3) Model 1, test statistic was 150.104, 171.501, $p < 0.05$; the test statistic of model 2 was 156.676, $p < 0.05$; the statistic of model 3, test was 172.829, 107.716, $p < 0.05$; The test statistic of Model 4 was 170.95, 124.354, $p < 0.05$. The above test statistic all fell into the reject domain, which denied the random effect model of null hypothesis. This indicates that this study is suitable for adopting the individual fixed effect model. (Table 3, 4).

Table 2
Unit-root Test

Method	BON	VAHC	ROE	EPS	SIZE	LEV	TAGR	RD
LLC	-7.887***	-79.153***	-14.69***	-11.903***	-18.547***	-12.172***	-32.63***	-18.953***
IPS	-3.931***	-19.105***	-7.189***	-7.11***	-7.089***	-6.872***	-16.106***	-6.585***

Note: * $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$.

Table 3
Correlated Random Effects-Hausman Test

	Model 1-1	Model 3-1	Model 4-1	Model 1-2	Model 3-2	Model 4-2	Model 2
Chi-Sq. χ^2	150.104***	172.829***	170.954***	171.501***	107.716***	124.354***	156.676***
Chi-Sq.d.f.	5	5	6	5	5	6	5

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

According to Table 4, that Model 1 takes business performance (EPS, ROE) as the dependent variable and motivate (BON) as the independent variable to detect the effect of BON on the business operations when the control variables are enterprise size, gearing ratio and total assets growth rate The results showed Adj-R² was 0.653, 0.399; D-W values were 1.539, 1.42; F values 18.718 ($p < 0.01$), 7.59 ($p < 0.01$); BON ($\beta = 0.057$, $t = 1.839$, $p < 0.1$), the financial awards behaviors of the enterprises BON were significantly and positively correlated with the business performance. Hypothesis 1 gets support.

Model 2, human capital (VAHCTM) as dependent variable and motivate (BON) as independent variable, explores the Effect of firm's financial awards on human capital. The result shows that Adj-R² is 0.448; D-W is 1.557. There was no autocorrelation in errors.F value 9.432 ($p < 0.01$), BON ($\beta = 0.1$, $t = 5.235$, $p < 0.01$) and motivate (BON) was significantly and positively correlated with human capital. Hypothesis 2 gets support.

Model 3, business performance (EPS, ROE) as dependent variable, VAHCTM as independent variable

to discuss VAHCTM impact on performance (Model 3-1, 3-2), the results show Adj-R² was 0.665, 0.412 respectively; D-W values 1.741, 1.607 were between 1.5-2.5. Therefore, there was no autocorrelation in errors of the model and F values of 1.741 ($p < 0.01$), 1.604 ($p < 0.01$), VAHCTM ($\beta = 0.236$, $t = 6.293$, $p < 0.01$), ($\beta = 0.233$, $t = 4.943$, $p < 0.01$). The human capital has significant and positive correlation with the business performance. Hypothesis 3 gets support.

Model 4(Model 4-1, 4-2), in order to detect the mediating effect of human capital in the relationship between motivate (BON) and business performance, is based on model 1, then add human capital variables (VAHCTM), and carry on the regression analysis to each performance index. That Adj-R² is 0.665, 0.412; D-W values were 1.736, 1.604; F values of 1.7 ($p < 0.01$), 7.537 ($p < 0.01$). When the business performance is EPS, the BON ($\beta = 0.025$, $t = 1.074$, $p > 0.1$) This variable is not significant, VAHCTM ($\beta = 0.229$, $t = 6.04$, $p < 0.01$). This variable is significant; when the dependent variable is BON ($\beta = 0.033$, $t = 1.080$, $p > 0.1$), VAHCTM ($\beta = 0.233$,

$t = 4.706, p < 0.01$). The influential coefficients of VAHCTM all reached a significant level (Model 4-1, 4-2). According to the above conditions, ($\beta = 0.048, t = 2.032, p < 0.05$), ($\beta = 0.057, t = 1.839, p < 0.1$). After

adding the mediator variable VAHCTM to the model, 4-2) to non-significant BON ($\beta = 0.025, t = 1.074, p > 0.1$), ($\beta = 0.033, t = 1.080, p > 0.1$). Hypothesis 4 gets support.

Table 4
Firm financial rewards behavior, human capital on business performance

Variable	EPS			ROE			VAHC
	Model 1-1	Model 3-1	Model 4-1	Model 1-2	Model 3-2	Model 4-2	Model 2
SIZE	-0.564*** (-5.977)	-0.463*** (-4.957)	-0.473*** (-5.042)	-0.659*** (-5.4)	-0.554*** (-4.548)	-0.567*** (-4.637)	-0.353*** (-4.717)
LEV	0.071** (2.145)	0.066** (2.031)	0.066** (2.041)	0.080* (1.884)	0.075* (1.783)	0.076* (1.793)	0.031 (1.189)
TAGR	0.045** (2.106)	0.024 (1.146)	0.018 (0.826)	0.051* (1.857)	0.031 (1.169)	0.024 (0.846)	0.120*** (6.878)
RD	0.002 (0.024)	0.033 (0.401)	0.032 (0.392)	-0.066 (-0.616)	-0.035 (-0.326)	-0.036 (-0.335)	-0.148** (-2.258)
BON	0.048** (2.032)		0.025 (1.074)	0.057* (1.839)		0.033 (1.080)	0.1*** (5.235)
VAHC		0.236*** (6.293)	0.229*** (6.04)		0.242*** (4.943)	0.233*** (4.706)	
R ²	0.69	0.7	0.701	0.463	0.474	0.475	0.501
Adj-R ²	0.653	0.665	0.665	0.399	0.412	0.412	0.448
D-W	1.539	1.741	1.736	1.42	1.607	1.604	1.557
F	18.718***	19.699***	19.543***	7.254***	7.59***	7.537***	9.432***

Fixed Effect Model

Note: *** $p < 0.01$; ** $p < 0.05$, * $p < 0.1$, The coefficient estimates are standardized and the brackets are the t statistics for the coefficient estimates.

5. CONCLUSION

The main motivation for firms to use financial rewards as rewards to employees includes the employee payout and other rewards. The main purpose of the initial rewards is to attract talent. Retaining talent is the amount of employee bonus that is hidden in the earnings distribution. The system of consideration of China's Taiwan management unit and international Integration of the problem in 2008 the implementation of staff costs dividend. In this study, we think that enterprise to balance the changes brought about by the implementation of this policy. Enterprises to financial motivates is a cost and capital expenditures, but it is still most common for businesses to still use such rewards. The main reasons are as follows:

When enterprises exert financial rewards on employees. Financial rewards for vendors can be seen as "rewards" to motivate employees to enhance their

work motivation, which is an important link between human capital and organizational financial performance. In addition to having high-quality human capital, firms still need to reward and strengthen employees' self-development and motivation through warding, effectively promote the business performance.

Human capital has mediating effect between the financial rewards of enterprises to employees and the financial performance of enterprises. It plays an important pivotal role between the importance of motivate system and the performance of enterprises. In other words, when employees think the company's rewards are important, they must be able to arouse their enthusiasm for work, between the company's centripetal force and employees Active or passive knowledge transfer to improve human capital, resulting in increased financial performance phenomenon, otherwise it will not help to improve performance. In the meaning of substantive management,

due to the importance of motivate system must be able to trigger the human capital of employees under the premise can effectively improve business performance, human capital, financial rewards in business satisfaction and business performance, employees feel the company Satisfaction with rewards is high, it will be able to directly increase business performance, but also stimulate the input of their work to pay, and indirectly bring the positive effect of performance. In Figure 1 shows that higher human capital groups, the corresponding business performance, will be higher.

Rewards enable their employees to be more enthusiastic about their work, increase the willingness of knowledge sharing and transfer among employees, or organizations, the accumulation of human capital, the competitiveness and performance of businesses that directly or indirectly enhance them, Involving the internal governance of enterprises such as the ability of employees to work, the ability to absorb knowledge, the threshold of industrial knowledge, the amount of resources of enterprises, and the delaying nature resulting from the gap between new knowledge needs and practicality, etc. These enterprises are here The process involves devoting time and money to training staff skills, moving old and new knowledge and new technologies into knowledge or skills, and this deferral effect is supported in this study. Rewards, human capital, the existence of business performance between the lag effects.

Because the semiconductor industry has the characteristics of high knowledge, technology-intensive industries, high technical barriers and the degree of knowledge difficulties, the delaying effect of the accumulation of human capital on the business performance of enterprises exists in this study. Through appropriate remuneration, the semiconductor industry can encourage and motivate employees to enhance their willingness to work and the company's financial performance to have a positive effect. With "human" as the core of an enterprise organization and the motivation and support for the organization's future growth, the semiconductor industry is faced with ever-changing knowledge Economic environment, the performance and quality of human resources within the organization should be continuously improved and changed, which in turn can promote the knowledge and skills of employees and

maintain their competitive advantages and help the training and development of organizations and employees. Firms should establish an motivate mechanism to gradually form an institutionalized corporate culture, which can attract highly qualified employees and accumulate abundant human capital. They can further promote the knowledge exchange network and knowledge exchange among employees, and satisfy employees or professional managers Of the material and spiritual needs and achieve the company's ability to enhance the profitability and to meet the shareholders to enhance the expectations of shareholders, and employees are satisfied with the material and psychological can also avoid or reduce the malicious hiring of competitors, create win to win.

Research Limitation

1. The scope of this study is only a lot of factors to explore the company's internal management and resources but affect the business performance of enterprises, this does not discuss the external and macroeconomic factors.
2. This article only to the knowledge-based industry semiconductor as empirical object, and lag effect of 1 to 2 periods. In the future, researchers may explore different industries or explore other factors that may have different findings.

REFERENCES

- Aguinis, H., Gottfredson, R.K., & Joo, H. (2013). Avoiding a "me" versus "we" dilemma: Using performance management to turn teams into a source of competitive advantage. *Business Horizons*, 56(4), 503-512.
- Ahmad, M., & Ahmed, N. (2016). Testing the relationship between intellectual capital and a firm's performance: an empirical investigation regarding financial industries of Pakistan. *International Journal of Learning and Intellectual Capital*, 13(2-3), 250-272.
- Aledo Ruíz, M.D., Gutiérrez, J.O., Martínez-Caro, E., & Cegarra-Navarro, J.G. (2017). Linking an unlearning context with firm performance through human capital. *European Research on Management and Business Economics*, 23(1), 16-22.

- Alpkan, L., Bulut, C., Gunday, G., Ulusoy, G., & Kilic, K. (2010). Organizational support for intrapreneurship and its interaction with human capital to enhance innovative performance. *Management Decision*, 48(5-6), 732-755.
- Bartling, B., Fehr, E., & Herz, H. (2014). The intrinsic value of decision rights. *Econometrica*, 2005-2039.
- Birasnav, M. (2014). Knowledge management and organizational performance in the service industry: The role of transformational leadership beyond the effects of transactional leadership. *Journal of Business Research*, 67(8), 1622-1629.
- Bonner, S.E., & Sprinkle, G.B. (2002). The effects of monetary incentives on effort and task performance: theories, evidence, and a framework for research. *Accounting, Organizations and Society*, 27(4), 303-345.
- Brooking, A. (1996). *Intellectual capital*: Cengage Learning EMEA.
- Buller, P.F., & McEvoy, G.M. (2012). Strategy, human resource management and performance: Sharpening line of sight. *Human Resource Management Review*, 22(1), 43-56.
- Choi, J.-H. (2008). An empirical study on the relationship between earnings quality and firm value. *Asia-Pacific Journal of Financial Studies* 37 (5), pp. 813-839.
- De Gieter, S., & Hofmans, J. (2015). How reward satisfaction affects employees' turnover intentions and performance: an individual differences approach. *Human Resource Management Journal*, 25(2), 200-216.
- Ding, X.H., He, Y.Q., Wu, J., & Cheng, C. (2016). Effects of positive incentive and negative incentive in knowledge transfer: carrot and stick. *Chinese Management Studies*, 10(3).
- Fu, W., & Deshpande, S.P. (2014). The impact of caring climate, job satisfaction, and organizational commitment on job performance of employees in a China's insurance company. *Journal of Business Ethics*, 124(2), 339-349.
- Gallus, J., & Frey, B.S. (2016). Awards: A strategic management perspective. *Strategic Management Journal*, 37(8), 1699-1714.
- Gambardella, A., Giarratana, M.S., & Panico, C. (2010). How and when should companies retain their human capital? Contracts, incentives and human resource implications. *Industrial and Corporate Change*, 19(1), 1-24.
- Gambardella, A., Panico, C., & Valentini, G. (2015). Strategic Incentives to Human Capital. *Strategic Management Journal*, 36(1), 37-52. doi:10.1002/smj.2200.
- Govindarajulu, N., & Daily, B.F. (2004). Motivating employees for environmental improvement. *Industrial Management & Data Systems*, 104(4), 364-372.
- Harrison, S., & Sullivan Sr, P.H. (2000). Profiting from intellectual capital: learning from leading companies. *Journal of Intellectual Capital*, 1(1), 33-46.
- Hayton, J.C., & Kelley, D.J. (2006). A competency-based framework for promoting corporate entrepreneurship. *Human Resource Management*, 45(3), 407-427.
- Hewett, R., & Conway, N. (2016). The undermining effect revisited: The salience of everyday verbal rewards and self-determined motivation. *Journal of Organizational Behavior*, 37(3).
- Im, K.S., Pesaran, M.H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, 115(1), 53-74.
- Iovino, A.M., Rizzo, M.G. (2008). Performance, R&D intensity, knowledge stock and commercialization orientation in the pharmaceutical sector | [Performance, investimenti in R&S, knowledge stock e commercialisation orientation nel settore farmaceutico]. *Mecosan* 17 (66), pp. 67-74.
- Jaisinghani, D. (2016). Impact of R&D on profitability in the pharma sector: an empirical study from India. *Journal of Asia Business Studies*, 10(2), 194-210.
- Jenkins Jr, G.D., Mitra, A., Gupta, N., & Shaw, J.D. (1998). Are financial incentives related to performance? A meta-analytic review of empirical research. In: American Psychological Association.
- Ji, L., Huang, J., Liu, Z., Zhu, H., & Cai, Z. (2012). The effects of employee training on the relationship between environmental attitude and firms' performance in sustainable development. *The International Journal of Human Resource Management*, 23(14), 2995-3008.
- Joia, L.A. (2000). Measuring intangible corporate assets: linking business strategy with intellectual capital. *Journal of Intellectual Capital*, 1(1), 68-84.
- Jones, D.C., & Kato, T. (1995). The productivity effects of employee stock-ownership plans and bonuses: evidence from Japanese panel data. *The American Economic Review*, 391-414.
- Levin, A., Lin, C.-F., & James Chu, C.-S. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of Econometrics*, 108(1), 1-24.
- Mavridis, D.G. (2004). The intellectual capital performance of the Japanese banking sector. *Journal of Intellectual Capital*, 5(1), 92-115.
- Mention, A.-L., & Bontis, N. (2013). Intellectual capital and performance within the banking sector of Luxembourg and Belgium. *Journal of Intellectual Capital*, 14(2), 286-309.

- Pearsall, M.J., Christian, M.S., & Ellis, A.P. (2010). Motivating interdependent teams: individual rewards, shared rewards, or something in between? *Journal of Applied Psychology, 95*(1), 183.
- Phusavat, K., Comepa, N., Sitko-Lutek, A., & Ooi, K.-B. (2011). Interrelationships between intellectual capital and performance: Empirical examination. *Industrial Management & Data Systems, 111*(6), 810-829.
- Pinder, C.C. (1976). Additivity versus non additivity of intrinsic and extrinsic incentives - implications for work motivation, performance, and attitudes. *Journal of Applied Psychology, 61*(6), 693-700.
- Ployhart, R.E., Van Iddekinge, C.H., & MacKenzie, W.I. (2011). Acquiring and developing human capital in service contexts: The interconnectedness of human capital resources. *Academy of Management Journal, 54*(2), 353-368.
- Pulic, A. (1998). *Measuring the performance of intellectual potential in knowledge economy*. Paper presented at the 2nd McMaster Word Congress on Measuring and Managing Intellectual Capital by the Austrian Team for Intellectual Potential.
- Pulic, A. (2000). VAIC™—an accounting tool for IC management. *International journal of technology management, 20*(5-8), 702-714.
- Rowland, C., & Hall, R. (2014). Management learning, performance and reward: theory and practice revisited. *Journal of Management Development, 33*(4), 342-356.
- Sharma, E., & Mani, M. (2012). A comparative analysis of human capital efficiency of public and private banks in India. *technology, 3*(1).
- Vidal-Salazar, M.D., Cordón-Pozo, E., & Ferrón-Vilchez, V. (2012). Human resource management and developing proactive environmental strategies: The influence of environmental training and organizational learning. *Human Resource Management, 51*(6), 905-934.
- Wang, C.H., & Chien, Y.W. (2016). Combining balanced scorecard with data envelopment analysis to conduct performance diagnosis for Taiwanese LED manufacturers. *International Journal of Production Research, 54*(17), 5169-5181.
- Wang, S., Noe, R.A., & Wang, Z.-M. (2014). Motivating knowledge sharing in knowledge management systems: A quasi-field experiment. *Journal of management, 40*(4), 978-1009.
- Youndt, M.A., Subramaniam, M., & Snell, S.A. (2004). Intellectual capital profiles: An examination of investments and returns. *Journal of Management Studies, 41*(2), 335-361.
- Young, G.J., Beckman, H., & Baker, E. (2012). Financial incentives, professional values and performance: A study of pay-for-performance in a professional organization. *Journal of Organizational Behavior, 33*(7), 964-983.
- Zhao, Y., Lu, Y., & Wang, X. (2013). Organizational unlearning and organizational relearning: A dynamic process of knowledge management. *Journal of Knowledge Management, 17*(6), 902-912.

