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THE IMPACT OF SALARY STRUCTURE, PERFORMANCE REQUIREMENTS, AND TYPE OF BUSINESS ON THE PERFORMANCE OF HOUSING BROKERAGE EMPLOYEES

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ABSTRACT

This study investigated the effects of salary structure, performance requirements, and type of business on the performance of housing agents. The participants in the study survey consisted of the employees of real estate firms in Kaohsiung, Taiwan. Restricted and unrestricted regression models were used to compare the goodness-of-fit of the regression models. A total of 1500 questionnaires were distributed to the branches of the real estate firms, and 734 questionnaires were returned. 284 of the returned questionnaires were ineffective or had missing items. An effective sample of 450 questionnaires was thus collected for an effective recovery rate of 30%. The empirical results indicated that the type of business did not have a significant effect on individual performance with respect to base pay, individual bonuses, group bonuses, and performance requirements. In contrast, base pay, high individual bonuses, and group bonuses had a significant positive effect on individual performance. The empirical results in this study indicated that the effects of base pay, individual bonuses, and group bonuses on individual performance cannot be ignored when investigating the effect of the type business on individual performance.

Contribution/ Originality: The empirical results in this study indicated that the effects of base pay, individual bonuses, and group bonuses on individual performance cannot be ignored when investigating the effect of the type business on individual performance.

1. INTRODUCTION

There are many brands in the real estate industry in Taiwan, and the types of businesses can be divided into three types: direct sales, franchise, and independent businesses. With the increasing volume of transactions in the real estate market, many independent businesses have shifted to being franchise enterprises. Direct sales and franchise enterprises have become the market mainstream. Lin (2012) identified six key factors of successful franchise businesses: brand, information system, corporate structure, management style, customer relations management, and warranty structure innovations. In pursuit of maximum profit, direct sales enterprises may promote the reduction of average fixed costs so that brokers have more resources and can enjoy more operation

results. Franchise enterprises seek to ensure service quality. The productivity of a brokerage can improve in a nationally recognized franchise system, especially in the areas of development and sales. Peng (2003) maintained that direct sales systems involve greater incentives to maximize profits, which can improve the individual performances of the employees using them. However, according to Lee (1999) franchise brokerage firms make more sales and at higher prices, which can also improve the individual performances of their employees. This study investigated the effects of direct sales and franchise systems on individual performance.

Yu and Liu (2004) suggested that the real estate industry in Taiwan has incorporated characteristics of the Japanese and US real estate systems, and that it has diverse salary structures. Lee (2001) distinguished the following types of salary systems: base pay with individual and group bonuses; individual and group bonuses only (no base pay); and individual bonuses only (no base pay or group bonus). With regard to brokerage firms, their salary systems can be seen as involving three components, which are base pay, individual bonuses, and group bonuses. With regard to the influence of base pay on individual performance, employees without fixed base pay are more incentivized to work, and their individual performance is better. Lee (1999) and Lee and You (2007) indicated that employees of real estate firms that offer no base pay but high sales bonuses outperform those of real estate firms that offer both base pay and sales bonuses. Furthermore, the empirical results of the study by Lee and Lee (2015) indicated that real estate firms' requirements regarding employees' achievements do not affect their individual performance. This implies that housing agents' requirements toward their performance must be higher than those of the company or company branch.

With regard to factors other than the type of business, salary structure, and performance requirements, the empirical findings of Lee and You (2007) indicated that gender, years of education, position, and weekly working hours did not affect the performance of housing agents. Married agents were found to have lower performance than single agents. Longer working experience was also associated with better performance. Hence, personal background is also an important factor that can influence the performance of housing agents.

This study pursued two objectives. First, this study sought to examine the effects of salary structure (base pay, individual bonuses, and group bonuses) and performance requirements on individual performance. Second, this study sought to investigate the effect of business type on individual performance while taking into account the influence of salary structure. The participants in this study consisted of the employees of real estate firms in Kaohsiung, Taiwan. The explained variable in the empirical model was the average monthly performance over the past three months. The regression method was used for analysis. In addition to the introduction, this study includes sections on literature review, establishment of the empirical model and explanation of variables, data source and sample statistics, empirical results, discussion, and conclusions and suggestions for future studies.

2. LITERATURE REVIEW

Most past studies on the performance of real estate-related employees have discussed the issue from the perspective of housing agents. For instance, Follain *et al.* (1987); Crellin *et al.* (1988) and Glower and Hendershott (1988) found that weekly working hours, level of education, and work experience had a significant positive effect on the individual performances of housing agents. Lee (2001) found that the location of the branch in which housing agents work, and their level of education, marital status, field of study, years of service, and work hours significantly affect their performance. Lee and You (2007) indicated that individual performance is most significantly affected by marital status, years of work experience, years at current branch, and branch location.

In addition to personal background and company characteristics, the salary structure is another factor that influences individual performance. According to Knez and Simester (2001) bonus systems help to improve a company's internal performance. The results of Lee (2001) research on salary structure indicated that the profits of housing agents who do not earn a base pay are generally higher than those of employees who earn a base pay. Yu and Liu (2004) investigated the influence of salary systems on motivation within a company's team and found that

individual and group bonuses can improve employees' performance. Lee (2002) empirical research indicated that increasing the proportion of sales bonuses effectively motivates employee performance. Another factor influencing the individual performance of employees is the performance requirements of the company or branch. The empirical findings of Lee and Lee (2015) indicated that performance requirements do not significantly affect individual performance and housing agents' own performance requirements are more important than those of the company branch. Lee (2001) and Lee and You (2007) found that employees' individual performance is significantly affected by the branch location.

Furthermore, Peng and Lee (2002) found that direct sales firms have a greater amount of turnover than franchise firms. However, some past studies on the performance of housing agents indicated that franchises had better business performance than direct sales companies, where the "performance" measures the degree of achievement of individual or organizational goals. Sirmans *et al.* (1991) investigated the relationship between the business scales and sales periods of real-estate brokerage firms, and found that large-scale real-estate firms have shorter sales periods and better business performance. Chen (1993) found that licensed franchises outperform direct sales firms in terms of the following six competitive advantages: diverse and complete range of products, business hours of branch offices, punctual delivery of products, computerized accounting system, selection of branch address and commercial district, and understanding of market changes. Lee (1999) suggested that franchises perform better than direct sales firms because they are more motivated to maximize their profits. However, according to Peng (2003) considering the higher fixed operating costs of direct sales firms, they often have higher standards for employee training and performance, and these intangible investments into their employees can improve business performance. The empirical results of Peng's study did not correspond to the findings of Chen (1993) and Lee (1999). As suggested by Peng, these results indicated that mutual guarantees in real estate transactions had already greatly improved despite the gradual legalization of real estate brokerage management in Taiwan. This study focused on discussing the effects of different types of businesses on employee performance.

Factors influencing individual performance were summarized in this study as follows: (1) salary structure, including individual bonus, group bonus, and base pay; (2) performance requirements; (3) type of business; and (4) other factors, including gender, age, marital status, level of education, years of experience, and branch location. This study sought to examine the influence of the salary structure, performance requirements, and type of business on individual performance.

3. ESTABLISHMENT OF THE EMPIRICAL MODEL AND EXPLANATION OF VARIABLES

3.1. Establishment of the Empirical Model

The average monthly performance over the past three months was expressed in this study as a natural logarithm. Independent variables were divided into two groups. The first group included variables related to personal characteristics, such as gender (SEX), marital status (MAR), having children under the age of six ($CHILD$), having a bachelor's degree or higher level of education ($EDUU$), having a junior college degree ($EDUC$), age (AGE), years of work experience (EXP), years of work experience squared ($EXPS$), working hours per day ($HOUR$), work experience outside of real estate ($WORKO$), and real estate experience ($WORKB$). The second group included the branch-related variable, which was branch location (LOC). As the market equilibrium was assumed, a non-linear function was used to determine performance, which better corresponds to the concept of diminishing marginal returns. Thus, the function model in this study was set as follows (see Table 1 for the details about establishment of variables):

$$\ln(Y) = \alpha_0 + \alpha_1 SEX + \alpha_2 MAR + \alpha_3 CHILD + \alpha_4 EDUU + \alpha_5 EDUC + \alpha_6 AGE + \alpha_7 EXP + \alpha_8 EXPS + \alpha_9 HOUR + \alpha_{10} WORKO + \alpha_{11} WORKB + \sum_{i=12}^{18} \alpha_i LOC_i + e \quad (1)$$

where α_0 indicated an intercept, $\alpha_1 \sim \alpha_{18}$ indicated coefficients of each independent variable, and e indicated an error term; the values belonged to normal distribution, and it was assumed that the mean value was equal to 0 and the variance was σ^2. i indicated the brand location and included eight districts, namely, Sanmin District, Xiaokang District, Zuoying District, Qianzhen and Qianjin Districts, Xinxing District, Nanzi District, Gushan District, and Fengshan District. Seven dummy variables were established.

Formula 2 was used to explain the effect of base pay, individual and group bonuses, and performance requirements on individual performance. The formula was based on Formula 1 and included four independent variables, which were base pay ($SALA$), individual bonus rate ($IRATE$), group bonus ($BONUS$), and performance requirements ($REQU$). The functional model was established as follows:

$$\begin{aligned}\ln(Y) &= \beta_0 + \beta_1 SEX + \beta_2 MAR + \beta_3 CHILD + \beta_4 EDUU + \beta_5 EDUC + \beta_6 AGE + \beta_7 EXP \\ &+ \beta_8 EXPS + \beta_9 HOUR + \beta_{10} WORKO + \beta_{11} WORKB + \sum_{i=12}^{18} \beta_i LOC_i \\ &+ \beta_{19} SALA + \beta_{20} IRATE + \beta_{21} BONUS + \beta_{22} REQU + \varepsilon \quad (2)\end{aligned}$$

where β_0 was an intercept, $\beta_1 \sim \beta_{22}$ were coefficients of each independent variable, and ε was an error term. The values belonged to normal distribution, and it was assumed that the mean value was equal to 0 and the variance was σ^2. Formula 3 was based on Formula 2 but also included the business type ($TYPE$) variable. The functional model was established as follows:

$$\begin{aligned}\ln(Y) &= \gamma_0 + \gamma_1 SEX + \gamma_2 MAR + \gamma_3 CHILD + \gamma_4 EDUU + \gamma_5 EDUC + \gamma_6 AGE + \gamma_7 EXP \\ &+ \gamma_8 EXPS + \gamma_9 HOUR + \gamma_{10} WORKO + \gamma_{11} WORKB + \sum_{i=12}^{18} \gamma_i LOC_i + \gamma_{19} SALA + \gamma_{20} IRATE \\ &+ \gamma_{21} BONUS + \gamma_{22} REQU + \gamma_{23} TYPE + \delta \quad (3)\end{aligned}$$

where γ_0 was an intercept, $\gamma_1 \sim \gamma_{23}$ were coefficients of each variable, and δ was an error term. The values belonged to normal distribution, and it was assumed that the mean value was equal to 0 and the variance was σ^2. Due to the nested relations between Formulas 1 and 2 and Formulas 2 and 3, the restricted regression model and unrestricted regression model were used and their goodness-of-fit was compared. The statistic F was used to estimate goodness-of-fit of each model, as shown in Formula 4:

$$F = \frac{(SSE_R - SSE_U)/J}{SSE_U/(N-K)} \quad (4)$$

where SSE_R indicated the residual sum of squares (RSS) for the restricted regression model, SSE_U indicated the RSS for the unrestricted regression model, J indicated the parameters restricted to 0, N indicated the estimated values, and K indicated the parameters of the unrestricted model.

3.2. Variable Definition and Explanation

The dependent variable was individual performance expressed as the natural logarithm from the average monthly bonus for achievements over the past three months. The expected influence of each independent variable

on performance is discussed further below. With regard to demographic variables, in terms of gender, real estate brokerage firms currently tend to prioritize the hiring of male candidates due to the perception that male employees are more capable workers with more outstanding achievements, such that they are generally expected to perform better than female employees. As indicated by Sirmans and Swicegood (1997) and Jud and Winkler (1998) female employees previously earned lower incomes than male employees. However, Lee and Shen (2008) found that, possibly due to social changes, men and women are starting to have more equal positions in terms of work. Women are as capable as men in terms of both work and study, and can even demonstrate higher efficiency than men. These results corresponded to those reported by Morris and Steers (1980) and Hulin and Smith (1964). Gender was set as a dummy variable, with 1 indicating male and 0 indicating female. It was uncertain whether the influence of gender on performance and the corresponding coefficient would be positive or negative.

With regard to marital status, the findings of Abelson *et al.* (1990) showed that married employees spent more time at home and had more family-related responsibilities. Thus, their performance was expected to be worse that that of single employees. Marital status in this study was set as a dummy variable, with 1 indicating married and 0 indicating single. The marital status coefficient was expected to be a negative value. With regard to family status, the empirical findings of Beutell and Greenhaus (1982) and Home (1998) indicated that employees who have children younger than six years old are unable to simultaneously dedicate full attention to both family and work, and this affects their work performance. Since small children rely on family for nurturing and upbringing, more time and effort is required to care for them, which affects an employee's working hours and performance. A dummy variable was set for employees who had children under the age of six, with 1 indicating having children under six years old and 0 indicating not having such children. The corresponding coefficient was expected to be a negative value.

Educational level represents human capital and is associated with the accumulation of broad professional knowledge. Hence, it was expected that a higher level of educational would lead to better performance. Lee (1999;2001); Glower and Hendershott (1988); Jud and Winkler (1998) and Abelson *et al.* (1990) found that the level of education significantly affects profits and more years of education are associated with higher profits. Lee and Shen (2008) indicated that housing agents significantly differ in terms of their work efficiency depending on their educational level; employees with a bachelor's degree or higher level of education have higher efficiency than employees with general and vocational high school educations.

With regard to age, older age is associated with longer experience in society, better ability to work with customers, and better performance. The results of a study by Frank and Park (2006) indicated that performance differs depending on age. The age coefficient was expected to be a positive value. With regard to years of work, Glower and Hendershott (1988); Sirmans and Swicegood (1997) and Jud and Winkler (1998) found that a greater number of working years was associated with richer experience and a wider network of business relationships, meaning better performance. Thus, the coefficient of years of work experience was expected to be a positive value. More years of work experience indicated richer experience; however, it had diminishing marginal returns. This study predicted that the coefficient related to the squared years of work experience was a negative value.

With regard to work-related variables, particularly working hours per day, greater numbers indicated more effort invested into work and better performance. Lee (1999;2001); Abelson *et al.* (1990) and Sirmans and Swicegood (1997) maintained that a greater number of working hours per day resulted in higher profits and better performance. Thus, the corresponding coefficient was expected to be a positive value.

Professionals who had previous work experience in industries other than real estate were better able to retain training and information provided by an organization, and demonstrated better performance. Adkins (1995) also indicated that professionals with work experience are better able to learn training material and other information provided by an organization, and are more receptive to social training and adaptable to work pressures. However, Ku (2003) suggested that due to the vast differences between professions, employees' non-real estate-related work

experience would not benefit their salaries. In this study, work experience in industries other than real estate was indicated by 1, while the absence of such experience was indicated by 0. It was uncertain whether the value would be positive or negative.

Employees with real estate experience have better brokerage skills and richer work experience, and perform better than employees without brokerage experience (Wen and Huang, 2000). This study predicted a significant positive effect of real estate experience on individual performance.

With regard to variables related to salary structure, the presence or absence of base pay can affect performance. Yu and Liu (2004) indicated that the provision of base pay had a positive effect on individuals' work incentive. Thus, employees who earn a base salary are more motivated to invest effort into work and have better performance. The presence of base pay was indicated by 1, while its absence was indicated by 0. The base pay coefficient was predicted to be a positive value.

Higher individual bonuses can motivate employees to invest more effort. Lee (2002); Prendergast (1999) and Banker *et al.* (2001) indicated that increased individual bonus rates can increase employees' motivation and improve their performance. The individual bonus rate coefficient was predicted to be a positive value. Group bonuses can enhance team cooperation, reduce internal conflicts, and improve work efficiency (Nie and Cheng, 2009). Carr (1992) suggested that group bonuses improve team cooperation, reduce internal conflicts, create a friendly work atmosphere, and increase work efficiency. The group bonus coefficient was predicted to be a positive value.

Performance requirements can create pressure and motivate employees to invest more effort, thus improving their performance. Shieh (2002) maintained that performance pressures result in positive behavior among employees. The coefficient related to performance requirements was thus predicted to be a positive value. With regard to the type of real estate business, employees of franchises were predicted to perform better than employees of direct sales companies. Three types of business systems can be distinguished in the current market: direct sales, franchise, and independent businesses. Due to customer brand selection behavior, many independent stores decide to franchise, making franchises the majority in the market. Salary systems in franchises motivate employees to invest more effort into pursuing personal achievements, which improves their relative performance. Lee (1999) suggested that employees of franchises are more motivated to maximize profits than employees of direct sales firms. Thus, the performance of franchise employees is better than that of direct sales employees. Business type was set as a dummy variable, with 1 indicating direct sales firms and 0 indicating franchises. The business type coefficient was predicted to be a negative value.

The administrative locations considered in this study included Sanmin District, Xiaokang District, Zuoying District, Qianzhen and Qianjin Districts, Xinxing District, Nanzi District, Gushan District, and Fengshan District. Administrative location was established as a dummy variable, and Lingya District served as the comparison basis since it is the administrative center of Kaohsiung and is located in the city's center. Branch locations were compared based on Lingya District. In districts close to suburbs, commercial activities are less varying and transaction prices are lower. As indicated by Lee (2001); Follain *et al.* (1987); Glower and Hendershott (1988) and Sirmans and Swicegood (1997) employees of real estate brokerage firms located in city centers earn higher profits. (each variable is explained in Table 1).

Table-1. Explanation of variables

Variable	Explanation	Expected Value
Individual performance (Y)	Expressed as the average monthly sales bonus over the past three months	
Gender (SEX)	Gender was set as a dummy variable, with 1 indicating male and 0 indicating female.	+
Marital status (MAR)	Marital status was set as a dummy variable, with 1 indicating married and 0 indicating single.	-
Having children under the age of six (CHILD)	A dummy variable was set for employees with children younger than six years old, with 1 indicating having children under the age of six and 0 indicating not having such children.	-
Level of education (EDU)	The four levels of education included general and vocational high school, junior college, undergraduate, and graduate or higher. The undergraduate, graduate, and higher levels were combined into one group. Graduates of general and vocational high school served as the reference basis. Two dummy variables were established. EDUC equal to 1 indicated graduates of junior colleges and 0 indicated other employees. EDUU equal to 1 indicated graduates of university and 0 indicated other employees.	+
Age (AGE)	Age was set as a continuous variable measured in years.	+
Years of work experience (EXP)	Years of experience were set as a continuous variable and referred to years of actual work experience in the real estate industry, including current work.	+
Years of work experience squared (EXPS)	Years of work experience squared was set as a continuous variable.	-
Working hours per day (TIME)	Working hours per day was set as a continuous variable and referred to the average working hours per day over the past three months.	+
Work experience outside of real estate (WORKO)	Previous work experience in an industry other than real estate was set as a dummy variable, with 1 indicating employees having such experience and 0 indicating employees without such experience.	+/-
Real estate work experience (WORKB)	Previous real estate experience was set as a dummy variable, with 1 indicating employees having such experience and 0 indicating employees without such experience.	+
Base pay (SALA)	Base pay was set as a dummy variable, with 1 indicating that an employee received a base salary and 0 indicating they did not receive a base salary.	+
Individual bonus rate (IRATE)	The rate of individual bonuses provided by a real estate brokerage firm to its employees was set as a continuous variable measured in percentage (%).	+
Group bonus (BONUS)	Group bonus was set as a dummy variable, with 1 indicating provision of group bonuses and 0 indicating absence of group bonuses.	+
Performance requirements (REQU)	Requirements of performance were set as a dummy variable, with 1 indicating the existence of performance requirements and 0 indicating the absence of performance requirements.	+
Type of business (TYPE)	The type of business was set as a dummy variable and included direct selling and franchising; 1 indicated direct sales firms and 0 indicated franchises.	-
Administrative location (LOC)	The administrative location was set as a dummy variable and included Sanmin District, Xiaokang District, Zuoying District, Qianzhen and Qianjin Districts, Xinxing District, Nanzi District, Gushan District, and Fengshan District. Lingya District served as the comparison basis.	+/-

Source: Compiled by this study.

4. DATA SOURCE AND SAMPLE STATISTICS

4.1. Questionnaire Design

The questionnaire in this study included participants' basic data (gender, level of education, age, and marital status), work-related variables (the administrative district of the real estate brokerage, years of work, working hours per day, work experience outside of real estate, and real estate work experience), and variables related to the real estate firm (type of business and salary structure). Performance-related data included participants' average monthly performance over the past three months. Participants' average monthly performance over the past three months was represented by the amount of commission fees per month; the total transaction price of each completed sale was multiplied by the commission rate.

4.2. Data Collection

The data in this study was collected using a questionnaire. The main participants of the survey were sales branches published on the websites of each real estate brokerage firm and real estate firms registered on the Kaohsiung administrative district websites, and included Sinyi Realty, Yung-Ching Realty Group, Tai-Ching Realty, U Trust Housing, Chinatrust Real Estate, Century 21 Real Estate, H&B Business Group, Eastern Trust Real Estate, and Taiwan Realty. Questionnaires were separately administered to direct sales and franchise companies. There were 31 direct sales companies and 265 franchise companies. Based on the ratios of the real estate brokerage brands, questionnaires were administered to 20 direct sales stores and 80 franchise stores, with 15 questionnaires administered to each store. The questionnaires were administered and collected on-site. The survey was conducted from June to August 2015. 1500 questionnaires were administered and 734 were returned. Many independent stores were found to have become franchise stores during the survey process. In order to facilitate the analysis, the real estate chains were divided into two types - direct sales and franchise - and the 31 questionnaires collected from independent stores were excluded. Responses with missing values or performance equal to 0 were also excluded. 450 effective questionnaires were collected in this study, yielding an effective return rate of 30%. This study utilized the chi-square test. The test results indicated no significant difference between the population's theoretical distribution and the sample distribution, meaning that the sample data were representative (sample-population fit test results are shown in Table 2).

Table-2. Sample-population fit test of each real-estate brokerage firm

Real-estate firm	Population Number of branches	Population Ratio	Number of branches surveyed	Number of questionnaires sent	Number of questionnaires returned (Sample size)	Recovery rate	Theoretical value	Standard deviation
Sinyi Realty	31	0.10	20	300	122	0.08	76.87	26.49
Yung-Ching Realty Group	67	0.23	20	300	169	0.11	166.14	0.05
Tai-Ching Realty	33	0.11	10	150	67	0.04	81.83	2.69
U Trust Housing	11	0.04	3	45	37	0.02	27.28	3.47
Century 21 Real Estate	15	0.05	5	75	26	0.02	37.20	3.37
Eastern Trust Real Estate	6	0.02	2	30	26	0.02	14.88	8.31
Chinatrust Real Estate	33	0.11	10	150	75	0.05	81.83	0.57
H&B Business Group	79	0.27	24	360	155	0.10	195.90	8.54
Taiwan Realty	21	0.07	6	90	57	0.04	52.07	0.47
Total	296	1	100	1500	734	0.49	734	53.95

Source: Compiled by this study.

4.3. Sample Statistics

According to the data from the returned questionnaires, the average profit was NT$320,000. With regard to demographic characteristics, 62.4% of participants were male employees and 37.6% were female, indicating that current real estate brokerage firms still primarily hire male candidates; this could perhaps be due to the higher risk associated with showing houses for female housing agents. With regard to marital status, 47.1% of participants were married and 52.9% were single; although there were more single employees, the ratio of married and single employees was almost the same. 72% of participants had children under the age of six, and 18% did not. With regard to educational level, the education of 1.8% of participants was junior high school level or lower; 26.7% graduated from general and vocational high schools; 21.6% graduated from junior colleges; 45.1% had a bachelor's degree and 4.7% had a master's degree. Most employees had earned a bachelor's degree. With regard to age, the average age of brokers was 40.2. The average years of work experience was 5.48. The average working hours per day among housing agents was 9.26. 57.4% of participants had work experience in fields other than real estate and 42.6% did not have such experience. 18.3% of participants had real estate work experience and 81.7% did not, indicating that not many employees had previous work experience in real estate.

With regard to the branch locations, 14% of stores were located in Sanmin District, 1.8% in Xiaokang District, 23.6% in Zuoying District, 0.2% in Qianzhen District, 11.8% in Qianjin District, 11.3% in Lingya District, 5.1% in Xinxing District, 4.2% in Nanzi District, 13.6% in Gushan District, 14.4% in Fengshan District. Qianzhen and Qianjin Districts were combined in this study into one district. 21.9% of participants received a base salary and 78.1% did not. The average individual bonus rate was 45%. 69.7% of participants received group bonuses and 30.3% did not. 20.7% of participants had performance requirements and 79.3% did not. 16.7% of participating firms were direct sales firms and 83.3% were franchise branches.

5. EMPIRICAL RESULTS

The empirical analysis results are shown in Table 3. The restricted and unrestricted regression models were used in this study and their goodness-of-fit was compared. Formulas 1 and 2 were compared. The goodness-of-fit of the regression models was compared based on the F statistic. F =12.399> F (4,224, 0.95)=2.37, reaching a significance level of 5%, which indicated that the unrestricted regression model had a better goodness-of-fit. Formula 2 had a better goodness-of-fit than Formula 1. Formula 3 was based on Formula 2 and included the business type variable. The comparison of Formulas 2 and 3 showed that F =0.837< F (1,195,0.95)=3.84 and that a significance level of 5% was not reached, indicating a better goodness-of-fit of the restricted regression model. Formula 2 had a better goodness-of-fit than Formula 3.

Formula 4 included the business type, while Formula 2 included base pay, individual bonus rate, group bonus, and performance requirements. The goodness-of-fit of Formulas 2 and 4 was compared. Due to non-nested relations between the formulas, the AIC (Akaike information criterion) was used for comparison; smaller values of the criterion indicated better goodness-of-fit. The results showed that the AIC values of Formulas 2 and 4 were 0.57 and 0.58, respectively, indicating that Formula 2 had a better goodness-of-fit than formula 4. Formula 2 is used in explanations below.

The empirical results showed that in Formula 2, R^2 was equal to 0.315; the adjusted value of R^2 was 0.235; the value of F was 3.945. This indicated that 31.5% of variance in individual performance was explained by independent variables and the overall regression model had a high goodness-of-fit. Coefficients of six independent variables in the regression formula reached a significance level of 5%, including gender, working hours per day, individual bonus rate, base pay, group bonus, and Sanmin District. Work experience in fields other than brokerage reached a significance level of 10%.

Table-3. Empirical results analysis (based on the monthly performance logarithm)

Variable	(1) Estimated coefficient	(2) Estimated coefficient	(3) Estimated coefficient	(4) Estimated coefficient
Constant	1.519	-0.012	-0.423	1.401
	(0.024)**	(0.988)	(0.662)	(0.037)
Gender	-0.367	-0.462	-0.481	-0.372
	(0.045)**	(0.016)**	(0.012)**	(0.040)**
Marital status	-0.151	-0.170	-0.157	-0.160
	(0.486)	(0.456)	(0.493)	(0.458)
Has children under the age of six	0.341	0.317	0.296	0.331
	(0.222)	(0.271)	(0.305)	(0.233)
Graduated from university	0.245	0.310	0.308	0.154
	(0.284)	(0.211)	(0.215)	(0.504)
Graduated from junior college	0.303	0.399	0.391	0.292
	(0.207)	(0.117)	(0.124)	(0.221)
Age	0.000	0.004	0.004	0.004
	(0.979)	(0.777)	(0.754)	(0.747)
Working hours per day	0.124	0.112	0.108	0.107
	(0.000)***	(0.002)***	(0.003)***	(0.001)***
Work experience outside of real estate	-0.448	-0.371	-0.356	-0.446
	(0.018)**	(0.072)*	(0.089)*	(0.018)**
Real estate work experience	0.097	0.137	0.142	0.110
	(0.676)	(0.549)	(0.580)	(0.632)
Base salary	_	1.146	1.044	_
	_	(0.013)**	(0.028)**	_
Individual bonus rate	_	2.555	3.357	_
	_	(0.016)**	(0.015)**	_
Group bonus	_	0.712	0.631	_
	_	(0.003)***	(0.014)**	_
Performance requirements	_	-0.231	-0.225	_
	_	(0.284)	(0.298)	_
Type of business	_	_	0.619	0.621
	_	_	(0.360)	(0.039)**
Years of work experience	0.007	0.027	0.023	0.017
	(0.889)	(0.624)	(0.674)	(0.749)
Years of work experience squared	0.001	4.132E-5	0.000	0.001
	(0.641)	(0.986)	(0.925)	(0.780)
Sanmin District	-0.430	-0.755	-0.711	-0.458
	(0.263)	(0.070)**	(0.090)*	(0.230)
Xiaokang District	0.709	0.556	0.519	0.757
	(0.216)	(0.334)	(0.368)	(0.185)
Zuoying District	-0.178	-0.101	-0.070	-0.100
	(0.572)	(0.775)	(0.843)	(0.750)
Qianzhen and Qianjin Districts	-0.496	-0.450	-0.436	-0.450
	(0.138)	(0.210)	(0.225)	(0.177)
Xinxing District	0.493	0.485	0.579	0.538
	(0.383)	(0.411)	(0.334)	(0.338)
Nanzi District	-0.637	-0.431	-0.381	-0.546
	(0.200)	(0.414)	(0.472)	(0.271)
Gushan District	-0.291	-0.203	-0.175	-0.184
	(0.408)	(0.597)	(0.649)	(0.602)
Fengshan District	0.436	0.356	0.235	0.543
	(0.189)	(0.578)	(0.513)	(0.104)
F	3.152	3.945	3.812	3.253
	(0.000)***	(0.000)***	(0.000)***	(0.000)***
R^2	0.207	0.315	0.318	0.222
Adjusted R^2	0.142	0.235	0.235	0.154
AIC	_	0.57	_	0.58

Note: * indicates a significance level of 10%; ** indicates a significance level of 5%; *** indicates a significance level of 1%. *p* values are indicated by brackets.

The estimated coefficient of gender (male=1; female=0) was equal to -0.462, reaching the 5% significance level, which indicated that female employees had better individual performance than male employees. The estimated coefficient of working hours per day was 0.112, reaching a significance level of 5%, which indicated that with each additional working hour per day, the individual performance of housing agents improved by 11.2%. The empirical results showed that a higher number of working hours per day was associated with better performance.

The estimated coefficient of base pay was 1.146, reaching a significance level of 5%, which indicated that housing agents who received a base salary performed better than agents who did not. The estimated coefficient of the individual bonus rate was 2.555, reaching a significance level of 5%, which indicated that a higher individual bonus rate was associated with better individual performance among housing agents. The estimated coefficient of group bonus was 0.712, reaching a significance level of 5%, which indicated that employees in companies that offered group bonuses demonstrated a better monthly performance than employees in companies that did not offer group bonuses.

The estimated coefficient of Sanmin District (Sanmin District=1; other=0) was -0.755, reaching a significance level of 5%, which indicated that employees in Sanmin District demonstrated worse performance than employees in Lingya District. The estimated coefficient of work experience in fields other than real estate was -0.371, reaching a significance level of 10%, which indicated that employees with work experience in fields other than real estate performed worse than other employees.

6. DISCUSSION

The empirical results showed that Formula 2 had the best goodness-of-fit, and it was therefore used to explain the influence of base pay, individual bonus rate, group bonus, and performance requirements on the individual performances of real estate brokers. The empirical results in this study indicated that the type of business cannot be analyzed without consideration of salary structure. The type of business reached a level of significance in Formula 4, whereas in Formula 2, salary structure reached a level of significance. Formula 4 demonstrated that employees of direct sales firms performed better than employees in franchise branches. However, Formula 2 had a better goodness-of-fit than Formula 4. A comparison of the restricted regression Formula 2 and unrestricted regression Formula 3 indicated that Formula 2 was accepted, meaning that adding type of business into a model which already includes salary structure is redundant. This implied that base pay, individual bonus rate, group bonus, and performance requirements make up the type of business and are similar in nature. Inclusion of the four salary structure variables is preferable in empirical analysis.

According to the empirical results, the estimated coefficient of gender was -0.462, reaching a significance level of 5%, which indicated that female employees performed better than male employees. Lee and Shen (2008) found that, possibly due to social changes, men and women are starting to have more equal positions in terms of work. Women are as capable as men in terms of both work and study, and can even demonstrate higher efficiency than men. These findings corresponded to the empirical results in this study.

The coefficient of working hours per day was 0.112, reaching a significance level of 5% and corresponding to the predicted value sign. This indicated that in order to achieve good performance, housing agents must invest more time into work. These findings corresponded to those of Lee (1999;2001); Abelson *et al.* (1990) and Sirmans and Swicegood (1997).

The base salary coefficient was 1.146, reaching a significance level of 5% and corresponding to the predicted value sign. The results indicated that employees who received base pay demonstrated better monthly performance than employees who did not. Employees who receive base pay are guaranteed a salary and work in a stable work environment. Thus, they perform better than employees who do not receive base pay. The results in this study correspond to findings of Yu and Liu (2004).

The individual bonus rate coefficient was 2.555, reaching a significance level of 5% and corresponding to the predicted value sign. The results indicated that a higher individual bonus rates are associated with better individual performance. A higher individual bonus rate motivates employees to invest in work and improves their performance. The results corresponded to findings of Lee (2002); Lazear (2000) and Banker *et al.* (2001).

The group bonus coefficient was equal to 0.712, reaching a significance level of 5% and corresponding to the predicted value sign. The results indicated that employees in companies that offer group bonuses performed better than employees in companies that do not. Employees in companies that offer group bonuses have fewer disputes and are more motivated to cooperate, which improves their performance. These results corresponded to findings of Yu and Liu (2004); Nie and Cheng (2009) and Carr (1992).

The coefficient of Sanmin District was equal to -0.775, reaching a significance level of 10% and indicating a significant difference between Sanmin District and Lingya District in terms of the employees' performance. The potential reason for such results is that Sanmin District has been rapidly developing in recent years, which has led to issues such as traffic jams, noise, air pollution, poor public order, waste, and water supply problems; as a result, employees in Sanmin District demonstrated a poorer performance than employees in Lingya District.

The coefficient of work experience in fields other than real estate was equal to -0.371, reaching a significance level of 10% and indicating that different work experience had a negative effect when entering the real estate market. Ku (2003) found that due to the difference between professions, employees' work experience related to other industries would not affect benefit their salary. Thus, employees with work experience in industries other than real estate demonstrated poor performance.

The marital status coefficient was equal to -0.170 but did not reach a level of significance. Abelson *et al.* (1990) suggested that married employees spend more time at home than single employees, which results in their performance being poorer than that of single employees. The empirical results in this study indicated that the marital status did not have a significant effect on employees' performance. The coefficient related to employees who had children under the age of six was a positive value, which did not correspond to the predicted value sign. A potential reason that its effect did not reach a level of significance is that the child care system in Taiwan has been improving gradually with subsidies from the government, allowing employees to worry less about their family and enabling them to invest more effort into work. The empirical results showed that there was no significant difference the in individual performance of employees with and without children under the age of six. With regard to the level of education, the coefficients of employees with university and junior college education were 0.310 and 0.399, respectively, not reaching a level of significance. Theoretically, education is an investment in human capital. A higher level of education means richer knowledge and results in better performance (Jud and Winkler, 1998; Lee, 1999;2001). However, the empirical results showed that the performance of employees with a university or junior college education was not significantly higher than that of employees with general and vocational high school education. The level of education did not have a significant effect on the performance of housing agents. A possible reason for this finding is that real estate work mostly requires sales skills and certain personal characteristics; moreover, employees entering this field are further trained by their companies, which reduces the educational gap between employees, making its influence non-significant. The age coefficient was equal to 0.004 but did not reach a level of significance. With regard to age, older age is associated with longer experience in society, better ability to work with customers, and better performance. The results in this study did not correspond to findings reported by Frank and Park (2006).

The real estate experience coefficient was equal to 0.137 but did not reach a level of significance. This result supported the findings of Wen and Huang (2000). Employees with real estate experience performed better than those without real estate experience. A possible reason for this finding is that such employees have a fixed source of clients, are familiar with the real estate market environment, and do not have difficulty adapting to it. However, the empirical results indicated that real estate experience did not have a significant effect on performance.

The coefficient of performance requirements was equal to -0.231 but did not reach a level of significance, which did not correspond to findings of Shieh (2002). With regard to performance requirements, they can create pressure and motivate employees to invest more effort, thus improving their performance. The empirical results did not correspond to the predicted value sign. A possible reason for this finding is that the real estate market is a high-pressure environment itself; additional performance requirements can overburden employees, and employees with higher performance requirements can perform worse than those with lower performance requirements. Although the results did not correspond to the predicted value sign, they did not reach a level of significance.

The coefficient of years of work experience was equal to 0.027 but did not reach a level of significance. These results did not support findings of Lee (1999;2001); Sirmans and Swicegood (1997) and Jud and Winkler (1998).

Branch locations were compared based on Lingya District. In districts close to suburbs, commercial activities are less varying and sales prices are lower. Housing agents in large urban districts receive higher profits. Thus, it was predicted that the performance of real estate brokers in the city center would be better than that of employees in suburban areas. The empirical results indicated that employees in Sanmin District had a poorer performance than employees in Lingya District. No significant difference was observed between any other districts and Lingya District.

7. CONCLUSION AND SUGGESTIONS

7.1. Conclusion

The empirical results can be divided into three main sections. First, the results regarding the salary structure showed that the employees in real estate firms that offer base pay, higher individual bonus rates, and group bonuses demonstrated better performance. A guaranteed base pay, stable work environment, and fixed sales bonus rate can motivate employees to invest more effort into their work. Newcomers in the real estate industry have yet to develop relationships and undergo professional training. In order to cover basic living expenses, they can consider joining real estate firms that offer base pay and bonuses to get a start in the industry.

Second, real estate firms operating under the same type of business may have different salary structures. The results in this study indicated that the main factor affecting the individual performance of employees is salary structure, whereas performance requirements and type of business do not have a significant effect on individual performance. Salary structure was found to have a significant effect on employees' individual performance. Performance requirements did not significantly affect individual performance. With regard to business type, no significant difference was observed in the individual performance of employees in direct sales firms and franchises. Direct-selling brands used to have more brand recognition, but franchise companies have strengthened their advertising and marketing in recent years, and their brands have also become well-known and their service improved. This has reduced the difference between direct sales firms and franchises. When purchasing real estate, consumers no longer rely solely on direct sales firms. Therefore, employees of companies with different types of business did not significantly differ in terms of their performance.

The third section was related to personal factors. With regard to gender, the empirical analysis results showed that female employees performed better than male employees. A greater number of working hours per day indicated investment of more effort into work and better performance. With regard to work experience outside of real estate, employees new to the real estate market are less familiar with the business. Moreover, the recent economic crises in Taiwan have negatively impacted the real estate market, making it difficult for employees to apply their previous work experience from outside the industry and, as a result, negatively affecting their performance.

7.2 Suggestions

Some items in the questionnaire designed in this study were sensitive, such as those related to individual performance and individual bonus rates. Therefore, some employees refused to respond to such questions. It is

suggested that future studies can improve the questionnaire structure to increase the effective response rate. The research scope in this study was limited to the city of Kaohsiung, Taiwan. Future studies can investigate the effect of different types of business on the individual performances of housing agents in other regions. When investigating the effect of business types on performance, this study found that many independent businesses had switched to the franchise system, which made the independent business sample in this study insufficient. Future studies can collect more data from independent businesses and compare individual performance for direct sales, franchise, and independent businesses.

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