

Vive la différence! The performance effects of vertical pay dispersion in family and nonfamily firms

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Abstract—This study explores the impact of pay dispersion between different ranks (TMT vs. Non-TMT group) on firm short-term financial performance with mediation effect of organizational turnover with the light of Tournament theory and Stewardship theory. This relationship is also examined with the moderating effect of firm control type which is categorized into family firms vs. non-family firms. We used a firm level data set of 1398 samples collected from TEJ database (from 2018 to 2020) to test the proposed model. The results showed that vertical dispersion (2018) negatively impacts organizational turnover (2019) and consequently improve firm financial performance (2020). In addition, the indirect effect (vertical dispersion-organizational turnover-financial performance) is pronounced in family firms rather than in non-family counterparts.

Index Terms—Family firm, performance, organizational turnover, vertical dispersion.

I. INTRODUCTION

Pay dispersion (or pay gap) is defined as the differences in pay levels within a job position rank (horizontal pay dispersion) or inter-rank job positions (vertical pay dispersion) [1]. Studies investigated on the influences of pay dispersion on both individual and firm outcomes [2, 3] has showed mixed findings. Does wide pay disparity across hierarchy tiers within the organization aid in boosting firm financial performance? How does this impact employee behaviours and organizational outcomes? Most of the previous studies indicated that reward allocations or incentives schemes can affect employees' attitude, and behaviour, which results in influencing employees' productivity and organizational outcomes [3]. However, little work done on the influence of inter-rank pay dispersion (vertical pay dispersion), and its impact on organizational outcomes [1, 4, 5]. In addition, most research investigating vertical pay dispersion in relation to firm financial performance other than human resource outcomes (productivity or turnover) [3]. The present paper follows the approach of Lazear and Rosen [10] and adopted by other scholars [1, 5] to investigate the impact of vertical pay dispersion, specifically the differences between top management team (TMT) pay and non-top management team (non-TMT) pay, on organizational effectiveness for human resources management than financial outcomes.

Based on Tournament theory, vertical pay dispersion serves as a mechanism to filter the outperformers while driving-out underperformers from the organization [6]. Tournament theory argues that if vertical pay dispersion is high, intra organization turnover (like promoting to a higher-level position) may increase, but for the overall organizational turnover rate (leaving the company) may decrease.

Drawing on stewardship theory, which is widely used in research of family firms, the effect of vertical pay dispersion on both human resource outcome (turnover rate) and firm financial performance is studied. Besides, we compare the performance variance between family and nonfamily businesses. In addition, a moderated mediation model that explicates the impact of vertical pay dispersion on the firm financial performance with the organizational turnover as a mediator. We use data collected for 1398 Taiwanese publicly firm in three consecutive years since 2008 (when the TMT and Non-TMT pay dispersion was reported) to test the proposed model.

II. HYPOTHESES DEVELOPMENT

A. Vertical Pay Dispersion, Organizational Turnover, and Firm Financial Performance

Tournament theory served as a foundation when inquiring performance compensation schemes research which stipulates that wide variations in terms of payment offer substantial incentives to employees, leading to exerting more effort to get wage increments and improve the firm's financial performance [7, 8]. It focuses on upward pay comparisons [7, 9], following the principle of "winners-take-all", that is, when employees vie for a higher position in a zero-sum game, winners are rewarded with higher status and compensations, while losers are left with nothing [10, 11]. Vertical pay dispersion serves as a compensation scheme that filters out the underperformers within the organization [6]. Particularly in managerial positions, talented and qualified individuals have higher motives to stay in the organization to enhance financial performances, as such are strongly related to their performance, while the underperformers tend to seek ways to quit the contest [3]. Therefore, a wide spread of ver-

tical pay dispersion can motivate talented and skilled employees to stay and enjoy the rewards, whereas the underperformers were expected to leave the company.

By implementing this compensation structure, organizations can retain qualified staffs and attract more prospective talents [2]. In addition, the top management teams (TMT) who possess information, expertise, and skills engage in decision-making in terms of both strategic and operational routine activities [12]. By boosting the firm performance, they can have gain more compensation as well as foster their current stances, even upgrade to more prominent and outstanding positions in the organization [10]. Moreover, the lower-ranking employees, in short-term, who have both motivations from the pay awards for higher-ranking positions and the influence from passionate and skilled managers, tend to improve their performance and productivity to seek internal promotion. Thus, we posit that:

Hypothesis 1: Vertical pay dispersion negatively affects organizational turnover.

Hypothesis 2: Organizational turnover mediates the relationship between vertical pay dispersion and firm financial performance.

B. The Moderation Effect of Family vs. Nonfamily Business Type (Firm Control Type)

Family businesses play a significant socio-economic role around the world [13, 14]. Many studies have recognized that firms could differ in their human resource strategies, such as compensation, turnover, and labour relations corresponding to firm control type with ownership structure [15]. Therefore, it might cause biases if we ignore the business control type, that is, family business vs. non-family business. Based on ownership structure, the board management will determine compensation and pay dispersion among different positions. Drawing on Stewardship theory, the managers in family business will not be selfish and less emphasize their personal interest [16]. They serve as "steward" or "custodian" for the company that turns to closer supervision which favourable associated with firm performance [17]. Therefore, we argue that family-controlled firms are like to serve as context to foster the vertical pay dispersion-firm performance linkage in comparison with nonfamily counterparts. We hypothesize:

Hypothesis 3: Firm control type moderates the relationship between vertical pay dispersion and organizational turnover, such that this relationship is stronger in family business rather than non-family business.

Hypothesis 4: The indirect effect of vertical pay dispersion on firm performance through organizational turnover will differ from firms control types, such that this relationship is stronger in family business rather than non-family business.

III. METHOD

A. Sample and Data Collection

The proposed model was empirically tested with data from publicly traded firms in the Taiwan stock exchange market from 2018 to 2020. The collection involved three steps. First, 1694 listed companies were identified and

tracked between a three-year observation period. Second, we excluded 32 firms from the financial services sectors since they constructed their financial statements applying different methods. We then eliminated 264 firms with insufficient reporting (e.g., remuneration policy, the average salary of the employees, and remuneration of the directors and supervisors). This yielded a final sample of 1398 firms. In which, 73.7% of firms are controlled by family, 27.3% are nonfamily firms. The average year of operation was 33.450 years (SD = 13.705 years). The average year of operation of family firms was 35.460 years and nonfamily firms are 27.820 years. Mean of the pay dispersion ratio of TMT and non-TMT employees in 2018 was 4.638 (SD=4.705), in particular, this ratio of family firms was 4.336 and of 5.488 for the other group. Mean of organizational turnover (2019) was 14.581% (SD=12.697%) (14.732% for family enterprises and 14.155% for nonfamily enterprises).

B. Measures

Independent Variable: This study measured vertical pay dispersion by using a ratio which is calculated by the rate between average TMT total compensation and average non-TMT total compensation in year.

Mediator: Organizational turnover captures the rotation of workers among occupations in organization and the extent of unemployment and employment during a defined period. This variable is calculated by dividing the number of employees retained from the end of year to the end of year+1 is determined with the number of employees at the end of year then time 100%.

Moderator: Firm control type (family vs. nonfamily firms) operationalizes as the types of controlling shareholders as a dichotomous variable. Following previous studies on classifying family business [18], family members control a minimum of 5 percent voting stock is identified as family firms and was labelled as 1, 0 otherwise.

Dependent Variable: Firm financial performance was measured by ROA which was calculated by subtracting the disposal gain/loss from the firm's net income and dividing it with its average total assets [19].

Control variables: family chairman, family conglomerate, firm age, and firm size. We included four control variables based on past research on compensation, HR practices, and firm performance. A family firm's heterogenetic culture is deeply rooted in its tradition, culture, and personal values; thus, two variables, family chairman and family conglomerate, are controlled by operationalizing them as dummy variables. The family chairman variable is labeled as 1 if a family chairman was identified in the board of directors, whereas the family conglomerate variable represents a company's affiliation with the family conglomerate. If the firm is considered as part of the family conglomerate, it is labelled as 1 and 0 elsewhere. We also included firm characteristics in this research, variables such as firm age and size are added as these analyses may affect the relationship of interest (e.g., [7], [20]). Firm age measures the number of years since the business was founded, and firm size calculates the total number of employees at the end of each year after the natural log function.

TABLE I
SUMMARY OF MODERATED MEDIATION MODEL TESTING

	Turnover rate				ROA			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
(Constant)	21.399***	21.347***	20.821***	19.878***	-1.674	1.188	-1.625	2.473*
Firm size	-0.514*	-0.346	-0.324	-0.262	1.997***	1.914***	1.840***	1.785**
Firm age	-0.019	-0.022	-0.031	-0.031	-0.069***	-0.072**	-0.066***	-0.069***
Family chairman	-2.652**	-2.645**	-2.845**	-2.863**	0.054	-0.378	0.047	-0.374
Family cconglomerate	-2.197**	-2.155**	-2.167**	-2.212**	-0.760	-1.118*	-0.799	-1.142*
<i>Independent variable</i>								
Vertical pay dispersion (2018)		-0.195**	-0.186**	-0.078			0.182*	0.152**
<i>Mediator</i>								
Organizational turnover						-0.163***		-0.159***
<i>Moderating variable</i>								
Firm control-type			1.053	2.228*				
<i>Interaction</i>								
Vertical pay dispersion x Control-type				-0.239*				
R ²	0.021	0.026	0.027	0.029	0.102	0.146	0.109	0.151
R ² change	0.021	0.005	0.001	0.002	0.102	0.042	0.007	0.042
F	7.574***	7.442***	6.486***	5.952***	39.520***	47.524***	34.051***	41.124***

Note: N=1398, *p<0.05, **p<0.01, ***p<0.001

C. Analytic approach

We used hierarchical regression analysis and moderation analysis with the support of SPSS 28.0 to test the hypotheses. To test the moderated mediation model, we followed the Hayes PROCESS macro [20] with the bootstrapping of 5000 resamples to obtain bias-corrected bootstrapped with 95% confidence intervals for the conditional indirect effect as a proxy for the robustness of the mediation effects of organizational turnover [20]. The moderation effects of firm control type in the influence of vertical pay dispersion on firm financial performance via organizational turnover, we followed mediated moderation model testing guidelines presented by Preacher, et al. [21].

IV. RESULT

A. Descriptive and correlation analysis

The descriptive statistics analysis results showed that the mean of the pay dispersion ratio of TMT and non-TMT employees in 2018 is 4.638 (SD = 4.705). The mean of organizational turnover (2019) and ROA (2020) are 14.581% (SD = 12.697%) and 8.058% (SD = 9.763%), respectively. The mean of firm control type is 0.738, it indicated that 73.7% of samples are controlled by family. The mean value of family chairman is 0.714, implying that 71.4% of firms have chairman who is family member. The average year of operation is 33.450 years (SD = 13.705 years). The correlation coefficient between vertical pay dispersion in 2018 and organizational turnover in 2019 is -0.093 (p<0.01), and ROA in 2020 is 0.171 (p<0.01). It indicates that the higher vertical pay dispersion between TMT and non-TMT employees may negatively impact organizational turnover of the following year and positively impact ROA subsequently. The correlation between organizational turnover 2019 and ROA in 2020 is -0.230** (p<0.01) which refer to negative impact of organizational turnover and firm financial performance. The above correlation results our expectation that will be supported for further analysis.

B. Hypothesis Testing

Hypothesis 1 proposed that there is negative association between vertical pay dispersion and organizational turnover of the following year. The results presented in Table I shown that after we controlled the control variables, vertical pay dispersion (2018) negatively associated with organizational turnover (2019) (b = -0.195**, p<0.01) (Model 1, Model2). Consequently, the Hypothesis 1 is supported.

Hypothesis 2 tested the mediation role of organizational turnover. Model 6 and model 7 showed that ROA (2020) is negatively affected organizational turnover (2019) (b = -0.163, p<0.01) and positively affected by vertical pay dispersion (2018) (b = 0.182, p<0.05). Model 8 showed that when vertical pay dispersion and organizational turnover together affect ROA, the coefficient value of vertical pay dispersion decreased (b = 0.152, p<0.01). We used bootstrapping with re-sampling 5000 to robust this result. Thus, Hypothesis 2 is supported.

Hypothesis 3 tested the moderation role of firm control type, such that the vertical pay dispersion-turnover relationship is accentuated in the company controlled by family rather than the other. Model 4 showed that the moderation role of firm control type is statistically significant with the coefficient of -0.239 (p<0.05). The interaction effect of vertical pay gap and firm control type was graphed in Fig. 1. In particular, the negative effect of vertical pay dispersion on turnover is weakened in family firms than non-family firms. Thus, Hypothesis 3 is supported.

Hypothesis 4 tests the moderated mediation effect of control type on the indirect effect of the model. Specifically, the extent of the influence of vertical pay dispersion on firm financial performance through turnover will vary corresponding company's control type. This mentioned indirect effect is stronger in family firm (b = 0.051, boot SE = 0.018, 95% bias-corrected interval CI = [0.024,0.093] which did not contain zero. While the researched indirect effect is not significant in the non-family firms (b=0.012, boot SE=0.015, 95% bias-corrected interval CI= [-0.016,0.049]. Thus, Hypothesis 4 is supported at the significant level of 5%.

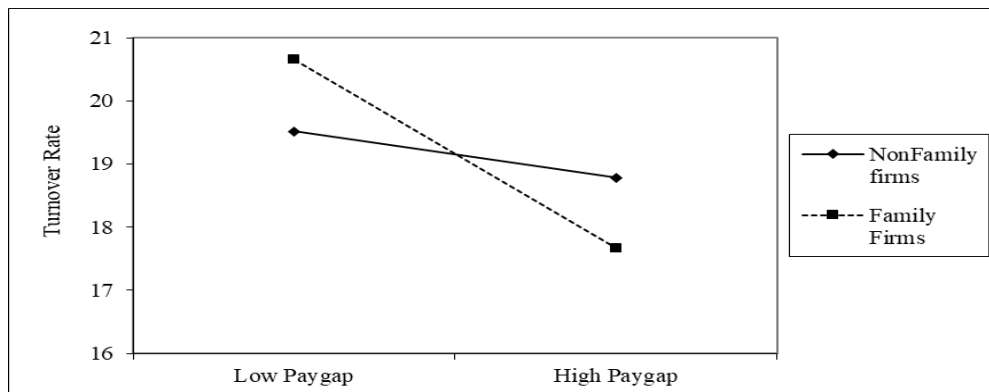


Fig 1. Interaction effect between pay dispersion and firm control-type on organizational turnover.

V. DISCUSSION AND CONCLUSION

Our study examined and confirmed the role of vertical pay dispersion in fostering firm short-term financial performance with mediating effect of organizational turnover. Besides, the moderating role of company control type in the above-mentioned linkage was examined. As predicted, we found that vertical pay dispersion has positive impact on firm financial outcomes through reducing the organizational turnover. This result supports the tournament theory [11, 22] that not only work for within same rank pay dispersion, TMT or CEO level [7, 12] but also for inter-rank pay dispersion. The results also revealed that organizational turnover as the underlying mechanism in which the variance of inter-rank pay affect organizational financial performance. The study also demonstrated that firm control type exert as moderator in the indirect effect relationship of vertical pay dispersion on firm financial performance through organizational turnover was confirmed. More specifically, this relationship is enhanced in family business rather than non-family counterparts. This is one of our significant findings of our study because a number of research ignore this variable, family business vs. Non-family business, in doing research related to human resource practices [15, 23], while this type of company has idiosyncratic feature in human resource practices and management that make it outperforms than other types of setting [24, 25]. Our findings indicates that the association between family business type and vertical pay dispersion is conditional on firm financial performance, such that this association is more robust in family business. Our result is aligned with the findings of Ensley, et al. [26] about the more detrimental impact of horizontal pay gap, within the TMTs pay dispersion, in family business vs. non-family business. Thus, family business serves as a distinctive context for investigating the disparity in compensations structure both horizontal and vertical.

Our study deliberates the managerial implications. Despite pay dispersion is a crucial indicator for social and labour relations. However, relatively little literature focus on contextual factors in vertical pay dispersion across organizations and whether those observed differences have consequences for performance outcomes. Therefore, how to design a compensation scheme that can utilize the pay dispersion between TMT vs. Non-TMT group is a critical means to rebuild social contract at work and plays important role in improving the living standard of low-rank labour and their

families. Consequently, the organizations can retain the talents. In addition, the family firms can consider pay dispersion as a tool to motivate their employees to improve the firm performance.

Our study contains several limitations. First, this studies just investigate the short-term firm performance. Thus, future studies can base on longitudinal data to scrutinize the relationships. Second, this study only investigated the impacts of vertical pay dispersion, future studies to further investigate how difference form of pay dispersion associate to organizational outcomes as well as the impact of the heterogeneity of family business. Third, using data retrieved from the published reports may conceal the psychological perception of relevant individuals that can be a better explanation for the research questions. Finally, this study used data of Taiwanese firms in multiple industries that will limit the generalizability and implication of the findings.

REFERENCES

- [1] B. L. Connelly, K. T. Haynes, L. Tihanyi, D. L. Gamache, and C. E. Devers, "Minding the Gap: Antecedents and Consequences of Top Management-To-Worker Pay Dispersion," vol. 42, no. 4, pp. 862-885, 2016, doi: 10.1177/0149206313503015.
- [2] P. E. Downes and D. Choi, "Employee reactions to pay dispersion: A typology of existing research," *Human Resource Management Review*, vol. 24, no. 1, pp. 53-66, 2014/03/01/2014, <https://doi.org/10.1016/j.hrmr.2013.08.009>.
- [3] J. D. Shaw, "Pay Dispersion," *Annual Review of Organizational Psychology and Organizational Behavior*, vol. 1, no. 1, pp. 521-544, 2014/03/21 2014, doi: 10.1146/annurev-orgpsych-031413-091253.
- [4] J. G. Messersmith, K. Y. Kim, and P. C. Patel, "Pulling in different directions? Exploring the relationship between vertical pay dispersion and high-performance work systems," *Human Resource Management*, vol. 57, no. 1, pp. 127-143, Jan-Feb 2018, doi: 10.1002/hrm.21846.
- [5] F. Keppeler and U. Papenfuss, "Understanding vertical pay dispersion in the public sector: the role of publicness for manager-to-worker pay ratios and interdisciplinary agenda for future research," *Public Management Review*, 2021, doi: 10.1080/14719037.2021.1942531.
- [6] J. G. Messersmith, J. P. Guthrie, Y.-Y. Ji, and J.-Y. Lee, "Executive turnover: The influence of dispersion and other pay system characteristics," *Journal of Applied Psychology*, vol. 96, no. 3, pp. 457-469, 2011, doi: 10.1037/a0021654.
- [7] G. Sanchez-Marin and J. S. Baixauli-Soler, "TMT pay dispersion and firm performance: the moderating role of organizational governance effectiveness," *Journal of Management & Organization*, vol. 21, no. 4, pp. 436-459, 2015, doi: 10.1017/jmo.2014.87.
- [8] J. D. Shaw, N. Gupta, and J. E. Delery, "Pay dispersion and workforce performance: moderating effects of incentives and interdependence," *Strategic Management Journal*, <https://doi.org/10.1002/smj.235> vol. 23, no. 6, pp. 491-512, 2002/06/01 2002, <https://doi.org/10.1002/smj.235>.
- [9] N. Gupta, S. A. Conroy, and J. E. Delery, "The many faces of pay variation," *Human Resource Management Review*, vol. 22, no. 2, pp.

- 100-115, 2012/06/01/ 2012, <https://doi.org/10.1016/j.hrmr.2011.12.001>.
- [10] B. E. Becker and M. A. Huselid, "The Incentive Effects of Tournament Compensation Systems," *Administrative Science Quarterly*, vol. 37, no. 2, pp. 336-350, 1992, doi: 10.2307/2393228.
- [11] G. M. M. Brian, C. A. O'Reilly, and J. Wade, "Top Executive Pay: Tournament or Teamwork?," *Journal of Labor Economics*, vol. 11, no. 4, pp. 606-628, 1993. [Online]. Available: <http://www.jstor.org/stable/2535229>.
- [12] P. C. Patel, M. Li, M. del Carmen Triana, and H. D. Park, "Pay dispersion among the top management team and outside directors: Its impact on firm risk and firm performance," vol. 57, no. 1, pp. 177-192, 2018, doi: <https://doi.org/10.1002/hrm.21872>.
- [13] J. J. Chrisman, J. H. Chua, A. W. Pearson, and T. Barnett, "Family Involvement, Family Influence, and Family-Centered Non-Economic Goals in Small Firms," *Entrepreneurship Theory and Practice*, vol. 36, no. 2, pp. 267-293, 2012/03/01 2012, doi: 10.1111/j.1540-6520.2010.00407.x.
- [14] J. H. Chua, J. J. Chrisman, L. P. Steier, and S. B. Rau, "Sources of Heterogeneity in Family Firms: An Introduction," *Entrepreneurship Theory and Practice*, vol. 36, no. 6, pp. 1103-1113, 2012/11/01 2012, doi: 10.1111/j.1540-6520.2012.00540.x.
- [15] J. J. Chrisman, J. H. Chua, and P. J. C. w. p. s. Sharma, "Current trends and future directions in family business management studies: Toward a theory of the family firm," vol. 4, no. 1, pp. 1-63, 2003.
- [16] J. H. Davis, F. D. Schoorman, and L. Donaldson, "Davis, Schoorman, and Donaldson Reply: The Distinctiveness of Agency Theory and Stewardship Theory," *The Academy of Management Review*, vol. 22, no. 3, pp. 611-613, 1997. [Online]. Available: <http://www.jstor.org/stable/259407>.
- [17] K. A. Eddleston and F. W. Kellermanns, "Destructive and productive family relationships: A stewardship theory perspective," *Journal of Business Venturing*, vol. 22, no. 4, pp. 545-565, 2007/07/01/2007, <https://doi.org/10.1016/j.jbusvent.2006.06.004>.
- [18] J. Diéguez-Soto, P. López-Delgado, and A. Rojo-Ramírez, "Identifying and classifying family businesses," *Review of Managerial Science*, vol. 9, no. 3, pp. 603-634, 2015/07/01 2015, doi: 10.1007/s11846-014-0128-6.
- [19] Z. Li, J. Daspit, and L. Marler, "Executive Pay Dispersion: Reconciling the Differing Effects of Pay Inequality and Pay Inequity on Firm Performance," *The International Journal of Human Resource Management*, 05/01 2021, doi: 10.1080/09585192.2021.1925324.
- [20] A. F. Hayes, *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publications, 2017.
- [21] K. J. Preacher, D. D. Rucker, and A. F. Hayes, "Addressing Moderated Mediation Hypotheses: Theory, Methods, and Prescriptions," *Multivariate Behavioral Research*, vol. 42, no. 1, pp. 185-227, 2007/06/29 2007, doi: 10.1080/00273170701341316.
- [22] E. P. Lazear and S. Rosen, "Rank-Order Tournaments as Optimum Labor Contracts," *Journal of Political Economy*, vol. 89, no. 5, pp. 841-864, 1981. [Online]. Available: <http://www.jstor.org/stable/1830810>.
- [23] P. Rovelli, M. Ferasso, A. De Massis, and S. Kraus, "Thirty years of research in family business journals: Status quo and future directions," *Journal of Family Business Strategy*, p. 100422, 2021/03/31/ 2021, doi:<https://doi.org/10.1016/j.jfbs.2021.100422>.
- [24] J. H. Block, C. O. Fisch, J. Lau, M. Obschonka, and A. Presse, "Who prefers working in family firms? An exploratory study of individuals' organizational preferences across 40 countries," *Journal of Family Business Strategy*, vol. 7, no. 2, pp. 65-74, 2016/06/01/2016, doi: <https://doi.org/10.1016/j.jfbs.2016.04.001>.
- [25] D. Miller, I. Le Breton-Miller, R. H. Lester, and A. A. Cannella, "Are family firms really superior performers?," *Journal of Corporate Finance*, vol. 13, no. 5, pp. 829-858, 2007/12/01/2007, <https://doi.org/10.1016/j.jcorpfin.2007.03.004>.
- [26] M. D. Ensley, A. W. Pearson, and S. R. Sardeshmukh, "The negative consequences of pay dispersion in family and non-family top management teams: an exploratory analysis of new venture, high-growth firms," *Journal of Business Research*, vol. 60, no. 10, pp. 1039-1047, 2007/10/01/2007, <https://doi.org/10.1016/j.jbusres.2006.12.012>.