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Enhancing performance of contract workers in the technology industry: Mediation of proactive commitment and moderation of need for social approval and work experience

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ABSTRACT

This study draws upon the theory of proactivity to develop a model that explains how contract workers in the technology industry can be motivated to enhance their job performance. This study focuses on contract workers, because organizing their workforce is very important to the success and development of the industry. Using data collected from contract workers in high-tech firms in Taiwan, the empirical results show that job performance is indirectly influenced by sociability and leaders' support via the full mediation of proactive commitment. At the same time, the relationship between job performance and proactive commitment is positively moderated by the need for social approval. Lastly, managerial implications and research limitations based on the research results are provided.

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1. Introduction

The use of a contract workforce has become more prevalent in the technology industry. For instance, >50% of high-tech firms in Taiwan hire contract workers as part of their whole workforce (Wang and Kaarst-Brown, 2014). In the U.S., the number of contract workers in the technology industry has climbed dramatically, rising to >20% of the workforce from nearly 10% a decade ago (Castellano, 2013). The use of contract employment in this industry fundamentally changes the “triangular” relationships among workers, employers, and clients (Boswell et al., 2012; McKeown, 2003). Such relationships are much more complex than traditional employment relationships between permanent employees and their employers. Therefore, it is particularly important for the technology industry to learn about contract workers in depth so as to obtain effective guidelines for firms' own policies of personnel and industry. Ashford et al. (2008) indicated that much of the literature tends to assume that the traditional ways of engaging with the firm are normal and sustainable in the technology industry, and contract workers in non-standard employment arrangements simply look like permanent workers. To fill this gap in the literature, this study focuses on contract workers in the technology industry to explain how their job performance can be improved.

Firms in the technology industry continue to use contract workers heavily in order to reduce labor cost, enhance operational flexibility, and adjust the number of workers to meet volatile production needs (Burgess and Connell, 2006). For that reason, supervisors must learn to effectively manage their contract workers to achieve high performance (Kraimer et al., 2005). This study focuses on contract workers in the technology industry, because of their importance when technology firms are organizing their workforce so as to achieve great performance (George and Chattopadhyay, 2005). The literature argues that contract workers often show low levels of loyalty, organizational commitment, trustworthiness, and obedience (e.g., McDonald and Makin, 2000; Ang and Slaughter, 2001; Van Dyne and Ang, 1998). It is thus critical for a supervisor to successfully guide contract workers to increase their job performance by exploring key factors that motivate them the most. Hence, this study aims to verify the motivators of job performance among contract workers in the technology industry beyond prior studies based on permanent employees.

The theory of proactivity has indicated proactive commitment as a critical and direct motivator of job performance for contract workers in the technology industry (Pinazo, 2015). Proactive commitment is a key factor desirable for technology firms, because workers with strong proactive commitment are less likely troubled by conflicting situations under high job stressors and can thus endure setbacks and failure (Bianchi and Wickramasekera, 2013; Kulkarni, 2008). The theory of proactivity has suggested that individuals can be motivated to be proactive in many workplace circumstances (Chang and Chou, 2012; Page

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and Page, 2002). The attributes of proactivity include “acting in advance” and “taking control to create changes,” which are very important for contract workers in the volatile technology industry.

This study defines proactive commitment as a change-oriented attitude for a person to take the initiative to improve the external situation or existing circumstances (Bandura, 2001; Heavey et al., 2015; Valente, 2012). The theory of proactivity indicates that contract workers' proactiveness can shape the extent to which they are responsive in sensing opportunities for exploitation and exploration from their ties inside and outside the organization (Heavey et al., 2015; Patel et al., 2013). Contract workers who are able to match those opportunities with strong proactive commitments are likely to exhibit great performance (Cohen and Levinthal, 1989). On the contrary, contract workers lacking proactive commitment can often misdirect their efforts to less than optimal opportunities (Heavey et al., 2015), leading to poor job performance. Given that proactiveness entails anticipatory behavior, contract workers with higher proactive commitment are more likely to engage in their job and accomplish it more effectively. By contrast, passively inclined contract workers are less likely to act in a timely and anticipatory manner at the workplace (Heavey et al., 2015).

Even though the literature has argued that acting with proactivity helps permanent employees achieve high job performance (Crant, 2000), when and how the proactive commitment of contract workers can be transformed into increasing a firm's success have yet to be justified and remain a rarely explored, yet critical, research topic. For the purpose of understanding the role of proactive commitment among contract workers in the technology industry, this study applies the theory of proactivity (e.g., Crossley et al., 2013) to examine the relationship between proactive commitment and job performance and how both are influenced by exogenous predictors.

Technology firms that deploy a contracting workforce for strengthening their operations have pondered about how contract workers can orient themselves to achieve job goals (Crossley et al., 2013). Based on the theory of proactivity, some studies have evaluated this issue from a personality perspective of proactive traits (Chan, 2006), while others have put emphasis on explicit proactive behavior (Belschak and Den Hartog, 2010), personal initiative (Frese and Fay, 2001), voice (Van Dyne and LePine, 1998), or taking charge (Morrison and Phelps, 1999). Following the previous research, this study concentrates on a proactive job attitude (thus, the terms proactive commitment and proactivity are both used interchangeably in this study) and what important role it plays in the development of job performance among contract workers in the technology industry. Analogous to the social cognitive theory suggesting that employees organize resources and efforts based on their estimation of what it will take to achieve their goals and performance (Bandura and Locke, 2003), the theory of proactivity shows that the proactive commitment of contract workers may be fostered and strengthened to organize proactive efforts that help accomplish their tasks in an effective manner (Frese and Fay, 2001).

This study provides contributions that complement the literature in two important ways. First, although previous studies have discussed about both employing firms (i.e., firms that administratively manage the contract workers in terms of their payrolls, insurance, etc.) and client firms (i.e., firms to which the contract workers actually spend most of their time providing services) (O'Mahony and Bechky, 2006), this study focuses on how contract workers in the technology industry can be motivated to improve their job performance in the client firm for which they put forth most of their efforts to work. This is a key issue for technology firms that want to learn to effectively use contract workers to boost their operational performance. Second, this study extends research on the proactivity of individual contributors by examining both mediating and moderating mechanisms of contract workers' proactivity in the development of their job performance based on the theory of proactivity. Without understanding such

mechanisms, supervisors may not develop effective ways to motivate contract workers for achieving great job performance.

2. Theory and hypotheses

Proactive commitment has a substantial effect on job performance according to the theory of proactivity (Belschak and Den Hartog, 2010; Fuller and Marler, 2009). The theory of proactivity suggests that contract workers with stronger proactive commitment are likely to be proactive in workplaces, take personal initiative, and engage in their tasks (Chang and Chou, 2012). Tims and Bakker (2010) argued that proactive workers strive for congruence with their environment by doing their best to match the job demands and resources. On the contrary, contract workers with weaker proactive commitment are less likely to seek feedback, help others, make constructive changes, search for challenges, and ask for more work when they feel understimulated (e.g., Bakker et al., 2012; Mallin et al., 2014). Porath and Bateman (2006) revealed that salespeople who show stronger proactivity in workplaces have higher sales. Similarly, a study by Crant (1995) shows that proactive agents have more listings and sales, and that their job performance is often higher.

Driving job performance, proactive commitment by contract workers is positively influenced by leaders' support. Previous studies have revealed that contract workers respond with positive job perceptions and attitude when they perceive to have sufficient backup in the firm (De Cuyper et al., 2008; Hsu, 2012; Kuvaas and Dysvik, 2009; Liu et al., 2015b; Wang et al., 2013b; Weng and Lai, 2012; Yeh, 2012). Given their perceived support from leaders, contract workers are likely to engage in organizational citizenship behavior (i.e., an element of proactivity) more strongly than formal employees (e.g., Van Dyne and Ang, 1998), consequently boosting job performance.

The full mediation of proactive commitment can be also justified based on the organizational support theory (Loi et al., 2006). The perceived support of the leader is boosted by the positive and discretionary backup of the leader, which then strengthens contract workers' proactive commitment (Gabrielsson et al., 2007). Under the norm of reciprocity, contract workers with high proactive commitment are likely to have a feeling of obligation to repay the leader in terms of job productivity. In summary of the above, the first hypothesis regarding the full mediation of proactive commitment can be stated as below.

H1. Proactive commitment by contract workers fully mediates the positive relationship between their leaders' support and job performance.

In addition to leaders' support, sociability is also hypothesized to indirectly motivate job performance through proactive commitment. Sociability is defined in this study as the degree to which contract workers need and enjoy interactions with others in the workplace (Bommelje et al., 2003). Previous literature indicates that sociability is more important for workers than managers (Foster et al., 2012) in terms of indirectly influencing workers' typical job performance (Klehe and Latham, 2006). As sociability shows the extent of friendliness in relationships among people in an organization (Nambisan and Watt, 2011; Rashid et al., 2004), workers with high sociability often actively search for socially interactional opportunities with constructive, energetic, and enthusiastic thoughts (Bommelje et al., 2003; Coata and McCrae, 1992; Coata et al., 1984), thus boosting proactive commitment (or engagement) towards their work (e.g., Arora et al., 2012). On the contrary, workers' low sociability can lead to their exclusion from social networks in the organization (Kim, 2011), interfering with their ability to sustain an effective job support network and to take the initiative to improve job-related situations.

According to Ayoko et al. (2004), sociability explains workers' skill-performance connections (i.e. better sociability skills help towards greater performance achievement). More specifically, sociability fulfills workers' socio-emotional needs such as affiliation, interaction,

and self-esteem (e.g., Eisenberger et al., 1990; Klehe and Latham, 2006), which facilitate their proactive commitment. Workers with high proactive commitment are inclined to interpret the firm's gains and losses as their own, eventually achieving great job performance. Hence, the full mediation of proactive commitment between sociability and job performance is evident based on the skill-performance perspective (Ayoko et al., 2004). Hence, the next hypothesis is derived as below.

H2. Proactive commitment by contract workers fully mediates the positive relationship between their sociability and job performance.

Hill (1987) suggested that the motivation for social contact has a major influence on human behavior and described the need for social approval from various aspects such as praise, recognition, affiliation, and emotion. Specifically, the need for social approval is an important situational-dispositional factor serving as a moderator among contract workers in the technology industry (Murtha et al., 1996), which influences the relationship between proactive commitment and job performance.

The need for social approval is defined as workers' desire to be socially recognized by others in the workplace (Lin et al., 2008). The majority of contract workers in the technology industry embody their characteristics and behavior with a socialized motive more strongly than with a personalized need for power (Armeli et al., 1998; Lin et al., 2016). As workers in the technology industry have a strong need for social approval, it is understandable that their proactive commitment would motivate job performance more strongly than those with a weak need for social approval (Armeli et al., 1998; Lin et al., 2016).

Martin (1984) suggested that to protect their self-concept, contract workers in the technology industry with a high need for social approval do their best to seek others' favorable evaluations by acting in socially proper ways and avoiding improper behavior. In other words, contract workers with a strong need for social approval care much about the opinions of their relevant others in the industry and thus are likely to behave in a manner consistent with what they think will win the social praise and recognition of others (Sosik and Dinger, 2007). On the contrary, contract workers with a low need for social approval often ignore the matter of others' social approval and are thus unlikely to take into account others' feelings and points of view in the industry (Crowl, 2001). As a result, contract workers can work in high coordination to help the firm achieve its goal or performance target, because of their strong need for social approval. Collectively, the hypothesized moderating role of the need for social approval can be described as below.

H3. The relationship between proactive commitment and job performance is positively moderated by contract workers' need for social approval.

The relationship between proactive commitment and job performance among contract workers is likely to vary depending on their work experience. Work experience is defined as the total number of full-time years that contract workers have worked in society. Work experience is personal and occupation-specific rather than corporate-specific and can intervene in employees' job-related outcomes (Parent, 2000). It also affects workers' stability, professional judgment, and seriousness in work attitude and reduces negative work behavior such as absenteeism (Uppal et al., 2014), consequently causing an intervening effect on the relationship between proactive commitment and job performance. More specifically, experienced workers possess persistent values, strong confidence, and clear job expectations (Carr et al., 2006; Fernandez et al., 2000), which lead to their less reliance on proactive commitment to drive job performance. Workers with greater experiences assess their weaknesses more realistically and surround people who can compensate for those weaknesses in order to improve their job performance (Hausman et al., 2000; Uppal et al., 2014), resulting in a weaker influence of proactive commitment on job performance.

While previous literature has examined work experience as a moderator that affects the relationship between having challenging

assignments and in-role job performance (Carette et al., 2013) and workers' psychological contract towards their organization (Ng and Feldman, 2008), little research has further discussed about the moderating role of work experience concerning contract workers' proactive commitment and job performance. Studies on realistic job previews (Wanous, 1981) have suggested that, as workers gain work experience, their perceptions of the work world become more realistic and the workers' performance may remain stable without being disturbed by their proactive commitment. Analogously, Rousseau et al. (2006) studied idiosyncratic deals, indicating that more work experience is more likely to decrease workers' psychological reactions to contract replicability. All in all, because more work experience helps contract workers develop more realistic standards for what constitutes "good" job performance (Ng and Feldman, 2008), the relationship between proactive commitment and job performance is weaker for contract workers with more work experience. Consequently, the hypothesized moderating role of work experience can be developed as below.

H4. The relationship between proactive commitment and job performance is negatively moderated by the work experience of contract workers.

3. Methodology

3.1. Research model

This study establishes a model (see Fig. 1) based on the theory of proactivity to explain the formation of job performance. In the model, job performance is positively related to leaders' support and sociability via the full mediation of proactive commitment. The relationship between proactive commitment and job performance is moderated hypothetically by both the need for social approval and work experience.

3.2. Subjects and procedures

The hypotheses developed in this study were empirically tested using an anonymous survey of contract workers and their supervisors from high-tech firms in Taiwan. After seeking the assistance from ten large high-tech firms in a well-known industrial zone in northern Taiwan for its survey, this study eventually surveyed contract workers and their supervisors from five firms that agreed to help with data collection. This study investigated contract workers and their supervisors in high-tech firms, because the arrangement of a contracting workforce has been widely used in the high-tech industry (Clinton, 1997; O'Mahony and Bechky, 2006).

Whereas contract workers can sometimes work for several client organizations simultaneously, this study restricts itself to contract workers who work continuously for only one client organization for a period of six months or more. Surveying these workers is important for this study to explore key predictors of their job performance. Indeed, contract workers who work for multiple client organizations or for less than six months are completely strangers and unknown by anyone in the client organization, have no basic organization-specific background knowledge, and have no opportunity to establish their effective work modes and priorities through appropriate social interactions with others (O'Mahony and Bechky, 2006).

Regarding the issue of common method variance (CMV) in this study's survey, CMV is unlikely to appear herein, because of two major reasons. First, the outcome variable (i.e., job performance) measured by supervisors and the rest of the variables measured by contract workers came from two different sources. Data from two different sources support that the empirical results based on the data are unlikely to be the artifacts of CMV (Kilduff and Krackhardt, 1994). Second, the main focus of this study on moderating effects somewhat reduces the threat of CMV. Testing moderating effects has the advantage of

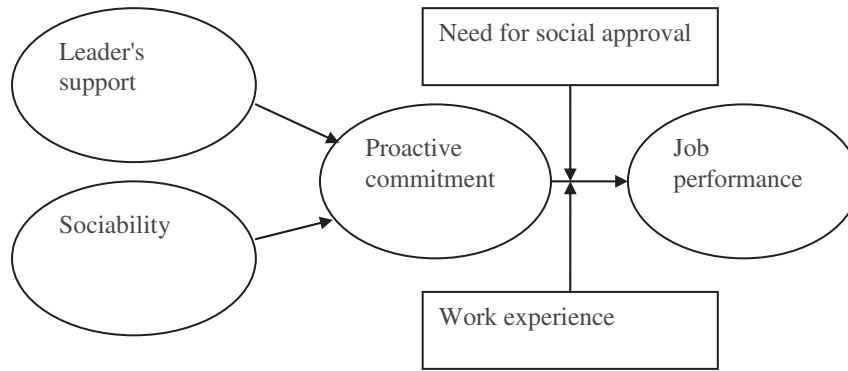


Fig. 1. Conceptual model.

mitigating the threat of CMV (Chen and Lin, 2013), because complex relationships caused by moderating effects are less susceptible to CMV given that such relationships are unlikely to be a part of respondents' cognitive maps (Chang et al., 2010).

To ensure anonymity and privacy of survey responses, this study's researchers placed questionnaires in envelopes, and with the support of participating firms, the researchers first distributed a large envelope to contract workers who expressed interest in participating in the survey. The large envelope included questionnaires in two different small envelopes marked "worker" and "supervisor", respectively. Contract workers were asked to fill out the questionnaire in the envelope marked "worker" and the other envelope (marked "supervisor") was delivered to their supervisor for evaluation. If a supervisor supervised more than one worker, then the supervisor needed to evaluate contract workers individually. After filling out the questionnaire, survey respondents were instructed to seal their envelope. The contract workers next put both their own envelope and the envelope of their supervisor into the same large envelope and then returned the large envelope to the researchers (i.e., a large envelope represents one set of questionnaires, including one questionnaire from a worker and one questionnaire from his/her supervisor). Of the 300 sets of questionnaires distributed to the subjects (i.e., 300 questionnaires for contract workers and another 300 questionnaires for their supervisors), 239 usable sets of questionnaires were returned for a questionnaire response rate of 79.66%. In this study's sample, 34.87% of the contract workers are male, 90.76% have a bachelor degree or above, 70.59% are unmarried, and 24.37% have been continuously working for the current organization for more than three years (i.e., they have continued their periodical contract with the same organization for more than three years). Table 1 presents the correlation matrix of the empirical data.

3.3. Measures

The constructs in this study are measured using 5-point Likert scales modified from the literature and translated into Chinese. Specifically, the items initially drawn from existing literature were reworded by a

focus group familiar with organizational behavior and human resource management. Previous literature has indicated that it is important and necessary to select, refine, or modify scale items from the literature so as to effectively address specific research scenarios (Campbell et al., 2015; Chou and Lu, 2014; Leary, 1983; Zacharia and Barton, 2004). For example, the first item for measuring sociability in the literature was "I would go party every night if I could." This item might be useful for research related to purely family life topics, but it is not appropriate for this study that focuses on workplace issues in technology industry. For that reason, this study used "activities" to replace "party" and consequently modified the original item into "I make more friends easily through taking part in activities." As another example, the fifth item for measuring sociability in the literature was "I am often the life of party." To refine this item for its appropriateness from professional perspectives, this study used "social life" to replace "the life of party" and consequently modified this original item into "I enjoy social life that involves a lot of social interaction."

Two pilot tests were conducted by this study before its actual survey in order to check the readability of its measures and to assess the quality of the measures. The data of the pilot tests were subjected to exploratory factor analysis (EFA) and reliability analysis. In the tests, five items with slightly poor loadings were refined. At the same time, three items with extremely poor factor loadings were removed, since they added very little explanatory power to this study's model while attenuating (and thus biasing) the statistical estimates of the parameters linking the factors (Hulland, 1999).

Previous research has emphasized the necessity of establishing the utility and stabilization of the instrument for specific research topics through pilot tests (Chou and Lu, 2014; Kim and Kim, 2016), because the same scale items can show substantially different results across different research subjects and topics. In this study, for example, the original sixth item for measuring job performance in the literature (i.e., "neglects aspects of the job he/she is obligated to perform") was removed from this study for two reasons. First, its factor loading was poor across the two pilot tests of this study. Second, its statement was perceived as being offensive according to the feedback of the pilot subjects.

Table 1
Correlation matrix.

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1. Job performance	3.99	0.51	–									
2. Proactive commitment	3.40	0.59	0.44*	–								
3. Leader's support	3.32	0.79	0.24	0.40*	–							
4. Sociability	3.58	0.77	0.30*	0.51*	0.23	–						
5. Need for social approval	2.14	0.67	–0.32*	–0.43*	–0.24	–0.30*	–					
6. Work experience (years)	7.70	9.59	0.13	0.07	–0.04	–0.13	0.02	–				
7. Gender	0.35	0.48	0.04	0.22*	0.10	0.23*	–0.03	0.03	–			
8. Age	33.90	9.97	0.10	0.05	–0.08	–0.13	0.01	0.86*	0.04	–		
9. Education	2.16	0.57	0.04	0.18	0.21	0.13	–0.11	–0.44*	0.01	–	–	
10. Marriage	1.32	1.32	0.20	0.16	–0.02	0.02	–0.19	0.51*	–0.02			–

* p < 0.001.

Appendix A lists all the scale items and their literature sources. Note that, in the actual survey, job performance was measured by a supervisor of the contract workers, while the other variables were measured by the contract workers. The reverse question for measuring need for social approval was reverse-coded (the survey response for this item was subtracted from 6).

3.4. Data analysis

The survey data were analyzed using confirmatory factor analysis and hierarchical regression analysis. Empirical results from each analysis are presented in the following.

3.5. Confirmatory factor analysis

The overall goodness of fit indices of this study in Table 2 shows that the measurement model fits with its survey data well. The model's normalized chi-square was smaller than the hurdle of 0.3. The comparative fit index (CFI) and non-normed fit index (NNFI) exceeded 0.90, while the root-mean-square residual (RMR) and the root-mean-square error of approximation (RMSEA) were all smaller than the recommended value (e.g., Chen and Lin, 2014; Tsai et al., 2015, 2014; Wang et al., 2013a).

Convergent validity was assessed based on the guidance suggested by Fornell and Larcker (1981) - that is, all factor loadings were statistically significant, and the average variance extracted (AVE) for all factors was >0.50, and the reliabilities for each construct exceeded 0.70. Collectively, the results assure acceptable convergent validity of the data in this study. Regarding discriminant validity, chi-square difference tests were used to evaluate such validity. Controlling for the experiment-wise error rate at the overall significance level of 0.01 (e.g., Chen and Lin, 2013; Tsai et al., 2015; Wang and Lin, 2012), the Bonferroni method showed that the critical value of the chi-square difference should be 10.83. As chi-square difference statistics in this study (see Table 3) all exceeded the critical value, its discriminant validity was thus supported.

Table 2 Standardized loadings and reliabilities.

Construct	Indicators	Standardized loading	AVE	Cronbach's α
Job performance	JP1	0.78 (t = 13.87)	0.67	0.90
	JP2	0.83 (t = 15.21)		
	JP3	0.88 (t = 16.75)		
	JP4	0.91 (t = 17.57)		
	JP5	0.67 (t = 11.34)		
Proactive commitment	AB1	0.71 (t = 11.89)	0.50	0.86
	AB2	0.70 (t = 11.67)		
	AB3	0.63 (t = 10.24)		
	AB4	0.74 (t = 12.57)		
	AB5	0.68 (t = 10.29)		
	AB6	0.73 (t = 12.32)		
	AB7	0.76 (t = 13.03)		
Leader's support	WE1	0.79 (t = 13.87)	0.65	0.87
	WE2	0.82 (t = 14.61)		
	WE3	0.88 (t = 16.17)		
	WE4	0.73 (t = 12.37)		
Sociability	SO1	0.82 (t = 15.00)	0.66	0.90
	SO2	0.82 (t = 14.99)		
	SO3	0.81 (t = 14.49)		
	SO4	0.73 (t = 12.69)		
	SO5	0.88 (t = 16.52)		
Need for social approval	NS1	0.70 (t = 11.81)	0.71	0.84
	NS2	0.98 (t = 19.25)		
	NS3	0.82 (t = 14.54)		

Goodness-of-fit indices: $\chi^2_{242} = 449.12$ (p -value < 0.001); NNFI = 0.93; NFI = 0.88; CFI = 0.93; RMR = 0.03; RMSEA = 0.06.

Table 3 Chi-square difference tests for examining discriminant validity.

Construct pair	$\chi^2_{242} = 449.12$ (unconstrained model)	
	χ^2_{243} (constrained model)	χ^2 difference
(F1, F2)	854.16	405.04***
(F1, F3)	897.67	448.55***
(F1, F4)	1124.62	675.50***
(F1, F5)	786.94	337.82***
(F2, F3)	805.53	356.41***
(F2, F4)	783.92	334.80***
(F2, F5)	742.04	292.92***
(F3, F4)	895.82	446.70***
(F3, F5)	898.28	449.16***
(F4, F5)	794.11	344.99***

Legend: F1 = Job performance; F2 = Proactive commitment; F3 = Leader's support; F4 = Sociability; F5 = Need for social approval.

*** Significant at the 0.001 overall significance level by using the Bonferroni method.

3.6. Hierarchical regression analysis

This study performs hierarchical regression analysis based on the above CFA model. Age (i.e., years old), gender (i.e., a dummy with "0" indicating male, and "1" indicating female), education (i.e., two dummies with "00" indicating high school, with "01" indicating bachelor, and with "10" indicating graduate or above), and marriage (i.e., a dummy with "0" indicating unmarried, and "1" indicating married) are all included as control variables. Table 4 presents the test results of this analysis.

Although Baron and Kenny (1986) initially proposed four steps for testing mediation models, they and many other scholars further found that the first step is not required for verifying mediation (Carmeli and Paulus, 2015; Lin and Chen, 2016; Liu et al., 2015a; Malhotra et al., 2014). A typical example often occurs across circumstances in which a treatment does not appear to be effective (i.e., insignificant effects of predictor on outcomes), because multiple mediators produce inconsistent effects (Collins et al., 1998; MacKinnon et al., 2000). For that reason, this study examines the formation of job performance through three major steps refined from those of Baron and Kenny (1986) by Kenny

Table 4 Hierarchical regression analysis.

	Model 1	Model 2	Model 3	Model 4
	Job performance	Proactive commitment	Job performance	Job performance
Control variables:				
Gender	-0.06	0.15*	-0.07	-0.06
Age	-0.01	0.01	-0.01	0.01
Education	0.16	-0.10	0.15	0.13
Marriage	0.09	0.07	0.10	0.09
Need for social approval (NSA)	-0.11*	-0.22**	-0.10	-0.53*
Work experience (WE)	0.01	0.02*	0.01	-0.02
Predictors:				
Leader's support		0.18**	0.05	0.05
Sociability		0.28**	0.08	0.08
Mediator:				
Proactive commitment	0.32**		0.25**	-0.03
Interaction terms:				
Proactive commitment \times NSA				0.13*
Proactive commitment \times WE				0.01
Adj R ²	0.21	0.42	0.22	0.23

* $p < 0.05$.

** $p < 0.01$.

et al. (1998) (see, for example, Frazier et al., 2004, and Liu et al., 2015a). The first step presents the direct relationship between the mediator (i.e., proactive commitment) and its outcome. The test result shows that proactive commitment is positively related to job performance (see Model 1 of Table 4).

The second step demonstrates the direct relationship between the predictors (i.e., leaders' support and sociability) and the mediator. The test results in Model 2 indicate that both leaders' support and sociability are positively related to proactive commitment.

The third step shows the relational strength between the predictors and the outcome when the mediator is simultaneously included in the model. Prior research argues that if a mediating variable is a full mediator rather than a partial mediator, then the relationship between the predictors and their outcome should be insignificant given the inclusion of the mediating variable in the same model. In this study, the test result (see Model 3) reveals that the effects of leaders' support and sociability on job performance are insignificant when proactive commitment is included in the model. This phenomenon suggests that leaders' support and sociability both relate to job performance indirectly via the full mediation of proactive commitment (thus, H1 and H2 are supported).

In order to test the hypothesized moderators, this study includes two interaction terms (i.e., proactive commitment and work experience; proactive commitment and need for social approval) in Model 4. The test result indicates that the need for social approval positively moderates the relationship between proactive commitment and job performance (thus, H3 is supported), but work experience does not have any moderating effect (thus, H4 is not supported). Appendix B presents the significant moderation of the need for social approval on the relationship between proactive commitment and job performance. The test results of hypotheses are summarized in Table 5.

The unsupported hypothesis for the moderation of work experience may be caused by the precarious nature of contract working that disables work experience from influencing the relationship between proactive commitment and job performance. Nevertheless, the unsupported hypothesis in this study may warrant future investigations to verify the interaction of work experience and proactive comment by making comparisons between contract workers and non-contract workers (i.e., formal employees).

4. Discussion

This work shows important findings that complement the technology industry literature. First, this work confirms that leaders' support and sociability play critical roles for indirectly influencing job performance through the full mediation of proactive commitment by contract workers in the technology industry. Second, the moderating effect of the need for social approval on the relationship between proactive commitment and job performance among contract workers in the technology industry is confirmed by this work. Based on the empirical findings, this study offers theoretical and managerial implications as below.

Table 5
Test results of hypotheses.

Hypotheses	Results
H1: Proactive commitment of contract workers fully mediates the positive relationship between their leader's support and job performance.	Supported
H2: Proactive commitment of contract workers fully mediates the positive relationship between their sociability and job performance.	Supported
H3: The relationship between proactive commitment and job performance is positively moderated by need for social approval of contract workers.	Supported
H4: The relationship between proactive commitment and job performance is negatively moderated by work experience of contract workers.	Not supported

4.1. Theoretical implications

This study provides two theoretical implications. First, complementing the discussion about proactivity in the literature that focuses on improving individuals' lives and actively taking initiatives to achieve their performance goals (Bozic, 2012), this study is based on the theory of proactivity and verifies the full mediating role of contract workers' proactive commitment that dominates the levels of job performance. This finding is important for technology firms, because previous scholars have argued that there is little integrative theoretical research about the concept of proactivity and its nomological network in the technology industry workforce (Crant, 2000; Grant and Ashford, 2008; Tornau and Frese, 2013).

Previous research has examined job performance from the viewpoint of passive or inactive determinants such as job satisfaction, identification, and affective commitment (McKinlay and Marceau, 2011; Tummers and Den Dulk, 2013). Such passive or inactive determinants aim primarily at the regular functioning of a firm given that routine tasks are assigned and employees are hired in a long-term fashion (Tummers and Den Dulk, 2013). Passive or inactive determinants for influencing job performance may sometimes show highly limited effects on the job performance of contract workers. For example, while satisfied with their job without additional cares from the client organization, contract workers often do only what they are supposed to do at an acceptable level as evaluated by their supervisor instead of "going the extra mile" to achieve great success in their job (Tummers and Den Dulk, 2013). This could be problematic for the high-tech industry, because the practices of this industry often need quite a lot of contract workers and also require their high proactive behavior in order to survive the serious competition in the global high-tech market. In this study, proactive commitment, which reflects proactive nature and active self-starting among contract workers, goes beyond merely dealing with assigned tasks perfunctorily.

Second, the confirmation about the positive moderating effect of the need for social approval on the relationship between proactive commitment and job performance in this study helps extend the theoretical application of proactivity to the social identity theory in which the need for social approval is conceived as a key variable (Doran, 2014). Specifically, this study acts as a bridge to seamlessly integrate two theories to explain proactive commitment and job performance under the condition of the need for social approval, complementing previous literature and empirical studies. The literature has viewed the need for social approval as a motive for gaining consensus in political and social processes (Bass, 1990; Crowl, 2001; Yang et al., 2014; Yukl, 2002). Yang et al. (2014) empirically indicated that self-esteem and the need for social approval might interact with situational factors in the evaluation of whether a given situation is perceived as stressful. Sosik and Dinger (2007) empirically examined the moderation of the need for social approval among leaders and found that leaders' need for social approval enhances the relationship between contingent reward leadership and instrumental vision themes. Empirical research on police performance by Armeli et al. (1998) reveals that, by encouraging employees to believe that the organization can be counted on to provide sympathy and tangible support in times of personal or work-related distress, the need for social approval may be enhanced more strongly with greater perceived organizational support. Collectively, this study about the need for social approval from the perspective of contract workers greatly complements previous literature and empirical research.

4.2. Managerial implications

The findings of this study provide new insights about the job performance of contract workers in the technology industry and how it is indirectly affected by leaders' support and sociability. As contract workers are flexible manpower for technology firms, their supervisors should figure out appropriate strategies to encourage these workers. This

study's empirical finding regarding the significance of leaders' support suggests that supervisors or managers should eradicate organizational practices that inflict prejudices upon contract workers by, for example, offering professional uniforms, listening to their opinions, giving help in a timely manner, and taking into account their feelings, goals, and values. Leaders' support and sociability should be taken into account when supervisors develop strategies to boost the job performance of contract workers. It would be very much mistaken if supervisors think contract workers do not need support from their supervisor or social interactions with formal employees in the firm. In fact, when contract workers perceive that they are being treated with disrespect and neglect by others in the workplace, they will respond with a very low level of proactive commitment and weak work-directed effort (e.g., Biggs and Swailes, 2006), hence decreasing their job performance.

Encouraging contract workers to have quality social interactions with others or to take part in social activities with formal employees in the workplace can facilitate their proactive commitment and consequently improve their job performance. Such a finding is partially supported by previous research that suggests workers' sociability relates to proactive propensities towards communicating and voicing change initiatives (Thomas et al., 2010), ultimately enhancing their job performance. More specifically, to enhance workers' quality of sociability, supervisors should offer a variety of social activities (e.g., free fitness classes) that prevent contract workers from being isolated from the various social support systems in the organization. Nice facilities and amenities (e.g., restaurants) that enable interpersonal interaction should also be provided. When contract workers perceive themselves surrounded by smart, driven co-workers and friends who provide the best organizational environment for learning what they have experienced, the workers' proactive commitment can be substantially boosted.

4.3. Limitations

There exist two major limitations in this work. The first limitation has something to do with the cross-sectional nature of the data collection in this study, which restricts the explanatory ability for its causal inferences. Longitudinal studies may have added-value for obtaining conclusions of any causal inferences. Thereby, future studies can try to improve such shortcomings by observing and recording the research subjects' actual behavior continuously over time. Second, this study was conducted on only one industry in one country: the high-tech industry in Taiwan. Accordingly, the implications drawn from this study may not be completely generalizable to contract workers from other industries in different nations. In summary, even though this study has already examined various model paths between its proposed research factors, future research is advised to accommodate more factors (e.g., organizational climate and a variety of leadership styles) drawn from different theories.

Appendix A. Measurement Items

Job performance (Source: Williams and Anderson, 1991).

The contract worker under my supervision...

JP1. can adequately complete assigned duties.

JP2. can fulfill responsibilities specified in job description.

JP3. performs tasks that are expected of me.

JP4. can meet formal performance requirements of the job.

JP5. engages in activities that directly affect his performance

evaluation.

Proactive commitment (Source: Seibert et al., 1999).

My job attitude is...

PR1. I try to make constructive change.

PR2. I actively solve conflicts.

PR3. I help anyone in trouble in my workplace.

PR4. I do my best to turn problems into opportunities.

PR5. I always look for better ways to do things.

PR6. I like to tackle the problem head-on.

PR7. I try my best to spot a good opportunity before others do.

Leader's support (Source: Eisenberger et al., 1997).

LS1. My supervisor respects my opinions.

LS2. My supervisor cares about my feelings.

LS3. My supervisor considers my goals and values.

LS4. Help is available from my supervisor when I have a problem.

Sociability (Source: Salgado et al., 2013).

SO1. I make more friends easily through taking part in activities.

SO2. I like to participate in social activities with many people.

SO3. I like a lot of variety in my life.

SO4. I seem to derive more enjoyment from interacting with people than others do.

SO5. I enjoy social life that involves a lot of social interaction.

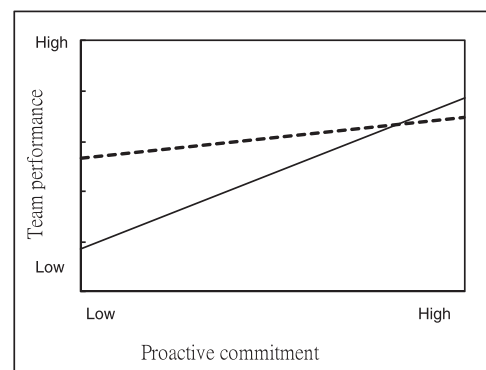
Need for social approval (Source: Sosik and Dinger, 2007).

NS1. I'm always courteous even to people who are disagreeable.

NS2. No matter who I'm talking to, I'm always a good listener.

NS3. I sometimes try to get even rather than forgive and forget. (R)

Appendix B. The graph of the supported H3



----- Low need for social approval (one standard deviation below the mean)
 ——— High need for social approval (one standard deviation above the mean)

Note: X axis shows the degree of proactive commitment while Y axis shows the degree of team performance. In the condition of low proactive commitment (see "Low" on the X axis), contract workers with a low need for social approval are likely to have higher job performance than those with a high need for social approval. On the contrary, in the condition of high proactive commitment (see "High" on the X axis), contract workers with a low need for social approval are likely to have lower job performance than those with a high need for social approval.

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