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Stefanos Giannikis<sup>a</sup> & Irene Nikandrou<sup>b</sup>

<sup>a</sup> School of Economics & Business Administration, International Hellenic University, Thessaloniki, Greece

<sup>b</sup> Department of Marketing & Communication, Athens University of Economics and Business, Athens, Greece

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## The impact of corporate entrepreneurship and high-performance work systems on employees' job attitudes: empirical evidence from Greece during the economic downturn

Stefanos Giannikis<sup>a\*</sup> and Irene Nikandrou<sup>b</sup>

<sup>a</sup>*School of Economics & Business Administration, International Hellenic University, Thessaloniki, Greece;* <sup>b</sup>*Department of Marketing & Communication, Athens University of Economics and Business, Athens, Greece*

In turbulent times, corporate entrepreneurship (CE) and high-performance work systems (HPWSs) are expected to expand and flourish. However, research on the influences of both CE and HPWSs on employees' job attitudes has generally been neglected. The aim of this study is twofold. First is to investigate the effects of CE and HPWSs on facets of job satisfaction and the three components of organisational commitment. Second is, consistent with the social exchange theory, to examine whether psychological contract act as an important mediator for the CE, HPWSs and employees' job attitudes relationships. Empirical evidence was obtained from 424 employees in the Greek manufacturing industry. Results indicate that both CE and HPWSs positively impact employees' level of job satisfaction and organisational commitment. In addition, we find evidence that psychological contract theory provides a coherent theoretical framework for understanding these relationships. Theoretical and practical implications for HR managers conclude the article.

**Keywords:** corporate entrepreneurship; high-performance work systems; job satisfaction; organisational commitment; psychological contract

### Introduction

How to achieve a competitive advantage through strategic human resource management (SHRM) is a topic of utmost importance for both academics and practitioners. Recent SHRM studies have focused on two strategies that can be adopted to attain the desired goal. One is corporate entrepreneurship (CE), and the other is high-performance work systems (HPWSs). CE is defined as a firm's tendency towards innovation, risk taking and proactiveness (Barringer and Bluedorn 1999). HRM practices are considered vital in facilitating an entrepreneurial work environment (Morris and Jones 1993; Wang and Zang 2005). The concept of HPWSs refers to an integrated system of HRM practices designed to enhance employees' skills, motivation, commitment and productivity in such a way that employees become a source of sustainable competitive advantage (Huselid 1995; Datta, Guthrie and Wright 2005).

HRM scholars argue that in turbulent times, HPWSs are expected to expand and flourish (Osterman 2000), while business organisations tend to be highly entrepreneurial and innovative (Naman and Slevin 1993). According to Applebaum, Bailey, Berg and Kalleberg (2000), HPWSs originated in the USA in the early 1990s, as a response to the economic turmoil. American business organisations transformed both work and HRM

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\*Corresponding author. Email: s.giannikis@ihu.edu.gr

practices in order to compete in a global marketplace and to create a competitive advantage against the Japanese 'lean production systems', the German 'diversified quality production', the Italian 'flexible specialisation' and the Swedish 'socio-technical systems'. Currently, as European firms compete in an unfavourable economic environment, due to the Eurozone sovereign debt crisis, both HPWSs and CE may offer organisations the ability to create and maintain value.

Previous studies have extensively investigated whether these two key strategies lead to the improvement of firm-level performance. In particular, the argument that CE (Naman and Slevin 1993; Zahra and Garvis 2000) and HPWSs (Arthur 1994; Huselid 1995; Applebaum et al. 2000; Black and Lynch 2004; Datta et al. 2005) have a positive effect on organisational performance and productivity is well established. However, there are considerably fewer studies that address the possible positive effects of CE (Hindle and Cutting 2002) and HPWSs (Applebaum et al. 2000; Macky and Boxall 2007; Takeuchi, Chen and Lepak 2009) on employees' job attitudes. In particular, research on the influences of CE and HPWSs towards non-financial outcomes is in its infancy and further studies are needed, as non-financial outcomes may be as important as financial outcomes (Janssens and Steyaert 2009; Qiao, Khilji and Wang 2009; Snape and Redman 2010; Haar and White 2013).

Moreover, the small number of studies that examined the effects of CE and HPWS on employees' attitudes have provided evidence on the relationship of CE and HPWS with measures of overall job satisfaction and organisational commitment. Thus, there is a need to study the differential impact that CE and HPWS may have on various facets of job satisfaction, namely satisfaction with pay, job security, co-workers, supervision and promotion opportunities, and the three components of commitment, namely affective, continuance and normative (Meyer and Allen 1991). For instance, both CE and HPWSs foster a long-term relationship between employees and employers (Morris and Jones 1993; Wei, Han and Hsu 2010). Thus, one would expect employees to report increased levels of satisfaction with job security. On the other hand, CE and HPWS have been associated with increased work intensification (Godard 2001) and job stress (Ramsey, Scholarios and Harley 2000; Danford, Richardson, Stewart, Tailby and Upchurch 2008; Monsen and Boss 2009). Thus, one would also expect employees within these work environments to report low levels of satisfaction with the interpersonal relationships (satisfaction with supervisors and co-workers).

More importantly, existing studies that indicate the positive effects of CE and HPWSs on individual outcomes do not elaborate on the relevant mechanisms that mediate these relationships. Few studies have dealt with this issue, showing that trust in management (Zacharatos, Barling and Iverson 2005), concern for employee climate (Takeuchi et al. 2009) and work characteristics (Kashefi 2009) mediate the relationship between HPWSs and positive employees outcomes. To our knowledge, no study has empirically explored the effect of mediating factors in the relationship between CE and individual outcomes.

To fill these gaps, and in response to the call for additional research on non-financial outcomes, this study has two main objectives: on the one hand, to investigate the effects of CE and HPWSs on facets of job satisfaction and the three components of organisational commitment, and on the other hand, consistent with the social exchange theory, to examine whether the psychological contract acts as an important mediator between CE, HPWSs and employees' job attitudes.

The contribution of this paper lies in the fact that we adopt an employee-centred perspective that is currently lacking in the literature (Qiao et al. 2009; Snape and Redman 2010; Haar and White 2013) and we provide evidence in five interrelated areas: first, we

investigate the link of CE, HPWSs and different facets of job satisfaction; second, we explore the relationships of CE and HPWSs with all three components of organisational commitment; third, we empirically test whether psychological contract theory provides a coherent theoretical framework for understanding the relationships between CE, HPWSs and employees' job attitudes; fourth, we examine the differential impact of CE and HPWSs on employees' job attitudes; and finally, since the majority of the studies in the CE and HPWSs field were conducted in the US and the UK contexts (Den Hartog and Verburg 2004; Wang and Wang 2008), we examine whether similar findings are reported in smaller countries. Specifically, data were collected from organisations located in Greece, the first European Union country severely affected by Europe's financial crisis. Therefore, the investigation of CE and HPWSs in the Greek context contributes significantly to our understanding of how, in turbulent times, employees respond to innovative work environments. Moreover, the findings might be of particular interests to researchers and practitioners of other countries with similar economic traits, such as Spain, Portugal, Italy and Ireland.

The remaining portion of this research paper is organised in four parts. In the next section, we present the theoretical framework of the study and stipulate the research hypotheses. In the following section, the methodological concerns of the study are presented. The third section outlines the main findings of the empirical investigation. Finally, in the last part of the study, the most important conclusions as well as the theoretical and managerial implications for HR policies are discussed.

## **Theory and hypotheses**

### ***The importance of HRM practices in corporate entrepreneurship and high-performance workplaces***

The goal of both CE and HPWSs is to build and maintain a competitive advantage in the industry, and both strategies rely on the same HRM tools to achieve their common goal. Specifically, previous scholars have indicated that HRM practices are of utmost importance in order to implement and establish either a high entrepreneurial culture or a high-performance work environment (Brockbank 1999; Wang and Zang 2005).

In comparison to individual HRM practices, HPWSs are considered a *bundle* of synergistic HRM practices that results in improved firm performance through employees' positive responses and enhanced job attitudes (MacDuffie 1995; Applebaum et al. 2000; Macky and Boxall 2007). According to Gong, Chang and Cheung (2010, p. 120), 'the field of HPWSs has been characterised by the changing mind-set from the traditional sub-functional view of HR to one where the sub-functions are viewed as interrelated components of a system'. However, there has been no consensus across the SHRM field as to which set of HRM practices constitutes an HPWS. Recently, on the basis of a comprehensive literature review, Chi and Lin (2011) proposed that HPWSs include nine HRM practices: selective staffing, extensive training, competitive compensation, internal promotion, performance-contingent pay, results-oriented appraisals, employee participation, formal complaint resolution systems and teamwork design. In addition to these nine practices, we should note that a number of studies have also identified employment security as an important aspect of HPWSs (Applebaum et al. 2000; Bonias, Bartram, Leggat and Stanton 2010; Messersmith and Gurthie 2010; Wei et al. 2010).

Accordingly, for CE, HRM practices are considered vital in facilitating an entrepreneurial work environment (Morris and Jones 1993; Wang and Zang 2005). It has been suggested that HRM practices such as communication, staffing, rewards, training

and development can lead to the development of a competitive advantage by creating cultures of creativity and innovation (Brockbank 1999). Moreover, it has been argued that high entrepreneurial firms adopt a long-term orientation, placing an emphasis on career prospects and job security (Morris and Jones 1993). On the basis of the typology of HRM practices proposed by Schuler and Jackson (1987), Morris and Jones (1993) established specific linkages between HRM practices and CE. In particular, researchers indicated that firms demonstrating stronger entrepreneurial orientations were more likely to have the following: (1) selection and staffing procedures designed around multiple career paths with extensive socialisation and orientation procedures of new employees; (2) ongoing training and development programmes with high employee participation and active trainee involvement; (3) compensation/rewards practices that are more likely to include bonuses and incentives based on long-term performance; and (4) performance appraisals schemes that involve employee participation and place greater emphasis on outcomes (vs. processes). For instance, Hewlett Packard's decentralisation in decision-making, teamwork and performance management systems based on management by objectives principles, as well as, 3M's rewards and recognition schemes, constitute classic examples of HRM practices that are essential in fostering an organisational culture of innovation and entrepreneurship (Morris, Kuratko and Covin 2011).

### ***Job satisfaction, corporate entrepreneurship and high-performance workplaces***

Locke (1976) provided one of the most widely used definitions of job satisfaction in organisational research. Thus, job satisfaction is defined as a positive emotional state resulting from the evaluation or appraisal of one's job experience. To date, the limited empirical evidence generally indicates a positive relationship with job satisfaction for both CE (Hindle and Cutting 2002; Rutherford and Holt 2007) and HPWSs (Applebaum et al. 2000; Yalabik, Chen, Lawler and Kim 2008; Takeuchi et al. 2009; Wei et al. 2010). Nevertheless, the existing literature has not explored the links between facets of job satisfaction and the adoption of a CE strategy or the adoption of HPWSs. Theory suggests that overall job satisfaction comprises various facets (Smith, Kendall and Hulin 1969; Hackman and Oldman 1980). Specifically, Hackman and Oldman (1980) consider five facets of satisfaction, i.e. satisfaction with pay, job security, co-workers, supervision and promotion opportunities. Hackman and Oldman's (1980) job characteristic model (JCM) proposes that when employees consider certain characteristics of their job enjoyable, they will develop higher levels of satisfaction and work motivation. In addition, the JCM model suggests that these linkages are expected to be moderated by facets of satisfaction. In other words, facets of job satisfaction are significant in explaining job satisfaction.

Because CE and HPWS have been associated with increased work intensification (Godard 2001) and job stress (Ramsey et al. 2000; Danford et al. 2008; Monsen and Boss 2009), one would expect CE and HPWS to negatively impact employees' job attitudes. However, in this study, we posit that HRM practices implemented within a high entrepreneurial work environment or within a high-performance workplace lead to higher levels of not only job satisfaction but also facets of job satisfaction. Previous research has indicated that within a firm that implements HRM practices, such as competitive compensation, performance-contingent pay and results-oriented appraisal, employees benefit from higher wages (Applebaum et al. 2000). Thus, within a high entrepreneurial or a high-performance work environment, which offers competitive pay levels higher than industry average, one could expect employees to develop not only higher levels of pay satisfaction but also satisfaction with supervision (Podsakoff, Todor and Skov 1982;

Brown and Dodd 1999) promotion opportunities (Podsakoff et al. 1982). In addition, organisations that foster a long-term relationship between employees and employers are able to provide, to some extent, assurance about job security. Moreover, they place an emphasis on supervisor's role in contributing to this relationship, while supervisors may be perceived as highly considerate with a deeper concern for subordinates' needs (Evans 1970). Thus, one could expect employees to develop both higher levels of satisfaction with job security and supervision.

As Europe is dealing with the financial crisis and rising unemployment rates, job security may become a significant factor in explaining employees' satisfaction. Moreover, and in line with the above reasoning, we argue that employees within a high-performance or high entrepreneurial culture who enjoy HRM practices, such as opportunities to participate in work decisions and training and development programmes, are more likely to feel that their company is willing to invest in them (Rose and Wright 2005), trusts them in decision-making processes and considers their needs for promotion and development (Evans 1970). Consequently, one could expect employees to report not only higher levels of satisfaction with promotion opportunities, but also satisfaction with supervision. Furthermore, implementing and ensuring HRM practices such as (1) selective staffing with the aim of finding the suitable candidates not only for the available job positions but also in line with the organisational culture; (2) autonomous participation in decision-making; and (3) cooperative and teamwork work design would result in increased employees' communication satisfaction (Zacharatos et al. 2005), as well as reduced absenteeism and employee turnover (Kling 1995). Therefore, employees within a high entrepreneurial work environment or within a high-performance work environment are expected to report greater levels of satisfaction with interpersonal relationships. Drawing on the above empirical and theoretical findings, we propose the following hypotheses:

*Hypothesis 1:* Employees' perceptions of the existence of HPWSs will be positively associated with (a) general job satisfaction and (b) facets of job satisfaction, i.e. satisfaction with pay, job security, promotion opportunities, co-workers and supervision.

*Hypothesis 2:* Employees' perceptions of high CE will be positively associated with (a) general job satisfaction and (b) facets of job satisfaction, i.e. satisfaction with pay, job security, promotion opportunities, co-workers and supervision.

### **Organisational commitment, corporate entrepreneurship and high-performance workplaces**

One of the most widely investigated job attitudes in business research is organisational commitment. Nonetheless, commitment continues to be a major focus of research as it is an attitude that reflects the nature of the relationship between an employee and an employer (Mowday, Steers and Porter 1979; Meyer and Allen 1997). Previous research has generally perceived HPWS as a commitment-based culture, and in many cases the term 'high-commitment' management has been used in the literature as a synonym for the term 'high-performance workplace systems'. Indeed, past research has indicated that employees' perceptions of HPWSs are positively related with organisational commitment (Osterman 1995; Applebaum et al. 2000; Macky and Boxall 2007; Taylor, Levy, Boyacigiller and Beechler 2008; Qiao et al. 2009; Takeuchi et al. 2009). However, much less work is available on the relationships between CE and organisational commitment

(Rutherford and Holt 2007). In addition, prior studies have generally neglected considering the three components of commitment.

Nowadays, it is widely accepted that organisational commitment is multidimensional, and that a distinction should be made between the three components of commitment: affective, continuance and normative (Meyer and Allen 1991). Affective commitment is defined as 'the relative strength of an individual's identification with, and involvement in, a particular organisation' (Porter Steers, Mowday and Boulian 1974, p. 604) and can be characterised by at least three factors: (a) a strong belief in, and acceptance of, the organisation's goals and values; (b) a willingness to exert considerable effort on behalf of the organisation; and (c) a strong desire to maintain membership in the organisation. Employees with strong affective commitment remain in the organisation because they *want to*. Continuance commitment refers to the perceived costs associated with leaving the organisation. Employees with strong continuance commitment remain because they *need to*. Normative commitment reflects a feeling of obligation to continue employment. Employees with strong normative commitment remain in the organisation because they feel they *ought* to do so (Meyer and Allen 1991).

#### *Affective commitment*

The commitment literature has extensively investigated the antecedents of affective commitment and indicated that these generally fall into four categories: structural characteristics and job-related characteristics, personal characteristics and work experiences (Mowday, Porter and Steers 1982; Meyer and Allen 1991). Meyer and Allen (1991) identified employees' work experiences as the most influential antecedents of affective commitment and suggested that commitment develops as the result of experiences that satisfy employees' needs and/or are compatible with their values (Meyer and Allen 1991, p. 70). In particular, HRM practices that satisfy employees' need to feel comfortable in the organisation and competence in the work role (Herzberg 1966; Meyer and Allen 1991) are expected to affect employees' level of affective commitment positively.

In accordance with both the work experiences argument and the job satisfaction hypotheses presented in the previous section, we posit that HRM practices implemented within a high entrepreneurial work environment or within a high-performance workplace will result in satisfying work experiences. HRM practices such as competitive compensation, performance-contingent pay, job security, employee participation and extensive training are expected to positively affect employees' work experiences. Therefore, we suggest that within a high-performance workplace or within a high entrepreneurial environment, employees are more likely to remain in the organisation because they *want to*.

*Hypothesis 3a:* Employees' perceptions of the existence of HPWSs will be positively associated with affective commitment.

*Hypothesis 3b:* Employees' perceptions of high CE will be positively associated with affective commitment.

#### *Continuance commitment*

Continuance commitment refers to the perceived costs associated with leaving the organisation. Past studies revealed that the most important antecedents include (a) the

costs associated with leaving the organisation (side-bet theory or investment model) and (b) the lack of alternatives.

Side bets can be highly idiosyncratic and can be work related or non-work related (Becker 1960; Meyer and Allen 1991). Becker (1960) proposed that continuance commitment develops as one makes side bets that would be lost if the actions were discontinued, for instance, the threat of wasting the time and effort spent acquiring non-transferable skills, giving up seniority-based benefits, having to uproot family, the loss of friendship ties with co-workers and social networks, among others (Allen and Meyer 1990; Meyer and Allen 1991). As a result, working in a favourable environment may lead, over time, to perceived accumulated investments. Specifically, increased benefits associated with competitive compensation schemes, close attachment to co-workers and supervisors due to the existence of communication and problem-solving schemes; career development opportunities; and increased length of tenure in an organisation offering job security, represent side bets that lead to increased continuance commitment. Thus, we argue that HRM practices implemented within a high entrepreneurial work environment or within a high-performance workplace are expected to positively affect employee's continuance commitment.

In addition, continuance commitment also depends on the availability of alternatives. In 2000, approximately 19.5 million persons were unemployed in the EU-27 (8.7%). However, as a result of the financial crisis, the level of unemployment climbed rapidly in January 2012, reaching 24.3 million persons (10.7%). For Greece, the respective rates are 110.2% (2000) and 19.9% (November 2011; Eurostat 2012). Taking into account the uncertainty in the economy and the ever-rising unemployment rates, it is anticipated that employment insecurity on a macroeconomic level will result in the development of continuance commitment. Accordingly, on the basis of the prospect theory, Gong et al. (2010) suggested that employment security on a microeconomic level may also lead to continuance commitment. More specifically, they argue that when making decisions under risk, employees underweight outcomes that are merely probable in comparison with outcomes that are obtained with certainty (Kahneman and Tversky 1979, cited in Gong et al. 2010, p. 121). The authors suggested that discontinuing one's current membership in a high-performance workplace creates uncertain prospects of regaining such benefits or protection and, therefore, results in increased *need* to remain in the firm. One could argue that the same applies for a corporate entrepreneurial environment. Hence, on the basis of the above arguments, the following hypotheses are examined:

*Hypothesis 4a:* Employees' perceptions of the existence of HPWSs will be positively associated with continuance commitment.

*Hypothesis 4b:* Employees' perceptions of high CE will be positively associated with continuance commitment.

#### *Normative commitment*

Normative commitment is the least studied component of organisational commitment. Initially, antecedents of normative commitment were based on Weiner's (1982) study on socialisation experiences. According to Weiner, socialisation experiences create within the employee a sense of *obligation* to remain in the organisation (Meyer and Allen 1991; Bergman 2006). These socialisation experiences may be both prior to (familial/cultural socialisation) and following (organisational socialisation) the entry into the organisation (Weiner 1982; Allen and Meyer 1990).

However, recently, the revised measures of normative commitment allow the possibility that the receipt of benefits (e.g. job training) and the recognition of these investments can create a feeling of *obligation* to reciprocate (Meyer and Allen 1991; Meyer, Stanley, Herscovitch and Topolnysky 2002). When an employee is experiencing a positive situation, she/he feels that she/he *ought* to give something in return, i.e. to remain a valuable employee in the organisation.

On the basis of the rationale of *reciprocity by obligation*, we argue that employees who are part of a high-performance workplace or a high entrepreneurial environment and enjoy multiple benefits are more likely to feel an obligation to reciprocate with normative commitment. Hence, it is proposed that:

*Hypothesis 5a:* Employees' perceptions of the existence of HPWSs will be positively associated with normative commitment.

*Hypothesis 5b:* Employees' perceptions of high CE will be positively associated with normative commitment.

### ***The mediating role of psychological contract breach***

A number of previous studies employed the social exchange theory as a theoretical framework in order to conceptualise the effects of HPWSs on employees' attitudes and behaviours (Takeuchi et al. 2009; Zhang and Li 2009; Gong et al. 2010; Wei et al. 2010). According to the social exchange theory (Blau 1964), employers and employees develop an exchange relationship. In general, one will try to pay back those that provided help and benefits. For the case of HPWSs, it has been assumed that if an organisation provides substantial inducements to employees, then employees are more likely to reciprocate with positive job attitudes and work behaviours (Gong et al. 2010). Nevertheless, the argument that HPWSs impact employees' attitudes and behaviours through the social exchange mechanism has not been empirically examined.

The notion of social exchange served as the theoretical foundation for the development of the well-documented concept of psychological contract. According to Rousseau (1990), psychological contracts are an individual's beliefs regarding reciprocal obligations and refer to written or unwritten expectations that operate between employees and employers. For instance, the employee has expectations in the areas of pay, promotion, job security, recognition in return for hard work, commitment and loyalty. As described by Coyle-Shapiro and Parzefall (2008), the social exchange theory and the psychological contract theory share common elements. In particular, the two concepts view exchange relationships as comprising tangible and intangible resources governed by the norm of reciprocity. In addition, both theories suggest that each party holds a set of expectations/obligations that they will provide in return for what they receive. When the employer has failed to fulfil its promises or obligations, employees may experience psychological contract breach (Robinson and Rousseau 1994).

The term psychological contract breach should be distinguished from the term psychological contract violation. Psychological contract breach refers to the cognitive evaluation of an employee that the organisation has failed to deliver its obligations (Morrison and Robinson 1997), while psychological contract violation is the affective reaction (feelings of anger, betrayal) that may follow from the breach cognition (Robinson and Morrison 2000).

Previous research has indicated the importance of the psychological theory in understanding employees' attitudes. Zhao, Wayne, Glibkowski and Bravo (2007), based

on affective events theory, provided a theoretical framework to explain the relations between psychological contracts and employees' attitudes. The authors suggested that a negative event in the workplace prompts negative cognitive evaluations of one's job (i.e. psychological contract breach) that in turn results in negative job attitudes. The literature supports the significance of psychological contract theory in understanding the variations of job attitudes and behaviours. Specifically, psychological contract fulfilment has been associated with increased job satisfaction and organisational commitment, while psychological contract breach has been associated with lower organisational citizenship, reduced commitment, reduced satisfaction, increased absenteeism and turnover (Robinson and Rousseau 1994; Robinson and Morrison 1995; Griffeth, Hom and Gaertner 2000; Turnley and Feldman 2000; Raja, Johns and Ntalinais 2004; Suazo 2009).

Guest (1999) suggested that HRM practices have an impact on the state of the psychological contract, which in turn has an impact on employee outcomes. Empirical results indicated that employees reporting that they are affected by a greater number of HR practices are also likely to report a more positive psychological contract and, in turn, greater levels of satisfaction, job security and motivation, as well as lower levels of pressure at work. Accordingly, in this study we suggest that HRM practices implemented within a high entrepreneurial work environment or within a high-performance workplace are expected to positively affect the psychological contract of employees. We posit that, in a work environment where progressive HR practices are implemented, employees are less likely to experience negative events in the workplace, and therefore they are less likely to experience a psychological contract breach and more likely to report positive job attitudes.

*Hypothesis 6:* The relationship between employees' perceptions of the existence of HPWSs and (a) job satisfaction as well as (b) organisational commitment will be mediated by perceptions of psychological contract breach.

*Hypothesis 7:* The relationship between employees' perceptions of high CE and (a) job satisfaction as well as (b) organisational commitment will be mediated by perceptions of psychological contract breach.

Figure 1 presents our conceptual framework based on the proposed research hypotheses. Our model suggests that innovative work environments (CE and HPWSs) affect employees' perceptions of psychological contract breach and employees' job attitudes (job satisfaction and organisational commitment).

## Methods

### Sample

We collected data from 22 manufacturing companies in Northern Greece. Following previous studies, we adopted a single-industry approach to eliminate cross-industry influences on employee attitudes (Qiao et al. 2009; Chi and Lin 2011; Wei et al. 2010) and a convenient sampling technique to increase response rate in the sample (Qiao et al. 2009; Takeuchi et al. 2009). Based on personal contacts, of the 46 companies approached, 22 agreed to participate (48% response rate).

A structured questionnaire was developed to collect information about employees' experience with CE and HPWSs. All questionnaires were hand-delivered by the research team. Prior to their completion, participants were informed about the purpose of the study and that all information would be kept completely confidential. Overall, we received 424 usable responses from a total of 1100 distributed questionnaires (39% response rate). There were 261 (62%) male participants and 163 (38%) female participants. In terms of

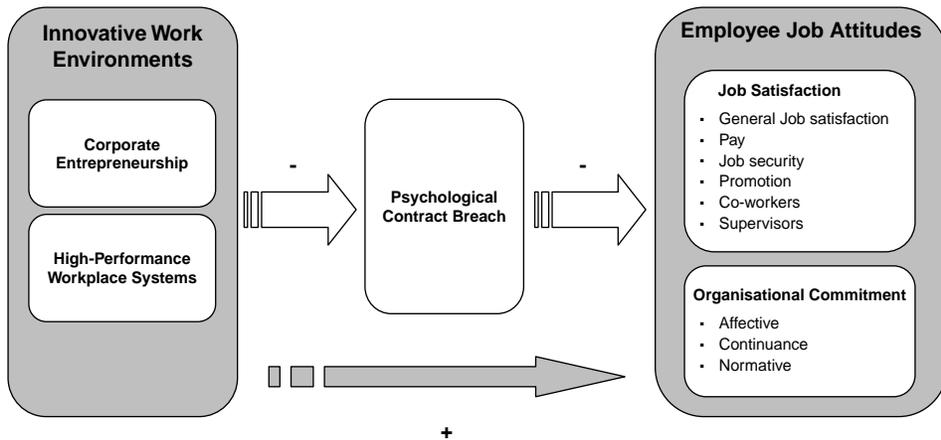


Figure 1. Conceptual framework.

age, 16% were aged from 18 to 24 years, 44% from 25 to 34 years, 16% from 35 to 44 years, 16% from 45 to 54 years and 8% from 55 to 65 years. Respondents reported that 86% had a high school certificate or technical-professional training and 14% had a university or higher degree. Mean tenure rates was 53 months (more than four years), the majority (92%) were employees (8% management position) and 83% reported that they were employed on a full-time basis (17% part-time).

## Measures

### HPWSs

We adopted the HPWSs measure developed by Chi and Lin (2011). The HPWSs measure comprised nine constructs (two items per practice) including the following: selective staffing ( $\alpha = 0.88$ ), extensive training ( $\alpha = 0.87$ ), competitive compensation ( $\alpha = 0.83$ ), internal promotion ( $\alpha = 0.85$ ), performance-contingent pay ( $\alpha = 0.77$ ), results-oriented appraisals ( $\alpha = 0.82$ ), employee participation ( $\alpha = 0.83$ ), formal complaint resolution systems ( $\alpha = 0.89$ ) and teamwork design ( $\alpha = 0.81$ ). Respondents were asked to evaluate the extent to which their firms implement each item on a five-point scale (1 = strongly disagree to 5 = strongly agree). These items are based on previous scales and were included in several studies (e.g. Guest, Michie, Conway and Sheehan 2003; Datta et al. 2005; Sun, Aryee and Law 2007; Takeuchi, Lepak, Wang and Takeuchi 2007). Additionally, previous research has identified employment security as an important aspect of HPWSs practices (Applebaum et al. 2000; Bonias et al. 2010; Messersmith and Gurthie 2010; Wei et al. 2010). Thus, and in consideration of the high and persistent total unemployment rate in Greece, it was meaningful to include employment security as an additional construct to the original nine constructs of HPWSs practices. Specifically, two items were adopted from Wei et al. (2010) to capture employees' perceptions of job security ( $\alpha = 0.87$ ).

Following previous studies (Datta et al. 2005; Chi and Lin 2011; Gong et al. 2010; Wei et al. 2010), we computed a single index of HPWSs adoption by averaging the 20 items. 'Using a combined index can reflect the inner meaning of high-performance HR practice as an important strategic asset of a firm' (Wei et al. 2010, p. 1638). In addition, because of the high positive correlation scores ( $0.42 \leq r \leq 0.80$ ; statistically significant at the level of

0.01) between the 20 items of the HWPSs measured, and based on previous approaches (Takeuchi et al. 2007; Chi and Lin 2011), we conducted a principal-axis factor analysis with an oblique rotation to investigate whether these practices load together to a single index. The 20 items loaded on one factor with loadings greater than 0.65, the total variance explained by this factor amounted to 75% and the internal consistency estimate (Cronbach's  $\alpha$ ) reached 0.96. These results offer support for the appropriateness of combining the 20 HPWS items into a single variable.

#### *Corporate entrepreneurship*

We measured corporate entrepreneurship with four items developed by Barringer and Bluedorn (1999). The measure evaluates the three dimensions of CE: innovation, risk-taking and proactiveness. Responses to the items were on a seven-point scale ranging from 1 (low entrepreneurial activities) to 7 (high entrepreneurial activities). The coefficient  $\alpha$  reliability for CE was 0.94.

#### *Job satisfaction*

General job satisfaction and facets of job satisfaction (i.e. satisfaction with pay, job security, co-workers, supervision and promotion opportunities) were measured using 19 items of the Job Diagnostic Survey developed by Hackman and Oldman (1980). Respondents were asked to evaluate the extent to which they were satisfied with each facet on a seven-point scale ranging from 1 (extremely dissatisfied) to 7 (extremely satisfied). The internal consistency estimates (Cronbach's  $\alpha$ ) for general satisfaction (five items), satisfaction with pay (two items), job security (two items), co-workers' behaviour (three items), supervision (three items) and promotion opportunities (four items) were 0.82, 0.89, 0.81, 0.89, 0.87 and 0.80, respectively.

#### *Organisational commitment*

We measured affective, continuance and normative commitment using the 24-item scale developed by Meyer and Allen (1997). Each of the items was measured on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The coefficient  $\alpha$  reliabilities for affective, continuance and normative commitment was 0.87, 0.89, and 0.88, respectively.

#### *Perceived contract breach*

Perceived contract breach was assessed with a global measure adopted from Robinson and Morrison (2000). Five items were used to evaluate employees' perceptions of how well their psychological contract had been fulfilled by their employers. Responses to the items were on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The internal reliability of the five items was 0.96.

#### *Control variables*

Following previous studies (e.g. Qiao et al. 2009; Takeuchi et al. 2009; Bonias et al. 2010), we included gender, age, educational level, tenure, position and employment status to control for individual variations. We introduced a dummy variable for gender (0 = female, 1 = male) position (0 = staff/worker, 1 = management) and work status (0 =

full-time, 1 = part-time). Tenure was a continuous variable (measured in months). Age and education were measured with categorical questions with six categories each. For instance, for age, 1 represented 18–24 years and 6 represented 65 years or above. For education, 1 represented high school level and 6 represented postgraduate level.

## Results

Means, standard deviations and correlations for all variables appear in Table 1. Table 1 shows that both HPWSs and CE are positively associated (statistically significant at the level of 0.001) with general job satisfaction, facets of satisfaction and organisational commitment ( $0.15 \leq r \leq 0.42$ ). In addition, as expected, perceptions of HPWSs and CE are negatively associated (statistically significant at the level of 0.001) with psychological contract breach ( $r = -0.58$  and  $r = -0.41$ , respectively). Moreover, in order to test for multicollinearity, we computed variance inflation factor (VIF) and tolerance coefficient values. Values of VIF above 10 and tolerance values below 0.1 signify multicollinearity problems (Hair, Anderson, Tatham and Black 1998). In our study, since none of the VIF values are greater than 10 (all values close to 1) and none of the tolerance values are lower than 0.1 (all values close to 0.9), we concluded that there are no problems of multicollinearity.

We tested Hypotheses 1 and 2 by regressing general job satisfaction and facets of satisfaction on perceptions of HPWSs and CE while controlling for a range of individual variables, i.e. gender, age, education, tenure, position and work status (see Table 2, Models 1–6 and Models 11–16). Results provide support for the proposed hypotheses. It is found that HPWSs practices have a statistically significant ( $p \leq 0.001$ ) and positive effect on general job satisfaction ( $b = 0.30$ ,  $R^2 = 0.11$ ) and facets of satisfaction: satisfaction with pay ( $b = 0.27$ ,  $R^2 = 0.10$ ), job security ( $b = 0.29$ ,  $R^2 = 0.11$ ), co-workers relationships ( $b = 0.43$ ,  $R^2 = 0.19$ ), supervisors relationships ( $b = 0.27$ ,  $R^2 = 0.09$ ) and promotion opportunities ( $b = 0.40$ ,  $R^2 = 0.18$ ). With regard to Hypothesis 2, it is found that high CE has a statistically significant ( $p \leq 0.001$ ) and positive effect on general job satisfaction ( $b = 0.33$ ,  $R^2 = 0.13$ ) and facets of satisfaction: satisfaction with pay ( $b = 0.16$ ,  $R^2 = 0.05$ ), job security ( $b = 0.25$ ,  $R^2 = 0.09$ ), co-workers relationships ( $b = 0.17$ ,  $R^2 = 0.04$ ), supervisors relationships ( $b = 0.33$ ,  $R^2 = 0.12$ ) and promotion opportunities ( $b = 0.28$ ,  $R^2 = 0.09$ ).

Likewise, we used ordinary least-squares (OLS) regression to test Hypotheses 3(a), 3(b), 4(a), 4(b) and 5(a), 5(b). Models 7–9 and 17–19 evaluated the amount of variance on affective, continuance and normative commitment explained by the existence of HPWSs practices and CE, after controlling for key variables. As was hypothesised, HPWSs practices have a statistically significant ( $p \leq 0.001$ ) and positive effect on affective ( $b = 0.25$ ,  $R^2 = 0.09$ ), continuance ( $b = 0.32$ ,  $R^2 = 0.12$ ) and normative commitment ( $b = 0.32$ ,  $R^2 = 0.11$ ). Similarly, CE has a statistically significant ( $p \leq 0.001$ ) and positive effect on affective ( $b = 0.35$ ,  $R^2 = 0.15$ ), continuance ( $b = 0.38$ ,  $R^2 = 0.15$ ) and normative commitment ( $b = 0.43$ ,  $R^2 = 0.19$ ).

A comparison between HPWSs and CE indicates that both work environments have a significant and almost equivalent effect on employees' general job satisfaction (11% and 13%, respectively). However, high-performance workplaces are found to be greater predictors of facets of job satisfaction (pay:  $R^2 = 0.12$ ; job security:  $R^2 = 0.11$ ; co-workers:  $R^2 = 0.19$ ; promotion:  $R^2 = 0.18$ ), whereas high entrepreneurial environments are found to be greater predictors of organisational commitment (affective:  $R^2 = 0.15$ ; continuance:  $R^2 = 0.15$ ; normative:  $R^2 = 0.19$ ).

Table 1. Means, standard deviations (SD) and correlations for all variables.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Gender (female = 0, male = 1)	0.38	0.48	-																	
2. Age (categorical variable)	2.56	1.16	0.01	-																
3. Educational level (categorical variable)	3.37	1.02	0.13 <sup>b</sup>	-0.20 <sup>c</sup>	-															
4. Tenure (in months)	52.63	31.27	0.05	0.07	-0.11 <sup>a</sup>	-														
5. Position (0 = staff, 1 = management)	0.08	0.27	-0.03	-0.05	0.03	0.13 <sup>a</sup>	-													
6. Work status (0 = full time, 1 = part time)	0.17	0.37	-0.03	-0.24 <sup>c</sup>	0.01	-0.17 <sup>c</sup>	0.03	-												
7. HPWVs (five-point scale)	3.00	1.00	-0.03	-0.01	0.01	-0.01	-0.05	-0.01	-											
8. CE	3.62	1.54	0.00	0.04	-0.01	-0.04	-0.03	-0.04	0.29 <sup>c</sup>	-										
9. Psychological contract breach (five-point scale)	2.55	1.38	-0.03	0.01	0.01	0.02	0.05	-0.01	-0.58 <sup>c</sup>	-0.41 <sup>c</sup>	-									
10. General job satisfaction (seven-point scale)	4.35	0.84	0.08	0.05	-0.04	0.05	-0.01	0.06	0.29 <sup>c</sup>	0.33 <sup>c</sup>	-0.43 <sup>c</sup>	-								
11. Pay	5.36	1.25	0.08	0.02	-0.01	0.14 <sup>b</sup>	-0.03	-0.03	0.27 <sup>c</sup>	0.15 <sup>b</sup>	-0.31 <sup>c</sup>	0.32 <sup>c</sup>	-							
12. Job security	5.60	1.45	0.08	0.07	0.05	0.10 <sup>a</sup>	-0.04	-0.05	0.29 <sup>c</sup>	0.25 <sup>c</sup>	-0.38 <sup>c</sup>	0.36 <sup>c</sup>	0.36 <sup>c</sup>	-						
13. Co-workers	5.31	1.45	0.04	0.07	-0.05	0.03	-0.04	-0.03	0.42 <sup>c</sup>	0.16 <sup>b</sup>	-0.40 <sup>c</sup>	0.29 <sup>c</sup>	0.24 <sup>c</sup>	0.25 <sup>c</sup>	-					
14. Supervisors	5.60	1.55	0.11 <sup>b</sup>	0.03	0.04	0.05	0.02	-0.01	0.27 <sup>c</sup>	0.32 <sup>c</sup>	-0.38 <sup>c</sup>	0.32 <sup>c</sup>	0.34 <sup>c</sup>	0.62 <sup>c</sup>	0.32 <sup>c</sup>	-				
15. Promotion	5.03	1.38	0.05	0.03	-0.01	0.08	0.03	0.02	0.39 <sup>c</sup>	0.28 <sup>c</sup>	-0.45 <sup>c</sup>	0.51 <sup>c</sup>	0.53 <sup>c</sup>	0.49 <sup>c</sup>	0.34 <sup>c</sup>	0.34 <sup>c</sup>	-			
16. Affective (seven-point scale)	5.37	1.24	0.08	-0.04	0.07	0.12 <sup>b</sup>	0.03	0.02	0.24 <sup>c</sup>	0.35 <sup>c</sup>	-0.37 <sup>c</sup>	0.22 <sup>c</sup>	0.42 <sup>c</sup>	0.38 <sup>c</sup>	0.27 <sup>c</sup>	0.47 <sup>c</sup>	0.40 <sup>c</sup>	-		
17. Continuance	5.10	1.28	0.01	-0.03	0.07	0.06	-0.02	-0.04	0.32 <sup>c</sup>	0.37 <sup>c</sup>	-0.34 <sup>c</sup>	0.22 <sup>c</sup>	0.27 <sup>c</sup>	0.28 <sup>c</sup>	0.40 <sup>c</sup>	0.25 <sup>c</sup>	0.39 <sup>c</sup>	-		
18. Normative	5.02	1.31	0.04	0.03	0.02	0.04	-0.01	-0.01	0.32 <sup>c</sup>	0.42 <sup>c</sup>	-0.43 <sup>c</sup>	0.29 <sup>c</sup>	0.26 <sup>c</sup>	0.37 <sup>c</sup>	0.31 <sup>c</sup>	0.44 <sup>c</sup>	0.38 <sup>c</sup>	0.56 <sup>c</sup>	0.42 <sup>c</sup>	-

<sup>a</sup>  $p \leq 0.05$ ; <sup>b</sup>  $p \leq 0.01$ ; <sup>c</sup>  $p \leq 0.001$ .

Table 2. Regression results for HPWSs, CE and employees' job attitudes.

	Model 1 General job satisfaction	Model 2 Satisfaction with pay	Model 3 Satisfaction with job security	Model 4 Satisfaction with co-workers	Model 5 Satisfaction with supervisors	Model 6 Satisfaction with promotion	Model 7 Affective commitment	Model 8 Continuance commitment	Model 9 Normative commitment	Model 10 Psychological contract breach
<i>Variables</i>										
Gender	0.09	0.09	0.07	0.05	0.11*	0.06	0.08	0.01	0.04	-0.01
Age	0.07	0.01	0.07	0.05	0.04	0.04	-0.02	-0.02	0.04	0.01
Education	-0.03	0.00	0.07	0.05	0.04	0.00	0.07	0.07	0.03	0.02
Tenure	0.06	0.13**	0.09*	0.03	0.04	0.08	0.13**	0.07	0.04	0.02
Position	-0.01	-0.04	-0.04	-0.02	0.03	0.05	0.02	-0.02	0.00	0.01
Work Status	0.10*	-0.00	-0.01	-0.01	0.01	0.05	0.05	-0.03	0.02	0.02
HPWSs	0.30***	0.27***	0.29***	0.43***	0.27***	0.40***	0.25***	0.32***	0.32***	-0.56***
F	7.52***	6.76***	7.50***	14.10***	6.00***	12.64***	6.01***	7.72***	7.13***	28.62***
R <sup>2</sup>	0.11	0.10	0.11	0.19	0.09	0.18	0.09	0.12	0.11	0.32
<i>Models for CE</i>										
	Model 11 General job satisfaction	Model 12 Satisfaction with pay	Model 13 Satisfaction with job security	Model 14 Satisfaction with co-workers	Model 15 Satisfaction with supervisors	Model 16 Satisfaction with promotion	Model 17 Affective commitment	Model 18 Continuance commitment	Model 19 Normative commitment	Model 20 Psychological contract breach
<i>Variables</i>										
Gender	0.08	0.08	0.06	0.04	0.11*	0.05	0.07	-0.01	0.03	0.04
Age	0.05	-0.01	0.06	0.04	0.02	0.02	-0.04	-0.05	0.01	0.04
Education	-0.04	0.00	0.07	-0.04	0.04	0.00	0.08	0.08	0.04	0.01
Tenure	0.07	0.14**	0.11*	0.04	0.05	0.09	0.14**	0.08	0.06	-0.01
Position	-0.03	-0.06	-0.05	-0.05	0.01	0.02	0.01	-0.04	-0.03	0.04
Work status	0.08	-0.02	-0.03	-0.02	0.00	0.03	0.02	-0.06	-0.01	0.02
CE	0.33***	0.16***	0.25***	0.17***	0.33***	0.28***	0.35***	0.38***	0.43***	-0.41***
F	8.94***	3.31**	5.83***	2.37*	8.36***	5.92***	10.80***	10.71***	13.56***	12.53***
R <sup>2</sup>	0.13	0.05	0.09	0.04	0.12	0.09	0.15	0.15	0.19	0.17

\* $p \leq 0.05$ ; \*\* $p \leq 0.01$ ; \*\*\* $p \leq 0.001$ .

To test Hypotheses 6 and 7, we adopted the mediated regression analysis used by Baron and Kenny (1986). Baron and Kenny (1986) outline a three-stage approach to establish mediation. First, the predictor variable (i.e. HPWSs/CE) should be related significantly to the mediator (i.e. psychological contract breach). Second, there has to be a significant relation between the predictor (i.e. HPWSs/CE) and the outcome (i.e. job satisfaction and organisational commitment). Third, the mediating variable (i.e. psychological contract breach) should be related to the outcome (i.e. job satisfaction and organisational commitment) with the predictor (i.e. HPWSs/CE) in the equation. According to Baron and Kenny (1986), the reduced strength of the predictor–outcome relationship after inclusion of the mediator suggests a mediation effect.

Table 2 indicates that the first and the second criteria for mediation are satisfied. It is found that HPWSs and CE, on the one hand, have a significant and negative effect on psychological contract breach (Model 10:  $b = -0.56$ ,  $R^2 = 0.32$ ; and Model 20:  $b = -0.41$ ,  $R^2 = 0.17$ ), while on the other hand, they have a significant and positive effect on job satisfaction (Models 1–6 and Models 11–16) and organisational commitment (Models 7–9 and Models 17–19). To test the third criterion, we simultaneously examined the influences of HPWSs/CE and psychological contract breach on the dependent variables, i.e. the general job satisfaction, the five facets of satisfaction and the three components of commitment. The results are shown in Table 3. The reduced strength of the predictor–outcome relationship after inclusion of the mediator provides evidence for the mediation effect of the psychological contract breach.

The analysis of HPWSs as a predictor indicates that, for general job satisfaction (Model 1-1,  $\beta = 0.08$ ,  $p > 0.05$ ), satisfaction with supervisors (Model 5-1,  $\beta = 0.09$ ,  $p > 0.05$ ) and affective commitment (Model 7-1,  $\beta = 0.05$ ,  $p > 0.05$ ),  $\beta$ -weights are non-significant, suggesting that complete mediation is present. For the rest of the models, the reduction in  $\beta$ -weights associated with HPWSs, when the psychological contract is in the equation, suggests a partial mediation effect for psychological contract breach (i.e. Model 2-1, from  $\beta = 0.27$  to  $\beta = 0.15$ ; Model 3-1, from  $\beta = 0.29$  to  $\beta = 0.12$ ; Model 4-1, from  $\beta = 0.43$  to  $\beta = 0.30$ , Model 6-1, from  $\beta = 0.40$  to  $\beta = 0.22$ , Model 8-1, from  $\beta = 0.32$  to  $\beta = 0.18$ , Model 9-1, from  $\beta = 0.32$  to  $\beta = 0.11$ ). Therefore, Hypotheses 6(a) and 6(b) are verified. Accordingly, the analyses of CE as a predictor indicates that, for satisfaction with pay (Model 12-1,  $\beta = 0.04$ ,  $p > 0.05$ ) and satisfaction with co-workers (Model 14-1,  $\beta = 0.01$ ,  $p > 0.05$ ),  $\beta$ -weights are non-significant, suggesting that complete mediation is present. For the remaining models, the reduction in  $\beta$ -weights associated with CE, when the psychological contract is in the equation, suggests a partial mediation effect for psychological contract breach (i.e. Model 11-1, from  $\beta = 0.33$  to  $\beta = 0.19$ ; Model 13-1, from  $\beta = 0.25$  to  $\beta = 0.12$ ; Model 15-1, from  $\beta = 0.33$  to  $\beta = 0.21$ , Model 16-1, from  $\beta = 0.28$  to  $\beta = 0.11$ ; Model 17-1, from  $\beta = 0.35$  to  $\beta = 0.24$ ; Model 18-1, from  $\beta = 0.38$  to  $\beta = 0.28$ ; Model 19-1, from  $\beta = 0.43$  to  $\beta = 0.30$ ). Therefore, Hypotheses 7(a) and 7(b) are verified.

In addition to Baron and Kenny's (1986) approach for mediation, we performed the Sobel test (Sobel 1982). The Sobel test evaluates the significance of the indirect path from the independent variable to the dependent. As shown in Table 4, for both HPWSs and CE, all indirect effects are significant. Therefore, the relationships between HPWSs/CE and job satisfaction as well as HPWSs/CE and organisational commitment are all mediated by perceptions of psychological contract breach.

Table 3. Mediation analyses.

	Model 1-1 General job satisfaction	Model 2-1 Satisfaction with pay	Model 3-1 Satisfaction with job security	Model 4-1 Satisfaction with co-workers	Model 5-1 Satisfaction with supervisors	Model 6-1 Satisfaction with promotion	Model 7-1 Affective commitment	Model 8-1 Continuance commitment	Model 9-1 Normative commitment
<i>Models for HPWS</i>									
<i>Variables</i>									
Gender	0.07	0.07	0.06	0.04	0.09	0.04	0.06	-0.01	0.02
Age	0.07	0.01	0.08	0.06	0.04	0.04	-0.02	-0.02	0.04
Education	-0.03	0.01	0.07	-0.04	0.04	0.01	-0.02	-0.02	0.04
Tenure	0.07	0.14**	0.10**	0.03	0.05	0.09	0.13**	0.07	0.05
Position	-0.00	-0.03	-0.03	-0.02	0.04	0.05	0.03	-0.01	0.01
Work Status	0.10*	-0.01	-0.02	-0.01	0.01	0.05	0.04	-0.04	0.01
HPWS	0.08	0.15**	0.12*	0.30***	0.09	0.22***	0.05	0.18**	0.11*
PC Breach	-0.38***	-0.22***	-0.31***	-0.21***	-0.32***	-0.32***	-0.33***	-0.24***	-0.36***
F	13.56***	7.87***	10.86***	14.80***	9.87***	16.86***	100.20***	9.34***	12.61***
R <sup>2</sup>	0.21	0.13	0.18	0.22	0.16	0.25	0.17	0.15	0.20
<i>Models for CE</i>									
<i>Variables</i>									
Gender	0.07	0.07	0.05	0.02	0.09	0.03	0.06	-0.01	0.02
Age	0.06	0.01	0.07	0.06	0.02	0.04	-0.03	-0.02	0.02
Education	-0.03	0.01	0.07	-0.04	0.04	0.01	0.08	0.08	0.04
Tenure	0.07	0.14**	0.11**	0.04	0.05	0.09	0.14**	0.07	0.06
Position	-0.02	-0.04	-0.03	-0.03	0.02	0.03	0.01	-0.01	-0.02
Work status	0.09*	-0.01	-0.02	-0.01	-0.01	0.04	0.04	-0.04	0.00
CE	0.19***	0.04	0.12*	0.01	0.21***	0.11*	0.24***	0.28***	0.30***
Psychological contract breach	-0.35***	-0.28***	-0.32***	-0.38***	-0.29***	-0.40***	-0.26***	-0.23***	-0.31***
F	15.57***	6.88***	11.00***	9.81***	12.19***	14.89***	13.58***	12.53***	18.35***
R <sup>2</sup>	0.23	0.12	0.18	0.16	0.19	0.22	0.21	0.19	0.26

\*p ≤ 0.05; \*\*p ≤ 0.01; \*\*\*p ≤ 0.001.

Table 4. Indirect effects of HPWSs and CE on employees' attitudes.

<i>Dependent variable</i>	<i>Sobel test statistic HPWSs</i>	<i>Sobel test statistic CE</i>
General job satisfaction	6.23*	5.79*
Satisfaction with pay	3.72*	4.74*
Satisfaction with job security	5.16*	5.34*
Satisfaction with co-workers	3.82*	5.95*
Satisfaction with supervisors	5.34*	4.94*
Satisfaction with promotion	5.63*	6.23*
Affective commitment	5.52*	4.74*
Continuance commitment	4.12*	4.18*
Normative commitment	6.01*	5.37*

Note: \* $p \leq 0.001$ .

## Discussion

Based on a sample of business organisations located in Greece and by adopting an employee-centred perspective, which is currently lacking in the literature (Janssens and Steyaert 2009; Qiao et al. 2009; Snape and Redman 2010; Haar and White 2013), the findings of this analysis contribute to existing research work in at least four ways. First, by taking into consideration the facets of job satisfaction, we investigated the links between CE, HPWSs and job satisfaction. Second, we explored the relationships of both CE and HPWSs with all three components of organisational commitment, i.e. affective, continuance and normative (Meyer and Allen 1991). Third, in line with the social exchange theory, we empirically showed that perceptions of psychological contract breach serve as a mediator between CE, HPWSs and employees' job attitudes. Fourth, we provided a comparison between CE and HPWSs regarding their effects on employees' job attitudes.

The main findings of this study are summarised in the Appendix. Specifically, as was expected, our results suggest that both CE and HPWSs result in positive work experiences. It is found that employees are more likely to report not only greater levels of overall job satisfaction and facets of satisfaction, i.e. satisfaction with pay, job security, co-workers, supervision and promotion opportunities, but also higher levels of affective commitment. It is argued that in both high entrepreneurial and high-performance work environments, employees believe that their organisation is willing to invest in them, trusts them in decision-making processes and has a deep concern for their needs. Therefore, employees are more likely to express their intention to remain in such organisations. Furthermore, as hypothesised, it is found that the adoption of either CE or HPWS practices is positively associated with continuance and normative commitment. In a period of economic uncertainty and limited alternative employment options, the extrinsic and intrinsic rewards, such as stable, secure and congenial work environment, competitive pay, training, development and participation opportunities, may be perceived by the workforce as investments. In a high entrepreneurial or a high-performance work environment, the recognition of these investments leads employees to report a greater *need* as well as a greater *obligation* to remain with their current employer.

Previous studies indicated that CE, compared to HPWSs, may have a stronger influence on employees' retention (Haar and White 2013). In the current research, and in response to Haar and White's (2013) call for future research on non-financial outcomes, it is found that both HPWSs and CE have a significant and almost equivalent effect on

employees' general job satisfaction. Nevertheless, high-performance workplaces are found to be greater predictors of the facets of job satisfaction, whereas high entrepreneurial environments are greater contributors of the organisational commitment (affective, continuance and normative).

In addition, the findings of this study indicate the pathway through which CE and HPWSs lead to positive job attitudes. Since previous research on the effects of CE and HPWSs lacked theoretical explanations, one of the most important theoretical contributions of this study is the exploration of the psychological contract breach as a mediator. Consistent with the social exchange theory, our findings demonstrate that within dynamic work environments where comprehensive HRM practices are implemented, perceptions of psychological contract breach are less likely to occur, and therefore employees reciprocate with increased job satisfaction and organisational commitment. Clearly, our findings suggest that the psychological contract breach acts as an important mediator between the relationships of CE, HPWSs and employees' attitudes.

The results of this study provide important practical implications for business organisations. In firms that adopt and support either a high entrepreneurial or a high-performance strategy, employees are more likely to feel their work expectations are fulfilled and they develop positive job attitudes. Since positive job attitudes lead to enhanced job performance and lower turnover and absenteeism rates (Levy 2003), HR managers are expected to view the development of CE and HPWSs favourably as an approach to improving both employees' and organisations' outcomes.

As in all studies, there are limitations that provide opportunities for future research. Following previous work (Datta et al. 2005; Chi and Lin 2011; Gong et al. 2010; Wei et al. 2010), we treated HPWSs as a single index. However, based on the suggestions of Takeuchi et al. (2009), some sub-components of HPWSs may have differential effects on mediators and dependent variables. Future research could further investigate the separate effects of HPWSs sub-components on psychological contract breach and employees' job attitudes. Our findings, regarding the effects of HPWSs and CE on employees' job attitudes, are similar to the findings reported from other countries (USA, UK, China, New Zealand and Taiwan) (Qiao et al. 2009; Chi and Lin 2011; Haar and White 2013). Future research should replicate and extend this study in different countries with the aim of testing the generalisability of our results. Finally, our study implies enhanced job performance and productivity as an outcome of employees' positive job attitudes to CE and HPWSs. However, there is a need for future studies to calculate the risk and the cost of the capital associated with the implementation of CE and HPWSs (Hoskisson, Covin, Volberda and Johnson 2011). In a period of credit shortage and rising costs as a result of Europe's sovereign debt crisis, the extent to which CE and, in particular, HPWSs produce mutual benefits for both firms and employees appears more questionable than ever before. Lack of sufficient resources makes it difficult for firms to maintain costly staff management practices, and possible increases in labour costs may diminish any types of performance outcomes (Chi and Lin 2011).

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**Appendix: Main findings of the study**

<i>High-performance work systems</i>	<i>Hypothesis</i>
<i>Employees' perceptions of HPWSs are positively associated with:</i>	
General job satisfaction	1a
Facets of satisfaction: pay, job security, co-workers, supervisors and promotion opportunities	1b
Affective commitment	3a
Continuance commitment	4a
Normative commitment	5a
The relationships between employees' perceptions of the existence of HPWSs and general job satisfaction, satisfaction with supervisors and affective commitment are fully mediated by perceptions of psychological contract breach.	6
The relationships between employees' perceptions of the existence of HPWSs and satisfaction with pay, job security, co-workers, promotion opportunities as well as continuance and normative commitment are partially mediated by perceptions of psychological contract breach.	6
<hr/> <i>Corporate entrepreneurship</i> <hr/>	
<i>Employees' perceptions of CE are positively associated with:</i>	
General job satisfaction	2a
Facets of satisfaction: pay, job security, co-workers, supervisors and promotion opportunities	2b
Affective commitment	3b
Continuance commitment	4b
Normative commitment	5b
The relationships between employees' perceptions of high CE and satisfaction with pay and co-workers relationships are fully mediated by perceptions of psychological contract breach.	7
The relationships between employees' perceptions of high CE and general job satisfaction, satisfaction with job security, supervisors, promotion opportunities as well as affective, continuance and normative commitment are partially mediated by perceptions of psychological contract breach.	7