

## Looking into the black-box: analysis of the effectiveness of human resources strategy\*

Isidro Peña Garcia Pardo<sup>1</sup>, M<sup>a</sup> del Valle Fernández Moreno<sup>2</sup>

### Abstract

Numerous studies have shown a positive relationship between Human Resources Management (HRM) and firm performance. However, in spite of the variety of studies, adopted approaches and statistical methodologies to be found, it has not been possible to clarify the exact manner and conditions under which HRM can become a source of competitive advantage. This can be explained by the fact that most empirical works have ignored mediating hypothesis and merely examined the direct relationship between High Performance Work Systems (HPWS) and firm performance. This article, attempts to gain further insights into such an analysis by integrating the two main theoretical approaches in this field: The Resource Based View (RBV) of firm and Behavioural Theory. Using a sample of 62 financial firms we examined this mediating and moderating effect of Human Capital and HR Outcomes on the HPWS – Business Performance linkage. Hierarchical Regression Analysis revealed that HPWS was positively related to firm performance, Human Capital and HR outcomes. In addition, the level of Human Capital and HR outcomes mediate the relationship between HPWS and firm performance. These results shed new light on the mechanisms through which HPWS impacts business performance.

**Key words:** human resources management (HRM); resource-based view of the firm; behavioural theory

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<sup>1</sup> PhD in Economic and Business, Castilla-La Mancha University, Faculty of Law and Social Sciences of Ciudad Real, Business Administration Department, Business Organization Area, Ronda de Toledo s/n, Ciudad Real, Spain. Scientific affiliation: knowledge management and human resources management specialising in social economy. Phone: 926295300 (ext. 3531). Fax: 926295407. E-mail: Isidro.Pena@uclm.es

<sup>2</sup> PhD in Economic and Business, Castilla-La Mancha University, Faculty of Law and Social Sciences of Ciudad Real, Business Administration Department, Business Organization Area, Ronda de Toledo s/n, Ciudad Real, Spain. Scientific affiliation: strategic management, innovation management and human resources management. Phone: 926295300 (ext. 3518). Fax: 926295407. E-mail: Mariavalle.Fdez@uclm.es

## 1. Introduction

The field of Strategic Management of Human Resources has undergone significant development since the 1990s to the present day. Since the 90s, one can observe the emergence of a considerable number of works that analyse how different policies related to HR have a positive influence on business performance. Such researches have different theoretical backgrounds, amongst the RBV of the firm and the Behavioural Theory stand out. Since the 1990s, it is possible to observe the emergence of numerous works that empirically analyse the way in which companies manage their human resources and how this determines their business performance, a circumstance has become one of the characteristic elements of the strategic approach that HRM has acquired during recent years.

Among the contributions which tackle this problem, there is a group of works whose common feature is the acknowledgement of the existence of a series of personnel practices, described as high performance, highly implicational, innovative and duty practices, which have strategic value for those companies applying them, constituting the then so-called universalistic approach. In this sense, it is suggested that the use of such high performance practices is linked to higher levels of business performance, independently of the particular characteristics of any given organization, the sector to which it belongs and, in a broader sense, any other element of its environment (Pfeffer, 1994; Ichniowski, Shaw & Prensushi, 1997). Within such an approach, there is also a research line according to which, although it is acknowledged that the application of a series of high performance practices influences company productivity and profits (Ichniowski *et al.*, 1997; Huselid, 1995), the effects of this will be much more strong when they are applied in coherent systems (HPWS), which strengthen one another (Pfeffer, 1994; Arthur, 1994; Kochan & Osterman, 1994; Huselid, 1995; McDuffie, 1995).

On the other hand, and as a consequence of the strategic nature adopted by HRM nowadays, another group of research has emerged which acknowledge the need to integrate HR practices or systems with a series of organizational aspects and, in the main, with business strategy (Miles & Snow, 1984; Schuler & Jackson, 1987; Delery & Doty, 1996; Wood, 1999). The Contingent Approach is more complex than universalistic, since it incorporates the concept of interaction against the concept of linear relationships from the universalistic approach. That is, the Contingent perspective maintains that the relationship between performance and HR practices is moderated by a series of contingency variables, amongst which the following stand out: a) Life cycle, so that HRM and, more precisely, the different practices to be adopted depend on the stage of the life cycle in which the company is at any given time (Buller & Napier, 1993); b) Organizational structure, assuming that different structural forms face different challenges which are likely to have implications for HRM (Van Sluijs, Van Assen, & Hertog); and c) Business strategy (Miles & Snow,

1984; Schuler & Jackson, 1987). With the aim of describing the main justification of the contingent approach, Delery & Doty (1996) state that the relationship between the use of specific HR practices and organizational performance depends on business strategy, so that the best practices are those which adjust best to the strategy developed by the company in question. Such an approach is based on the strategic theories proposed by Guest (1997), according to which HRM is affected by a series of variables from the business context. The success achieved by the organization and its personnel policies directly depends on their consideration and the adaptation of the company to such circumstances.

However, in spite of the variety of studies, adopted approaches and statistical methodologies to be found, it has not been possible to clarify the exact manner and conditions under which HR strategies can become a source of competitive advantage. This article, attempts to gain further insights into such an analysis by integrating the two main theoretical approaches in this field. Thus, we will overcome the typical limitations of adopting a single approach, which could turn out to be insufficient in order to explain the way in which an asset with psychological implications, such as the human factor, may contribute to organizational success.

Based on a theoretical review of the literature which tackles the relationship between human resources and results, following Takeuchi (2003), we can establish that the HPWS affects business performance in a direct and indirect way. In this relation, the variables of Human Capital and HR Outcomes act as mediating variables. Taking this into account, we propose the following hypothesis:

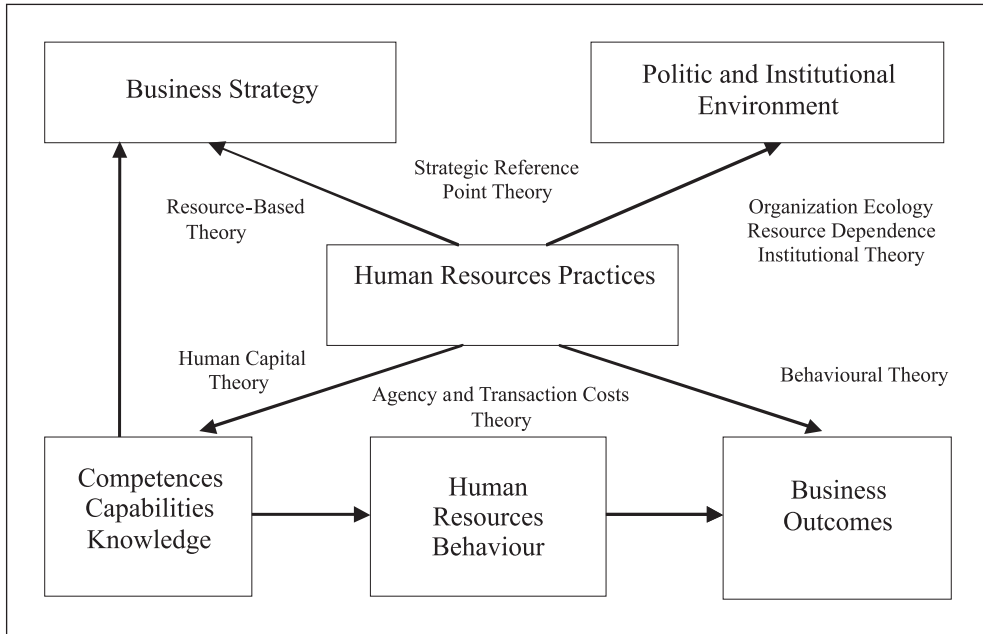
*HYPOTHESIS: Human Capital and HR Outcomes affects the HPWS-Business Performance linkage, as HPWS is positively related to firm performance through Human Capital and HR Outcomes.*

## 2. Theoretical approaches to Human Resources Management

HRM has been studied from different perspectives based on Psychology, Economics, Management and Sociology, focusing on the different aspects of the process (Wright & McMahan, 1992; Schuler & Jackson, 1995; McMahan, Virick & Wright, 1999; Bamberger & Meshoulam, 2000).

In figure 1, we gather a classification of the main perspectives and theories which have been used as a base for the articulation of empirical research within this field; such classification was offered by McMahan *et al.* (1999), who also consider a series of conditioning variables of effectiveness in personnel management and the theoretical justification of their influence on Human Resources Management.

Figure 1: Theoretical approaches to Human Resources Management



Source: McMahan, Virick & Wright, 1999

In relation to these theoretical approaches, this work will be focused on those theories which we consider to have had, both currently and in the past, a greater repercussion on empirical research: the RBV of the firm and Behavioural Theory.

## 2.1. The Resource-Based View of the firm

The RBV of the firm refers to a movement of strategic analysis from the industrial sector to the company (Prahalad & Hamel, 1990). The RBV of the firm looks at greater depth into the factors which determine profit differences, insisting not so much on quantitative aspects, such as equipment or dimension investments, which are easily imitable by competitors (Becker & Huselid, 1998), but rather on non-observable and specific assets such as resources, skills of company members, organizational routines and business culture. Competence is studied through resources and capabilities rather than through products and businesses. The RBV of the firm tends to consider performance differences among companies as a result of effectiveness differences rather than as a result of market power differences (Foss, Knudsen & Montgomery, 1995).

Company competitiveness then depends on the company's capacity to shape a unique set of resources that cannot be easily imitated by competitors, which mobilized with the help of company-developed organizational and managerial

systems will provide the company with a series of distinctive capacities that allow it to generate long-term sustainable income (Fernández Rodríguez, 1995). According to such a theory, in order to convert a certain resource into a competitive advantage source, such a resource should fulfil certain characteristics: add value to the company, be unique, rare and non-imitable, and not have direct substitutes, which are characteristics fulfilled by human resources (Wright & McMahan, 1992; Wright, McMahan & McWilliams, 1994; Becker & Gerhart, 1996; Kamoche, 1996; Barney & Wright, 1998; Valle Cabrera, 2003).

The RBV of the firm has traditionally worked under the assumption of the existence of a certain static equilibrium, mainly being based on the assumption of “non-imitability”, ignoring environmental changes that might nullify the strengths on which the company bases its competitiveness (Mahoney, 1995; Teece, Pisano & Shuen, 1997). The abandonment of such an assumption of stability brings us closer to a more dynamic approach of the RBV of the firm, which acknowledges the need to renew, relocate and reuse resources in order to maintain competitive advantages within an environment such as that which currently prevails, characterized as it is by its dynamicity (Chan, Shaffer & Snape, 2004).

When considering the main implications of the RBV of the firm within the field of HRM, it is possible, on one hand, to highlight the acknowledged need to apply systems or sets of HR practices to improve company competitiveness. Thus, in the analysis of the relationship between HR and performance, we have gravitated from the study of isolated practices to that of practice systems, which are coherent in relation to one another. On the other hand, the determining importance of the human factor in organizational success has been acknowledged (Capelli & Singh, 1992). The different HR policies (training, selection, post design, etc.) constitute tools that allow HR to fulfil the desirable characteristics of any resource from this theoretical viewpoint, with the aim of becoming a source of competitive advantage.

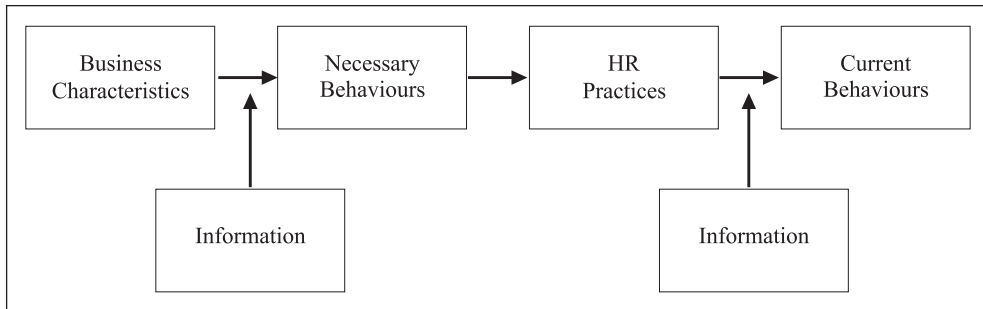
Finally, the dynamic approach to this theory has justified considering intermediate variables within the relationship between HR and performance, such as the organization’s human capital (Becker, Huselid, Pickus & Spratt, 1997); Takeuchi, 2003; Saa & Garcia Falcon, 2004; Youndt & Snell, 2004) or organizational culture (Chan *et al.*, 2004) and interactions among different organizational dimensions.

## 2.2. The Behavioural Theory

The Behavioural Theory can be considered as one of the most common theoretical bases within the contingent perspective and the field of HR. Such a theory is based on the assumption that different strategies require different behaviours, attitudes and capabilities in workers (Schuler, 1987).

According to this theory, HR practices have a direct effect on the behaviour of workers<sup>3</sup>, which results in improvements of organizational performance (Lawler, 1986; Huselid, 1995; Becker, Huselid, Pickus & Spratt, 1997; Guest, 1997; Appelbaum *et al.*, 2000; Takeuchi, 2003), meaning that the company must apply a set of personnel practices coherent with its needs (Figure 2).

Figure 2: Behavioural Theory applied to the effectiveness analysis of HRM



Source: McMahan *et al.* (1999)

In this sense, Huselid (1995) states that the adoption of high-performance HR practices will favour improvement in workers' skills and motivation. In this article, we focus on the need to obtain a series of behaviours from HR. In fact, Huselid (1995) states that the potential result can't be completely obtained from such the improvement of company human capital alone, without the achievement on the part of the company that its workers develop such skills within their daily working routine. Setting off from such an approach, Huselid (1995) affirms that the increase of worker motivation may be achieved through the application of a series of HR practices, which include individual or group evaluation, its association to retribution or the use of systems of internal promotion which enable the professional development of workers. The author therefore understands that a great part of the contribution made by workers may be regulated and strengthened by the policies and practices established by the management.

An additional theoretical framework used in the analysis of the relationship between the workers' attitudes and behaviours and firm performance is the Social Exchange Theory, which focuses on the way in which individuals respond to the support they receive from their company. When workers have positive perceptions, such perceptions increase their commitment with the company, their degree of involvement and their level of working satisfaction, which results in better performance for the company. In this sense, Wayne, Shore & Liden (1997)

<sup>3</sup> Precisely on human-resources outcomes -rotation, absenteeism, effort, satisfaction and cooperation-

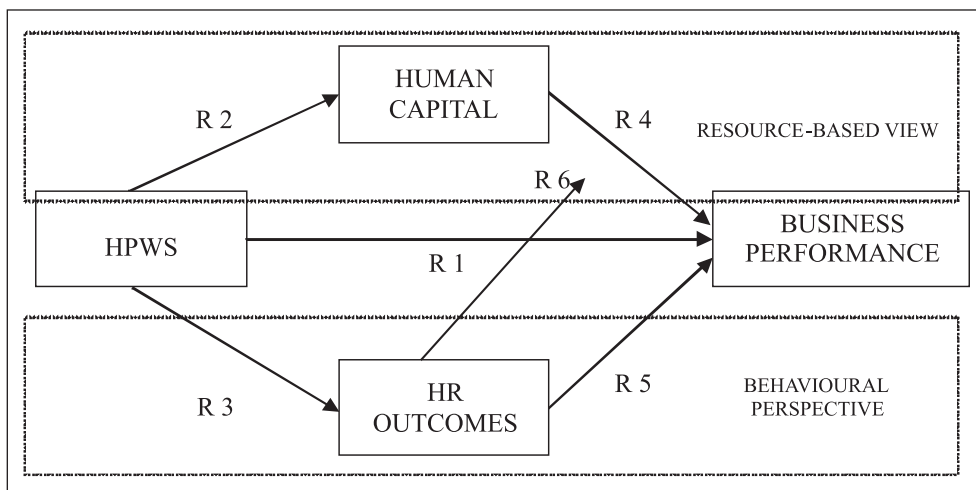
discovered a direct relationship between the HR practices developed by the organization and the perception workers have of the support they receive from the organization.

### 3. Proposed model

As has been mentioned previously, in this work, we shall attempt to integrate those theoretical approaches which have been more widely used for research purposes within this field. The model shown in Figure 3 intends to integrate both theoretical approaches and contrast the proposed hypothesis. The formulated model is based on Takeuchi's model (2003), with the moderating effect provided by the HR Outcomes included therein.

Firstly, we address the relationship which has been generally tested in a wide number of researches relating to the application of HPWS with business performance (Huselid, 1995; Wright, Smart y McMahan, 1995; Youndt et al., 1996; Conyon & Read, 1999; Bae & Lawler, 2000; Guthrie, 2001; Bae, Chen, Wan, Lawler & Walumba, 2003; Guest et al., 2003; Chan et al., 2004), and propose the following relationship : The application of a system of HPWS is positively related to business performance.

Figure 3: Integration model of the relationship between HPWS and business performance



Source: Personal compilation



The second of the relationship shown refers to the positive effect which the application of HPWS have on the creation of human capital, as proposed by Collins (2000), Takeuchi (2003), Saa & Garcia-Falcon (2004) and Youndt & Snell (2004). These high-performance HR systems include variables, such as training, which enable the acquisition of new skills and knowledge, rigorous selection techniques guaranteeing talent and capability in hired workers, incentives encouraging workers to find new skills, competitive wages retaining the most suitable workers, post design which turns out to be motivating and favours continued learning, working promotion and stability systems to be perceived by workers as indicators of the organization's commitment and participation mechanisms, fostering knowledge transfer within the organization. This leads us to our next relationship : The application of high-performance HR systems is positively related to the level of human capital.

Thirdly, we analyse the relationship between HPWS and outcomes directly related to HR. Within literature, there are numerous works which analyse the positive influence of the use of HPWS on aspects such as: *workers' satisfaction* (Katz, Kochan & Weber, 1985; Krueger & Rouse, 1998; Hoque, 1999; Bae & Lawler, 2000; Fey, Björkman & Pavlovskaya, 2000; Arcand, Bayad & Fabi, 2002), *commitment* (Hoque, 1999; Bae & Lawler, 2000), *rotation* (Bird & Beechler, 1995; Huselid, 1995; Krueger & Rouse, 1998; Batt, 2002; Guest, Michie, Conway & Sheenan, 2003; Hartog & Verbug, 2004), *absenteeism level* (Katz et al., 1985; D'Arcimoles, 1997; Krueger & Rouse, 1998; Boselie, Paauwe & Richardson, 2003; Hartog & Verbug, 2004); and *capacity to attract and retain talented personnel* (Fey et al., 2000; Ordiz, 2000; Gelade & Ivery, 2003). In this sense, Wright, McCormick, Sherman & McMahan (1999) state that: a) rigorous selection techniques assure adjustment between workers and organizational culture, which will improve workers' satisfaction level; b) training programs allow the organization to project its main business objectives; and c) variable retribution guides workers' effort and motivation towards achieving those aims fixed by the organization. Generally, these high-performance practices are perceived by workers as a sign of the organization's commitment (Batt, 2002) and positively influence the aspects previously mentioned. In keeping with these contributions, we propose the following relationship: The application of HPWS is positively related to HR outcomes.

The fourth relationship refers to the role played by human capital in the relationship previously described. Taking the RBV of the firm as a theoretical basis, Delery & Shaw (2001) state that: a) human capital may constitute a strong competitive advantage; and b) the activities of HRM are those with greater influence on the company's human capital. In this sense, Becker & Gerhart (1996) state that the application of HPWS should not be expected to exert a positive influence on performance by itself, but that a previous increase in the organization's human capital is necessary. Empirically, this circumstance has been validated in works such as those by Takeuchi (2003), Saa & Garcia-Falcon (2004) or Youndt & Snell



(2004). The relationship is expressed in the following: Human capital mediates the relationship between HPWS and business performance.

With the two last relationships and taking the RBV of the firm as a theoretical basis, we firstly analyse the mediation effect which the results directly related with HR have in terms of the relationship between the HR system and performance.

Becker et al. (1997) propose a seven-stage model which analyses the existing relationship between both the company's business strategy and market value. Thus, the strategy is acknowledged as determining the HR system to be used, which affects workers' capacities and motivation, post design and organizational structure. Such variables are closely related to workers' productivity, creativity and effort and higher profit and growth levels, which imply an increase in the company's market value. Guest (1997) points out a series of practices whose application will have a specific effect on the behaviour of individuals; such an effect will result in the fulfilment of a series of both HR and organizational objectives. This circumstance has been empirically validated in the works of Huselid (1995), Gelade & Ivery (2003) or Wright, Gardner & Moynihan (2003). The relationship is formulated in the following way: HR Outcomes (motivation, working atmosphere, working satisfaction, rotation and absenteeism) mediate the relationship between HPWS and business performance.

With the last proposal we attempt to integrate both theoretical approaches considered in this work, suggesting that the relationship between the organization's existing human capital and business performance is moderated by indicators directly related to HR. In doing so, we acknowledge that having sufficient human capital at the company's disposal is a necessary but not altogether sufficient condition for enhancing performance, insomuch as this relationship is subject to the company motivating its workers to develop such human capital, the establishment of a favourable working atmosphere, high working satisfaction levels and reductions in absenteeism and rotation levels.

McDuffie (1995) acknowledges that the process of personnel management becomes a key tool which enables achieving competitive advantages providing that these advantages permit the development of the necessary skills and knowledge and, at the same time, increase the motivation of personnel in respect of their use. On the other hand, Wright & Snell (1991) consider that successful companies should have motivated workers who are involved in the achievement of organizational objectives. Bearing in mind the need to ensure certain requirements in relation to the circumstances which surround work and which are directly linked to workers as a guarantee of success of the personnel activities developed, we suggest that HR outcomes moderate the relationship between human capital and business performance, being higher in those organizations which manage to achieve more favourable working conditions in terms of motivation, working atmosphere, work satisfaction, rotation and absenteeism.

#### 4. Data collection and methodology

The data was collected via a questionnaire survey targeted at financial entities that fall within the field of Social Economy: Credit Unions and Savings Banks. The instrument was mailed to the corporate human resource manager of each banking institution, as they had intimate knowledge of the firm's HR practices as well as the generic business-level strategy. Before beginning the field work in January 2006, the questionnaire was validated by 2 banking institutions and representatives of 2 national associations of banking institutions. As a result of this procedure, the quality of the instrument was improved by incorporating new items, dropping unimportant items and amalgamating similar items.

The questionnaire is made up of four distinct parts. In the first of these, it carries out a series of questions in relation to the identification of the company. Given that the most relevant information of these companies is published in their annual reports, we only identify the companies and obtain information in relation to the person who fills in the questionnaire. The second part of the questionnaire is designed to determine which HR practices are developed by the companies. We include a series of questions relative to the processes of recruitment, selection, training, career plans, employee participation, job design (autonomy and rotation) and reward strategy. The third includes aspects regarding human capital and HR Outcomes. Finally, the questionnaire encompasses questions in relation to business performance. This information was obtained considering subjective evaluations made by those who filled out the questionnaires. The scales used to measure all the variables are shown in the following table.

Table 1: Variables included in the model and measurement

	Variables	Scale	Items
Human resources practices	Internal markets	Delaney and Huselid (1996)	4
	Rigorous selection	Snell and Dean (1992)	5
	Job stability	Delery and Doty (1996)	4
	Training	Snell and Dean (1992)	7
	Participation	Delery and Doty (1996)	4
	Broad job design	Own source	4
	Rewards	Saura and Gómez-Mejía (1996)	5
	Human capital	Youndt and Snell (2004)	5
	Human resources outcomes	Delaney and Huselid (1996)	4
	Business performance	Delaney and Huselid (1996)	4

Source: Personal compilation

Overall response rate after three mailing rounds reached the level of over 51 percent (62 usable responses) which was quite higher than the expected 25 percent obtained in similar mail surveys.

#### 4.1. Measurement of HPWS. Practices included

As a necessary task to delineate the HR practices leading to HR systems, an extensive review was made of existing empirical literature with special attention to those studies undertaken in the banking sector (Delery and Doty, 1996; Gelade e Ivery, 2003). Resulting from this review, several HR practices grouped into seven major areas were included in the present research: internal markets, rigorous selection, job stability, training, participation, broad job design and rewards.

The first variable considered is the existence of *internal markets*, which will be measured through the scale proposed by Delaney & Huselid (1996), who consider, on one hand, the use of internal sources of recruitment and the use by the company of career plans for its employees, on the other. The establishment of internal working markets assures that those holding managerial posts have a complete knowledge of the company, its business, production process and technology (Pfeffer, 1998).

Another aspect of the HR system is *rigorous selection* developed by the company, characteristic of a recruitment process which assures the suitability of new employees in keeping with the company's needs and their capacity to develop the policies established by it.

On the other hand, in the analysis of the recruitment process, we will analyse the *job stability* level which companies offer their employees. This variable is an indicator of company commitment to its employees (Pfeffer, 1998). For its measurement, we have included four items adapted by Delery & Doty (1996) regarding the permanency of the company's employees and the kind of contract undertaken by the company

*Employee participation* determines their degree of intervention in decision making processes as well as the way in which the company establishes mechanisms to incorporate the perceptions and suggestions of its individuals into the management process. The establishment of participation mechanisms increases employees' satisfaction, motivation and productivity (Pfeffer, 1998).

*Broad job design* variable attempts to specify the degree to which the company fosters rotation among different posts and gives autonomy to its employees for undertaking their tasks. Such a variable will be determined through a scale composed of four items regarding the length of posts and the responsibility they involve.

Finally, the *rewards strategy* has been measured by using the scale developed by Saura & Gomez Mejia (1996). Given the complexity of such a scale, especially due to the number of items which it is made up of, we decided to extract the most relevant items, which in turn have been previously considered reiteratively in different researches such as retribution, wage level and internal equity components.

That said, the main trend in literature in terms of the way to make an HR system work is that of constructing an single index that can be added to and which contains a certain group of practices, covering aspects relating to selection, training, development, remuneration and job design (Bae & Lawler, 2000; Ramsay, Scholarios & Harley, 2000; Datta, Guthrie & Wright, 2005). Becker & Huselid (1998) point out that, not without limitations, this is the most appropriate way of constructing an HR index for two main reasons: a) a single index is a reflection of the notion of a single system of HRM, such as strategic assets; and b) given that such an index is constructed from combinations of the values of the scales, there are numerous alternatives which enable an improvement in performance.

#### 4.2. Measurement of Human Capital

Human capital can be defined as the collective capacity of any given organization to achieve desired outcomes through the use of the knowledge of its employees and can be considered as the sum of the workers' experience, knowledge and attitudes (Tseng & Goo, 2005).

The existing Human Capital in a given organization can become a source of competitive advantage, improving productivity levels as well as customers' satisfaction (Youndt & Snell, 2004). For its measurement, we shall use a scale composed by five items and based on Youndt & Snell (2004), regarding aspects such as the workers' skill level, experience, knowledge and creativity.

#### 4.3. Dependent variables

Business performance is the dependent variable most generally used in empirical research albeit one of the most imprecise constructs (Rogers & Wright, 1998), giving rise to a constant effort within literature to search for a meaning and a way of operationalization.

Our work includes, on one hand, a measurement of subjective business performance based on the proposal by Delaney & Huselid (1996), which is based on: a) financial indicators having a series of limitations as, despite being based on countable performance, they do not include many aspects which may turn out to be clear traces of the company's situation; and b) due to the trend existing in literature towards their use.

On the other hand, we also consider outcomes directly related to HR; with this, we have developed a specific scale including aspects related to workers' motivation and satisfaction, and working environment, rotation and absenteeism. As shown in the model, these outcomes mediate the relationship between HPWS and business performance and also moderate the relationship between the organization's Human Capital and its performance.

#### 4.4. Results

Hypothesis contrast was conducted through a Hierarchical Regression Analysis. In all cases, the introduction of variables is carried out at different stages: in the first stage, we introduce the control size variable, built from the logarithm of the number of employees. The second stage consisted in introducing the independent variables into the model.

Firstly, we analyse the influence of HPWS on business performance (Model 1), the organization's human capital (Model 2) and HR outcomes (Model 3). For the three dependent variables, the introduction of HPWS into the model improves the model's explanatory capacity and its B-coefficient is significant, so that we consider the first three relationships contrasted.

Table 2: Relationships 1, 2 and 3

	Dependent Variable					
	Model 1 Relationship 1		Model 2 Relationship 2		Model 3 Relationship 3	
	Business performance		Human capital		HR outcomes	
Size	0.122	0.101	0.134**	0.127**	0.08	0.07
HPWS	—	0.236**	—	0.346**	—	0.316**
R <sup>2</sup>	0.056	0.185	0.0682	0.1572	0.023	0.212
Adjusted R <sup>2</sup>	0.041	0.159	0.041	0.159	0.008	0.187
ΔR <sup>2</sup>	0.056	0.129	0.056	0.089	0.023	0.189
F	3.754*	7.058***	3.754*	5.782**	0.1572	8.346***
Change in F	3.754*	9.837***	3.754	6.547***	1.499	14.864***
** Significant if p < 0.05; *** Significant if p < 0.01						

Source: Authors

In order to contrast relationships 4 and 5 which show the mediating effect of human capital and HR outcomes respectively on the relationship between HPWS and

business performance, we adopt the proposal by Baron & Kenny (1996). According to these authors, the moderating effect is analysed by following three stages: 1) analysing the direct effect of the independent variable on the dependent one which was verified in relationship 1; 2) analysing the effect between the moderating variable and the dependent one; 3) analysing the way in which the B-coefficient of the independent variable is modified when the moderating variable is considered if B decreases, we can confirm the existence of a mediation effect.

In both cases, it is possible to demonstrate that when mediating variables are introduced, the B-coefficient related to the system of HR practices is reduced and both variables are significant, so that relationships 4 and 5 are contrasted. Therefore, human capital and HR outcomes mediate in the relationship between the system of human resources practices and business performance.

Table 3: Relationships 4 and 5

	Dependent Variable					
	Model 4 Relationship 4			Model 5 Relationship 5		
	Business performance			Business performance		
Size	0.122	0.101	0.122	0.122	0.101	0.06
HPWS	—	0.236**	0.116	—	0.236**	-0.108
Human capital	—	—	0.423***	—	—	—
HR outcomes	—	—	—	—	—	0.386***
R <sup>2</sup>	0.056	0.185	0.321	0.056	0.185	0.285
Adjusted R <sup>2</sup>	0.041	0.159	0.288	0.041	0.159	0.249
ΔR <sup>2</sup>	0.056	0.129	0.136	0.056	0.129	0.099
F	3.754	7.058***	9.630***	3.754	7.058***	8.088***
Change in F	3.754	9.837***	12.219***	3.754	9.837***	8.450***
** Significant if p < 0.05; *** Significant if p < 0.01						

Source: Authors

Finally, we carried out a contrast of relationship 6. Following Venkatraman (1989) and Aiken & West (1991), in order to be able to measure the existence of a moderating effect, we use multiple regression equations including the following interactions:  $Y = B_0 + B_1X_1 + B_2X_2 + B_3X_1 X_2$ . This way, a moderation relationship will not be rejected if a non-standardized B<sub>3</sub>-coefficient significantly differs from zero, corroborating the adjustment effect between X<sub>1</sub> and X<sub>2</sub> (human capital and HR outcomes, respectively) on the dependent variable Y (business performance) and that the increase in the model's explanatory capacity is significant.



Table 4: Relationship 6

	Model 6 Relationship 6			
	Business performance			
Size	0,134**	0,127**	0,0845	0,956
Human capital	—	0,346**	0,221**	0,156*
HR outcomes	—	—	0,186**	0,142*
Human capital*HR outcomes	—	—	—	0,0843
R <sup>2</sup>	0,0682	0,157	0,197	0,212
Adjusted R <sup>2</sup>	0,041	0,159	0,157	0,160
ΔR <sup>2</sup>	0,056	0,089	0,039	0,016
F	3,754	7,058***	4,974***	4,039**
Change In F	3,754	9,837***	2,984	1,189
** Significant if p < 0,05; *** Significant if p < 0,01				

Source: Authors

As can be observed in the above table, the term interaction is not significant; therefore relationship 6 isn't validated

## 5. Conclusions

This paper adds to previous work in the field by testing a model that includes HR outcomes and Human Capital as mediating variables between HPWS and firm performance. This work is an empirical research proposal, the main aim of which is to integrate these main theoretical approaches addressing research on the analyses of the repercussion of HPWS on business performance. The study strongly supports the necessity for SHRM researchers to examine the mediating links between HPWS and performance. The result showed that there was a direct and indirect link between HRWS and business performance. The following points should be highlighted in particular: the use of HPWS positively relates to business performance (Relation 1, Table 2), Human Capital (Relation 2, Table 2) and HR outcomes (Relation 3, Table 2); this relationship, in keeping with the RBV of the firm in its dynamic approach, which acknowledges the existence of intermediate variables that are useful to explain the way in which HR influences results, takes place through the improvement of the organization's human capital (Relation 4; Table 3); furthermore, in the same way, we have found empirical support for the Behavioural Theory, as HR strategy has a direct influence on workers' attitudes,

which results in improved performance (Relation 5; Table 3) and it has not been possible to determine the moderating effect of HR outcomes in the relationship of the system of practices and business performance, although this lack of contrast may be due to methodological problems in determining interactions owing to the sample size (Relation 6; Table 4). It is important to highlight that this article makes an advance in this field of research, as it offers greater insights into the way in which HR can generate competitive advantages.

The results of this study should be considered and interpreted with caution, given its inherent limitations. Amongst these, the reduced size of the sample should be a primary consideration, together with the fact of being limited to a single sector, bearing in mind the ramifications that this entails: a) the limitations in terms of generalising results. We note that generalizability is not the goal of all research. Some research, such as this, is aimed primarily at testing theoretical predictions rather than trying to develop generalizable empirical results; b) the impossibility of using structural equation models; and c) restrictions in terms of result interpretation. Another limitation of this study is related to the use of transversal data which prevent establishing exact causality relationships. This deficiency has been partially rectified by considering profitability over the past four years and observing that the relationship between HR and business performance is lower in such cases. Thus, this model is broadly consistent with previous conceptions and antecedents of the HPWS-Performance link, and with the temporal ordering of the variables that were measured.

Future studies should be aimed at overcoming the previously mentioned limitations, extending the field of study as a consequence of the findings obtained in the current work regarding other possible contingencies which may condition effectiveness in personnel policies, focusing research on the way in which companies implement their HR strategies. It is necessary to use structural equation models to determine the meaning of the relationships between variables and to be able to establish the mechanism which enables the application of certain HR practices to generate a positive effect on firm performance. Secondly, in relation to this limitation, future research should also utilize more qualitative in-depth case studies to gain a better understanding of the idiosyncrasies of HR management in specific organizational settings. This type of research may be especially useful in helping resolve some of the difficulties with respect to the moderating variables. Additionally, future studies could continue in a similar vein by looking for another series of variables which would afford a better understanding of the problems analysed.

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## Istraživanje crne kutije: analiza učinkovitosti strategije ljudskih potencijala

Isidro Peña Garcia Pardo<sup>1</sup>, M<sup>a</sup> del Valle Fernández Moreno<sup>2</sup>

### Sažetak

Brojne studije ukazuju na pozitivan odnos između upravljanja ljudskim potencijalima (HRM) i uspješnosti tvrtki. Međutim, usprkos brojnih studija, usvojenih pristupa i statističkih metodologija, još uvijek nije moguće razjasniti točan način i uvjete u kojima upravljanje ljudskim potencijalima postaje izvor konkurentske prednosti. To se može objasniti činjenicom da većina empirijskih radova ignorira neizravnu hipotezu i samo istražuje izravan odnos između HPWS (izvršne performanse sustava rada) i uspješnosti poslovanja tvrtke. U ovom radu pokušava se dobiti dublji uvid u analizu uspješnosti integriranjem dvaju teoretskih pristupa u ovom području: RBV analiza resursa tvrtke i bihevioralne teorije (teorije ponašanja). Koristeći se uzorkom od 62 financijske tvrtke, istražili smo posredni i srednji učinak ljudskog kapitala i posljedice upravljanja ljudskim potencijalima. Povrh toga, razina ljudskog kapitala i posljedica upravljanja ljudskim potencijalima utječu na odnos između HPWS-a i uspješnosti tvrtke. Dobiveni rezultati bacaju novo svjetlo na mehanizme pomoću kojih HPWS utječe na uspješnost poslovanja.

**Ključne riječi:** upravljanje ljudskim potencijalima (HRM), analiza resursa tvrtke, bihevioralna teorija

**JEL klasifikacija:** M12

<sup>1</sup> Doktor ekonomskih znanosti, Castilla-La Mancha University, Faculty of Law and Social Sciences of Ciudad Real, Business Administration Department, Business Organization Area, Ronda de Toledo s/n, Ciudad Real, Spain. Znanstveni interes: upravljanje znanjem i upravljanje ljudskim potencijalima sa specijalizacijom u društvenoj ekonomiji. Tel.: 926295300 (ext. 3531). Fax: 926295407. E-mail: Isidro.Pena@uclm.es

<sup>2</sup> Doktor ekonomskih znanosti, Castilla-La Mancha University, Faculty of Law and Social Sciences of Ciudad Real, Business Administration Department, Business Organization Area, Ronda de Toledo s/n, Ciudad Real, Spain. Znanstveni interes: strategijski menadžment, inovacijski menadžment, upravljanje ljudskim potencijalima. Tel.: 926295300 (ext. 3518). Fax: 926295407. E-mail: Mariavalle.Fdez@uclm.es

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