

Linking HRM and Small Business Performance: An Examination of the Impact of HRM Intensity on the Productivity and Financial Performance of Small Businesses

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ABSTRACT. Attempts to explore empirically the link between HRM and firm performance are numerous. Yet, research on this link remains restricted to large companies. Little is known about the extent to which the existing results extend to small businesses. The purpose of the present study is to develop and test a conceptual framework linking HRM to financial performance that fits small businesses. The central question is whether the development of an intensive HRM is profitable for smaller organizations. For the development and optimization of the conceptual framework, we rely on human capital theory and bankruptcy prediction models. Using structural equation modeling, we study the mediating effect of voluntary turnover and productivity on the relationship between HRM intensity and one year lagged financial performance. The results show both productivity and profitability enhancing effects as well as a cost increasing impact of HRM intensity.

KEY WORDS: financial performance, HRM, productivity, small business management, voluntary turnover

JEL CLASSIFICATION: C39, M50, M51, M52, M53

1. Introduction

Prior studies indicated that small business managers often face HR related management problems

(Julien, 2001; McEvoy, 1984). Recruiting, motivating and retaining employees seems to be a major challenge for small firms (Gatewood and Field, 1987; Golhar and Deshpande, 1997; Hornsby and Kuratko, 1990). Studies by McEvoy (1984) and Marlow and Patton (1993) revealed effective management of human resources to be a good predictor of small business survival. Research by Dun and Bradstreet (2001), in turn, showed that managerial incompetence, especially in the field of HRM, is the main cause of failures in smaller firms. It is therefore not surprising that research on HRM in small businesses is recently receiving increased attention (e.g. Cassell et al., 2002; de Kok, 2003; Duberley and Walley, 1995; Golhar and Deshpande, 1997; Hornsby and Kuratko, 2003; Wagar, 1998).

However, Hornsby and Kuratko (2003) noticed that HRM research still remains a large company phenomenon. Relatively little is understood regarding the HR related needs and practices of small firms (de Kok, 2003). Particularly, the impact of HR practices on small business performance has rarely been studied. This research field seems to be *terra incognita* (de Kok, 2003). Since numerous studies on the relationship between HRM and firm performance within large firms show evidence of a positive impact (Arthur, 1994; Delaney and Huselid, 1996; Huselid, 1995; MacDuffie, 1995), an increasing number of authors stress the need for similar research in small businesses (de Kok et al., 2002; Heneman et al., 2000; Wagar, 1998).

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The purpose of the present study is to address this gap by developing and testing a conceptual framework linking HRM to financial performance that fits small businesses. The central question is whether the development of an intensive HRM is profitable for small organizations. The surplus value of this contribution is three-fold. First, studying (Belgian) small companies (with at most 100 employees), we focus on a population that has been neglected in HRM-firm performance research. Secondly, we intend to develop HR and performance measures suitable for studying the HRM-performance link in small organizations. Finally, using structural equation modeling, we want to shed light on the paths through which HRM intensity affects financial performance.

The further outline of this paper is as follows. We start with an overview of the literature. Both the use of HR practices and the link with performance in small businesses are discussed. Second, we develop a conceptual framework linking HRM to small business performance. Next, research hypotheses are formulated. Subsequently, we clarify our sample, measures and method and elucidate the results. We close with a discussion and some suggestions for future research.

2. Literature review

In this section we give an overview of the research on HRM in small firms. Subsequently, we briefly recapitulate the main conclusions of studies on the relationship between HRM and performance within the small business context.

2.1. HRM in small businesses

The majority of the empirical studies on HRM in small businesses are still in an explorative stage and mainly descriptive (de Kok, 2003). Some authors describe the use of different HR practices in small businesses (e.g. Cassell et al., 2002; Golhar and Deshpande, 1997; Hornsby and Kuratko, 2003; Wagar, 1998). Others focus on one specific field of HRM, such as recruitment and selection (e.g. Bartram et al., 1995; Carroll et al., 1999; Heneman and Berkley, 1999), training and development (e.g. Black et al., 1999; Curran, 1988; Matlay, 1997; Storey, 2004), compensation

(e.g. Amba-Rao and Pendse, 1985; Brown and Medoff, 1989; Poole and Jenkins, 1998) and employee relations (e.g. MacMahon, 1996; Rainnie, 1989; Ram et al., 2001). Heneman et al. (2000; p. 20) conclude that the available literature '*appears to be rich in prescriptions, limited in sound descriptive surveys and sparse in analytical research*'. Out of the 403 articles they reviewed, only 129 explicitly address HRM issues in small businesses. No more than 17 use analytical statistics to test specific hypotheses.

Most of the aforementioned studies compare the use of HR practices in large and small organizations. The results suggest that smaller firms generally make less use of HR practices than larger firms (Bayo-Moriones and Merino-Díaz de Cerio, 2001; de Kok et al., 2002; Jackson et al., 1989; Ng and Maki, 1993). Furthermore, empirical research confirms that HR practices tend to be fairly ad hoc and informal in small firms (de Kok and Uhlaner, 2001; Matlay, 1999; Wiesner and McDonald, 2001). The main reasons for the lack of sophisticated HR practices in small businesses seem to be the lack of time and (financial) resources and the absence of HR experts (Bayo-Moriones and Merino-Díaz de Cerio, 2001; de Kok and Uhlaner, 2001; Klaas et al., 2000).

However, growing evidence shows that HR practices in smaller firms may be more sophisticated than previously expected (Bacon et al., 1996; Golhar and Deshpande, 1997; Hornsby and Kuratko, 1990). For example, Golhar and Deshpande (1997) found that many HR practices do not differ significantly between large and small firms. Bacon et al. (1996) suggest that small business managers are increasingly aware of new management approaches such as team working, devolved management, performance appraisals, etc. and that innovative HR practices are no longer restricted to large companies. They argue that small businesses are in many ways the ideal site for the development of HRM because of the direct communication, flatter hierarchy, greater flexibility and clearer impact of each employee on organizational performance.

2.2. HRM and performance in small businesses

Attempts to empirically explore the link between HRM and firm performance are numerous.

Recently published articles mainly deal with opening the black box and the generalizability to other (than Anglo-Saxon) countries. Regarding the exploration of the black box, a pile of quantitative studies has been published introducing variables that mediate the link between HRM and firm performance (Fey et al., 2000; Guest et al., 2003; Hoque, 1999; Huselid, 1995; Liouville and Bayad, 1998; Ramsay et al., 2000). Examples of these intermediate variables are voluntary turnover or absenteeism (employees' behavior), commitment or satisfaction (employees' attitudes) and quality or productivity (employees' performance). Other authors (Purcell, 1999; Truss, 2001) advocate that qualitative research is more appropriate to grasp the reality of the black box since a discrepancy between intentions of HR managers and practice, experienced by employees, might exist. Furthermore, the generalizability of the research findings has been tested using non Anglo-Saxon or US samples (Addison et al., 2000; Bae and Lawler, 2000; Guthrie, 2001; Khatri, 2000; Lee and Miller, 1999). Most of the aforementioned studies find a positive relationship between HRM intensity and performance.

Despite the pile of studies conducted in large companies, little is known about the extent to which these results are valid for small businesses. Existing research on the link between HRM and performance in small businesses primarily concentrates on the perception of managers with regard to the importance and/or success of HR practices (Cassell et al., 2002; Heneman et al., 2000; Marlow, 2000; Rowden, 2002). The main findings suggest that owners/managers recognize the need for HR practices in order to achieve firm objectives. However, the translation of this awareness into action causes problems. Other authors study the link between one HR practice and small business performance empirically. The impact of training has been studied most (de Kok, 2003; Storey, 2004). Results, however, are ambiguous (Storey, 2004; Westhead and Storey, 1996). The research of Chandler and McEvoy (2000) seems one of the most elaborate studies on the HRM-performance link within the small business context. They focused on the relationship between a TQM strategy, HR practices (training and performance based pay) and small

firm performance. They found that both HR practices play a positive and moderating role in the relationship between TQM strategy and performance.

Thus far, the (synergistic) impact of different HR practices on a firm's financial performance has never been studied within the small business context. Nor has the mediating effect of the aforementioned performance related variables (e.g. turnover, productivity) in small businesses been subject of study. Yet, small businesses represent an ideal field for studying the relationship between these variables, because of their more transparent nature (Aldrich and Auster, 1986; Katz et al., 2000).

3. Conceptual framework and hypotheses

Our conceptual framework builds on the assumptions of human capital theory. The basic premise of human capital theory implies that the productive capacity of employees can be enhanced by investing in their knowledge, skills and abilities (KSAs) (Becker, 1964). The investment in HR practices aimed at enhancing KSAs entails direct and indirect (opportunity) costs. From an economic point of view, such investments are only justified if they produce future returns in the form of increased worker productivity.

HR practices do not influence firm performance directly, but through a (causal) chain of mediating variables (Becker et al., 1997; Dyer and Reeves, 1995). The underlying idea is that performance can be differentiated at hierarchical levels, with an outcome at one level contributing to performance at the next level. Despite the inconsistency in literature concerning the number of levels and the criteria used, generic models suggest that HR practices have their most direct impact on employees' KSAs, motivation and empowerment (Delery and Shaw, 2001). A change in these features, in turn, influences productivity. This productivity increase or decrease subsequently affects firm performance.

With these basics in mind, we develop a conceptual framework representing the HRM-performance link appropriate for small businesses. First, we identify appropriate HR practices. Second, we select appropriate performance measures. Third, we relate the individual HR

practices to the different levels of performance and formulate the hypotheses to be tested.

3.1. *The identification of HR practices*

The Harvard HRM-model developed by Beer et al. (1984) guided the initial identification of relevant HR domains. We confine ourselves to six domains, each representing one of the central 'Harvard policy areas' i.e.:

HR Flows: (1) selection policy, (2) training policy, (3) career policy; Rewards: (4) compensation and (5) performance management; Employee influence: (6) direct, indirect and financial participation.

Four of the six domains match with the four HR functions proposed by Fombrun et al. (1984): selection, appraisal, reward and development. We also find support for this selection method in prior (empirical) work, identifying virtually the same HR domains (e.g. Cassell et al., 2002). Moreover, we believe that these six domains are related with Golhar and Deshpande's (1997, p. 31) assertion that '*the purpose of a good HRM program is to recruit, select, motivate and retain employees*'. We refer to the 'measures' section for the operationalization of the six HR domains.

3.2. *The identification of performance measures*

The selection of performance measures is rarely adequately substantiated in HRM-performance studies. The appropriateness of performance measures varies with the level of analysis, but anyhow the focus should be on measures having inherent meaning for a particular research setting (Becker and Gerhart, 1996). In order to identify the criteria to assess firm performance, we need to take both factors into account.

Our central question is whether the development of an intensive HRM is profitable for smaller organizations. Therefore, we study both HRM and performance on the organizational level and choose measures that make it possible to pronounce upon the effectiveness of an intensive HRM. As mentioned before, firm performance can be differentiated at hierarchical levels. We opt to introduce three levels: (1) behavioral outcomes (voluntary turnover); (2) employees'

performance (labor productivity) and (3) higher level firm performance (financial performance). We elaborate on each of these levels.

Voluntary turnover in small businesses. Several studies concluded that retaining employees is one of the biggest problems small firms have to cope with (Golhar and Deshpande, 1997; Hornsby and Kuratko, 1990). Small firms run up against difficulties to compete with large companies when it comes to employment conditions. Moreover, a high level of voluntary turnover increases costs (e.g. replacement costs, other employees work overtime, etc.) and can generate a (temporary) decrease in productivity (Guthrie, 2001; Shaw et al., 1998). The research into the determinants of voluntary turnover indicates that specific HR practices can push down voluntary turnover, e.g. by influencing the pay level, career and training opportunities, employee participation (Shaw et al., 1998; Steel et al., 2002).

Labor productivity in small businesses. Labor productivity is a central concept of human capital theory (Becker, 1964). Especially in Western countries, both labor and capital productivity are seen as the driving forces of the economy. As large companies are often said to have better access to capital and technology, labor or human capital can become very important for small firms in their striving for survival and to compete with their larger counterparts. Following human capital theory, we assume that HRM can influence productivity by changing employee competencies and levels of motivation which may result in a quicker and/or better execution of the business process (Bartel, 1994; Koch and McGrath, 1996).

Financial performance in small businesses. We assume that not every small company has the ambition or the desire to grow (Brytting, 1991; Heneman et al., 2000). Given the higher risk of failure in small businesses (Graydon, 2001) survival is the primary concern for most of them. Moreover, the danger of lacking the necessary financial or human resources needed for growing, explains why a considerable number of small businesses choose not to pursue growth (Binks and Ennew, 1996). The challenge is thus to identify measures of financial performance that sufficiently reflect survival chances, in terms of corporate health and long-term success (Holloway et al.,

1995). Several authors plead for a dynamic view of performance, using growth related measures (Lee and Tsang, 2001; Wijewardena and Tibbits, 1999). Although we recognize the usefulness of dynamic measures in the context of larger firms quoted on the stock exchange, we prefer a static measure reflecting survival and profitability instead of growth in the context of small businesses.

We deduct our small business financial performance measures from bankruptcy prediction models (Maes et al., in press). These models assume that the progress of at least the following four parameters must be monitored in order to obtain a sufficiently sound state of financial health: the share of personnel costs in the value added, profitability, liquidity and solvency. The value added is the difference between total operating results and the cost of the goods and services provided by third parties (external costs), necessary for achieving results. This value added is used to pay for internal production factors: labor (wages), the use of sustainable means of production (depreciation) and capital (interest charges and profit). The higher *the share of personnel costs in the value added*, the smaller is the margin to pay the financiers (e.g. bank, owner) and safeguard the financial health in the future (e.g. reserves). *Profitability* reflects financial performance in the narrow sense, in particular the ability to yield a return on investment. *Liquidity* relates to the settlement of short-term debts. A company will face financial problems if the funds are not available to pay off these debts. In the case of small businesses struggling to survive, liquidity is a very important indicator of the state of financial health. *Solvency* indicates the financial strength of the company in the longer term and says something about the extent to which the organization is equipped to face business

risks. The higher the solvency, the more substantial the buffer for difficult times.

It has been argued that financial performance lies at a distant end of the HRM-performance chain. We therefore use one year lagged measures of financial performance. This built-in time lag is important because we depart from annual financial statements, which are a reflection of the accounting situation of the firm. In practice, many activities and practices do not affect in a considerable degree the accounting situation of the year in which the activities took place, but rather the year after (Maes et al., In press). As voluntary turnover and productivity are more closely linked to HRM, we opt for indicators measured in the same year as HRM intensity.

3.3. Linking HRM and firm performance in small businesses: hypotheses

Our conceptual framework is depicted in Figure 1. We elaborate on this model in three consecutive steps. First, we develop our hypotheses regarding the effect of HRM intensity on productivity. Second, we explain the link between productivity and financial performance. In a third step, we hypothesize the total effect of HRM intensity on financial performance.

HRM intensity and productivity. We assume that HRM intensity can influence productivity *directly*, by changing employee competencies and levels of motivation resulting in a quicker/better execution of the business process (Bartel, 1994; Koch and McGrath, 1996). We give some examples of HR practices that proved to have an impact on productivity in prior empirical research. Training has probably been examined most as driver of productivity, both in human capital and economic theory (e.g. Acemoglu and Pischke, 1998). Studies show a positive impact on

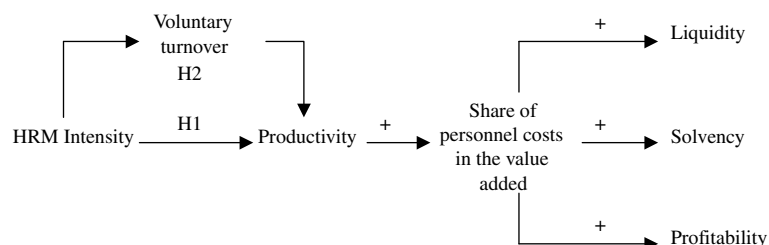


Figure 1. HRM and financial firm performance in small businesses: hypothesized model.

productivity (Bartel, 1994; Black and Lynch, 1996). A second example is compensation. Offering high wages and benefits can improve productivity by facilitating both the attraction and retention of a superior workforce (Shaw et al., 1998). In addition, the use of performance related pay has been put forward as a productivity enhancing mechanism steering employees' behavior into the desired direction (Lazear, 2000). Furthermore, the use of selection techniques that are associated with high predictive validity can facilitate the detection of highly productive employees and the optimization of the person-job-organization fit (Hunter and Hunter, 1984). Career paths, in turn, can be mapped out in such a way that they produce a progressive improvement in KSAs thereby striving for an increase in both efficiency and productivity. In smaller organizations, characterized by organic structures and flexible job descriptions, this development function can also be achieved by broadening the opportunities for horizontal mobility. Finally, results of studies on the relationship between financial participation and productivity strongly point to a positive link between both variables (Weitzman and Kruse, 1990). Profit sharing is particularly encouraged as an instrument for harmonizing the interests of employees, management and shareholders and induces greater productivity through effects on corporate culture, company spirit, group cooperation and social enforcement mechanisms (Shepard III, 1994). This results in our first hypothesis.

Hypothesis 1: HRM intensity has a direct positive effect on productivity.

In addition, we assume that HRM intensity can *indirectly* impact productivity through reduced voluntary employee turnover (D'Arcimoles, 1997; Dess and Shaw, 2001; Guthrie, 2001; Shaw et al., 1998). Research indicates that specific HR practices can reduce voluntary turnover (Shaw et al., 1998; Steel et al., 2002). This decrease in voluntary turnover subsequently has a positive effect on productivity. Training can enhance job satisfaction or commitment and subsequently decrease turnover intention (Tett and Meyer, 1993). Performance related pay, in turn, can function as a simple recognition system, decreasing voluntary turnover intention among high performing employees (Rob-

erts et al., 1999). The prospect of a career may have a motivating effect and reduce voluntary turnover. A necessary condition, however, is the consistent application of transparent selection criteria to avoid feelings of injustice or alienation from the organization (Pfeffer, 1994). Finally, profit sharing and forms of structural participation are associated with an enhancement of organizational citizenship, job involvement and intensive cooperation, which subsequently impact on voluntary turnover. This results in hypothesis two.

Hypothesis 2: HRM intensity has an indirect positive effect on productivity by lowering the voluntary employee turnover rate.

Productivity and financial performance. Productivity serves as an important mediator between HRM intensity and financial performance. In modeling the link between productivity and financial performance (liquidity, solvency and profitability) the *share of personnel costs in the value added* plays a central role. All other things being equal, the share of personnel costs in the value added decreases as productivity increases. Higher productivity entails a higher value added with the same number of employees. The part of the value added remaining after subtracting the personnel costs serves at compensating the other factors in the company. The higher this remaining part (or the lower the share of personnel costs in the value added), the higher the margin that can be used in order to have sufficient liquidity and solvency and the more can be paid out to the owners (profitability; ROE).

HRM intensity and financial performance. In summary, the model, visualized in Figure 1, departs from HRM intensity. HRM intensity is linked to voluntary turnover and productivity. Productivity is directly linked to the share of personnel costs in the value added (cf. supra). The lower the latter is, the higher the margin for safeguarding corporate financial health, in terms of profitability, liquidity and solvency. This results in our third hypothesis.

Hypothesis 3: HRM intensity has positive total effects on profitability, liquidity and solvency. These effects are mediated by voluntary turnover, productivity and the share of personnel costs in the value added.

4. Sample and procedure

The data come from a survey of organizations with 10 to 100 employees. Companies were selected from the Belfirst data file. This file contains information from certified financial statements. This enabled the survey results to be extended by data on operational and financial performance of the year in which the survey has taken place (1999) as well as the previous (1998) and the following (2000) year.

An economy-wide and disproportionally stratified random sample was chosen, with age and size as stratification variables. As far as age is concerned, a distinction was drawn between companies in existence for between 1 and 5 years, 6 to 10 years and 11 years or longer. Three strata of company size were identified: 10–19, 20–49 and 50–99 employees.

Most HRM studies use the HR manager as the respondent. In this survey, the business manager was targeted. The simple management structure of a smaller organization implies that this manager often has a clear view of the various management practices. This partly explains the low item non-response in this study. The questionnaires were distributed by post, with intensive telephone follow-up. This produced a total of 416 units (28% response). In order to investigate any problems involving self-selection and sample bias, the response and non-response were compared at various ratios in conjunction with value added, profitability, solvency and liquidity. No significant differences were noted between the two groups for any of these ratios.

5. Measures

We start with a clarification of the logic behind the selection of HR practices. Subsequently we describe the indicators of performance. We end with a brief overview of the control variables introduced in the theoretical model.

5.1. HRM intensity

Training. We use three indicators to measure how intensively organizations engage in training: whether or not company training is provided for operational staff (indicator 1); whether or not the

training policy is rooted in a strategic training plan and training needs analysis (indicator 2); and whether or not attention is devoted to evaluating training efforts (indicator 3; see Kirkpatrick, 1998; Sels, 2002). This approach allows to differentiate not only training from non-training companies, but also to distinguish between ‘*ad hoc*’ training suppliers (only scoring on the first indicator) and training companies developing a fully-fledged training cycle (integrating planning, action and evaluation).

Selection. We look at the use of selection techniques that are associated with high predictive validity (indicator 1; see Hunter and Hunter, 1984) and examine the presence of procedures to forecast supply-demand imbalances (indicator 2). With regard to the latter, research indicates that much significance should be attached to the development of transparent procedures which provide a thorough preparatory phase (job analysis, personnel planning) (Iles and Robertson, 1997). In line with our selection of training-related HR practices, we do not confine ourselves to the planning and action stages, but also look at whether the company evaluates the effects of recruitment and selection processes (e.g. utility analysis) (indicator 3).

Compensation. Since we had no indication of wage levels, we used the number of benefits allocated over and above wages as a proxy (indicator 1). In addition, we assessed the presence of structural and incidental forms of incentive pay. Various HRM models advocate using bonuses for special performances (indicator 3) or a variable performance-related share (indicator 2) on top of a sufficiently high wage (Gerhart and Milkovich, 1992).

Careers. As a first indicator we included the importance of internal labor markets (indicator 1). The presence of an internal market can have a motivational function under certain conditions. Because these conditions relate to the consistent application of transparent selection criteria, our second indicator measures whether or not a system of potential review is used (indicator 2). Finally, the opportunities for horizontal mobility (indicator 3) can enhance the developmental function of internal labor markets, especially in smaller organizations.

Performance management. We examine the presence of both reward reviews (indicator 1)

and performance reviews (indicator 2) (Sparrow and Hiltrop, 1994). Reward reviews relate to the allocation and attribution of rewards and benefits to a particular individual (compensation, status, etc.). They correspond with the aim of control and management and can generate a stronger orientation towards preconceived goals. Performance reviews are concerned with the development and motivation of staff by specifying the areas that are important to the performance of individuals and how well they are doing. However, the chance of success depends on the use of a transparent appraisal procedure, which can be important for perceptions of justice. Therefore, we include the use of a transparent appraisal procedure (indicator 3).

Participation. We draw a distinction between structural and financial participation. Structural participation implies the direct or indirect involvement of employees in decision-making processes. Indirect participation refers to employee involvement via delegation (i.e. works' council). Smaller organizations in Belgium are not obliged to use trade unions as a channel for indirect participation. Recognition of this trade union as an interlocutor (indicator 1) can, as a result, form an indication of an active participation policy. Direct participation indicates the presence of shop-floor initiatives, making it possible to consult employees or to delegate power (self-management) (indicator 3). Direct participation is put forward in organizational commitment literature as a practice encouraging the active utilization of human potential and, therefore, also possibly affecting motivation and involvement (Gallie et al., 2001). Finally, financial participation (indicator 2) implies that employees share in the company's profits. Shareholding is particularly encouraged as an instrument for harmonizing the interests of employees, management and shareholders and thus exerting an effect at the level of involvement or organizational citizenship. The positive effects of financial participation are also visible at the level of closer cooperation (willingness to exchange information) (Lawler III, 1999).

Whereas in most studies the HR domains listed are only indicated by one practice, we have chosen to select three HR practices per domain. By doing so, we are able to capture a wider variety

of HR practices. Moreover, we are concerned with the question how thoroughly (intensively) the respective domains are elaborate in the firm. This *modus operandi* puts HRM intensity in a far more central position and leaves room for gradual differences between organizations. Each of the 18 practices is constructed in the form of a binary variable, where 0 indicates the absence and 1 the presence of the practice. Scores can be calculated per domain, on a scale of 0–3, with 0 as a value if the organization does not apply any of the domain practices and 3 if the organization applies all three practices. Table I presents the measures we used for each of the 18 individual HR practices.

In an initial path analysis, the six domains (each with the “0–3” scale) were individually included in the analysis. The covariances between these domains proved to be extremely high. Table II confirms that the six domains load together on one factor (Cronbach alpha 0.78), suggesting that organizations adopt these HR domains simultaneously. Therefore we combined the 18 practices into one index (on HRM-scales versus indexes, see Delery, 1998). Based on the index score, organizations may range from those making no use of the selected HR practices to those using *all* of the practices.

5.2. Performance measures

Voluntary turnover. The voluntary turnover rate is measured by the number of departures at employees' initiative in 1999 in proportion to the average number of staff in 1999.

Labor productivity. As an indicator for labor productivity we use the value added per member of staff in 1999.

Financial performance. A first measure is the *share of personnel costs in the value added*. Since the value added remaining after deduction of personnel costs must be sufficient to pay for investments, interest, taxes and returns for the owners, the share of the personnel costs (remuneration, social security charges, non-statutory benefits) in the value added may not be excessively high. A maximum of 85% is often suggested (Maes et al., 2001). The ratio for *profitability* used is the *net profitability of the capital and reserves*. This ratio compares profit

TABLE I
Summary of HR practices (measures)

HR domains	Indicator 1	Indicator 2	Indicator 3
Training	<i>Provision of training</i> In 1999 the company provided training for its operational staff No = 0; Yes = 1	<i>Dedication to training plan</i> The company has a strategic training plan No = 0; Yes = 1	<i>Evaluation of training effects</i> Extent to which reactions, learning, behavioral and performance effects after company training are measured. 10-point scale (≤ 4) = 0; (> 4) = 1 (median)
Selection	<i>Types of selection technique</i> Predictors with high predictive validity are used (work sample tests, assessment centre, biographical questionnaire) No = 0; Yes = 1	<i>Forecasting of supply-demand imbalances</i> Examination of how many and what types of recruitment are needed in the medium term (approx. 1 year) No = 0; Yes = 1	<i>Evaluation of recruitment and selection process</i> The recruitment and selection activities of the company are systematically evaluated No = 0; Yes = 1
Compensation	<i>Benefits</i> Number of extra benefits which the company offers its employees 0 to 4 = 0; 5 or more = 1 (median)	<i>Performance-related pay</i> Part of the wage of blue and/or white-collar workers depends on individual performances or merit No = 0; Yes = 1	<i>Occasional bonus</i> Employees receive an occasional bonus, e.g. following an improvement in results No = 0; Yes = 1
Careers	<i>Internal labor market</i> The company offers operational staff the possibility of attaining a higher hierarchical level No = 0; Yes = 1	<i>Potential reviews</i> Appraisal system related to succession planning, concerned with what an individual will be capable of doing in the future No = 0; Yes = 1	<i>Horizontal mobility</i> The company offers operational staff the possibility of becoming active in other functional domains at the same level No = 0; Yes = 1
Performance management	<i>Reward reviews</i> Appraisal procedure that relates to the allocation and attribution of awards, rewards and benefits No = 0; Yes = 1	<i>Performance reviews</i> Appraisal procedure aimed at the development and motivation of staff by looking at how well he or she is doing No = 0; Yes = 1	<i>Evaluation system</i> Use of a system which specifies procedure and criteria for the appraisal process No = 0; Yes = 1
Participation	<i>Indirect participation</i> Trade union representation present (whether or not in the form of a trade union delegation) No = 0; Yes = 1	<i>Financial participation</i> Blue and/or white-collar workers share in the profits or can participate financially in the company No = 0; Yes = 1	<i>Direct participation</i> Extent to which, e.g. via consultation, consideration is given to employees' opinions 10-point scale (< 7) = 0; (≥ 7) = 1 (median)

(after interest payment) with the capital and reserves and therefore illustrates the profitability for shareholders or owners. We selected the *acid test* or *quick ratio* as an indicator of *liquidity*. This ratio illustrates liquidity in the narrow sense, excluding the value of stocks (which is important in a multiple sector setting) (Elliott and Elliott, 2002). Only the assets which can be most quickly converted into cash are expressed

with respect to debts of at most one year. In this sense, the ratio produces a picture of the extent to which a company can redeem short-term debts, using immediately available funds, without having to make use of external funds (loans) or reserves. A ratio that functions as a warning light with regard to *solvency* is the *degree of auto-financing*. This ratio illustrates the relationship between reserves and results carried

TABLE II
Factor Analysis: HR domains ($n = 385$)

	HRM intensity
Training policy indicators	.687
Selection policy indicators	.598
Compensation policy indicators	.643
Career policy indicators	.729
Performance management indicators	.719
Participation policy indicators	.611
Reliability analysis (Cronbach alpha)	.7817

All items scored on 4-point scale (no practices applied from the domain to all practices applied from the domain). Extraction method: principal component analysis; varimax rotation.

over on the one hand (the numerator) and total assets on the other hand (the denominator). A sufficient degree of auto-financing can be considered as vital for small businesses (Maes et al., 2001). The aforementioned measures reflect the financial performance in 2000.

5.3. Control variables

Four control variables were included in the analyses. Because of potential industry differences in productivity, analyses in this study controlled for *sector*. Dummy codes representing four industries were created: construction sector, industrial sector, service sector, trade sector. Dummy coding is necessary when bringing in nominal variables in path analysis (Hatcher, 1994). The construction sector was used as our point of reference. Although we only focus on small businesses, we included *firm size* (number of employees) as a control variable. The use of HR practices as well as the level of turnover and productivity may differ between companies with 10 employees and those with 100 employees. As Guthrie (2001) explained, larger organizations may be more likely to use sophisticated HR practices. Their greater internal labor market opportunities may lead to lower levels of voluntary turnover. The *age* (number of years since start-up) was included to control for any advantages associated with increased time for the evolution or adoption of HR practices or learning curve advantages in productivity (Guthrie, 2001; Harel and Tzafrir, 1999). Finally, we introduced *past performance*

(profitability in 1998). After all, HR practices can be self-reinforcing (Miles and Snow, 1978). If a particular practice leads to higher profitability, then this profitability might encourage the containment or further development of this practice, or even the introduction of new practices (Maes et al., in press). By introducing past performance, we partially counter the causality problem.

6. Method

In Table III, we begin with a summary of some descriptive statistics. We see that the average score for HRM intensity is 7.2 on a maximum of 18 (6 domains, each with 3 dummy-coded practices). This means that the average organization uses not even half of the HR practices examined. The correlations give a first confirmation of hypothesis 1. We see that HRM intensity is positively related to productivity. The correlations with voluntary turnover and financial performance measures, however, do not prove significant.

In order to test the hypotheses, we used structural equation modeling with manifest variables (path analysis). Compared to ordinary linear regression models, this technique has two major advantages. First and foremost, the method enables paths or relationships between the different variables to be defined and tested. The output of the technique indicates whether the model is supported by the data as a whole and gives a significance test for the various individual paths. Secondly, a variable in a path model can be either a dependent or an independent variable. This has the advantage of allowing us to test the mediating influence, if any, of certain variables. The path model of Figure 1 (see 'Conceptual framework and hypotheses') is tested using the CALIS procedure (SAS). In evaluating this theoretical model, we considered four goodness-of-fit measures (Hatcher, 1994).

The goodness-of-fit overview (Table IV) indicates that the theoretical model is not adequately supported by the data. Two paths had to be added while optimizing this model: a direct link (1) between HRM intensity and personnel costs/value added and (2) between HRM intensity and profitability. Both paths can be accounted for theoretically and are very important for the fur-

TABLE III
Descriptive statistics

	Mean	s.d.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) HRM intensity	7.2	3.8	1.00						
(2) Voluntary turnover	11.1%	14.1	−0.04	1.00					
(3) Value added per member of staff	2212	1286	0.17 **	−0.08	1.00				
(4) Personnel costs over value added	72.6%	20.7	0.012	−0.06	−0.56 ***	1.00			
(5) Acid ratio test (liquidity indicator)	1.2	0.94	−0.02	0.04	0.13 *	−0.10	1.00		
(6) Degree of auto-financing (solvency indicator)	17.6	21.2	−0.07	0.01	0.20 ***	−0.29 ***	0.53 ***	1.00	
(7) Net profitability over capital and reserves	3.7	74.9	0.07	0.07	0.10	−0.26 ***	0.08	0.22 ***	1.00

* $P < 0.05$;** $P < 0.01$;*** $P < 0.001$.TABLE IV
Goodness-of-fit measures

	Theoretical model	Optimized model
Bentler's comparative fit index	0.83	0.99
Bentler and Bonett's non-normed index	0.06	0.96
Bentler and Bonett's normed fit index	0.82	0.98
Chi-square test (P -value)	< 0.001	0.24

ther discussion of the HRM-performance relationship. The optimized model contains no residual values that significantly differ from zero and the goodness-of-fit measures (Table IV) indicate that the optimized model is effectively supported by the data.

Below we interpret and explain the effects. First we look at the direct and indirect impact of HRM intensity on productivity. Subsequently, the link with financial performance indicators is covered.

7. Results

The standardized path coefficients are listed in Table V. The results of the test of the optimized model are also represented in Figure 2. The control variables have been omitted in this graphical representation in order not to overload the figure.

7.1. The impact of HRM intensity on productivity

Table V points to HRM intensity having a strongly positive impact on productivity (cf. Huselid, 1995). Thus, hypothesis 1 is supported. One general explanation is that the introduction of certain HR practices achieves an improved fit between the individual and the job and between the individual and the organization. This employee/job/organization match can result in higher job satisfaction, greater motivation and close involvement with the job and the organization. This can benefit productivity. The relationship is easier to understand if individual practices are examined. For instance, selection aims at predicting future worker behavior. If predictive validity is high, good test scores correlate with better job performance after recruitment. The use of more valid tests can, in this sense, be translated into the recruitment of

TABLE V
Standardized path coefficients (* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$)

Path from/to	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) HRM intensity		-0.01	0.12 **	0.11**			0.11 *
(2) Voluntary turnover			-0.03				
(3) Productivity				-0.57 ***			
Financial performance							
(4) Personnel costs/ Value added					-0.12 *	-0.18 ***	-0.29 ***
(5) Liquidity						0.46 ***	
(6) Solvency							
(7) Profitability						0.15 ***	
Control variables							
(8) Size	0.28 ***	-0.04	0.02	0.06	-0.07	-0.08	-0.05
(9) Age	-0.11 *	-0.08	0.07	-0.04	0.10	0.27 ***	-0.05
(10) Service sector	0.15 **	0.13 *	0.13	-0.06	-0.02	-0.03	-0.16 **
(11) Trade sector	0.20 **	-0.05	0.28 ***	-0.05	-0.21 **	-0.06	-0.16 **
(12) Industrial sector	0.16 **	-0.08	0.16 **	-0.12 *	-0.15 *	-0.14 **	-0.09
(13) Past performance	0.12 **	-0.20 ***	0.16 **	-0.05	0.06	0.11 **	-0.08

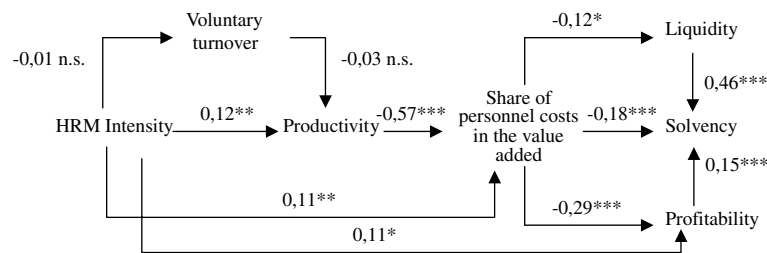


Figure 2. HRM and financial firm performance in small businesses: model with standardized path coefficients (represented without control variables) – (* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$; n.s. = not significant).

employees who demonstrate on average higher productivity (Holzer, 1987). Training can also be a mechanism for a better alignment of the skills required and offered. This fit will probably be translated into higher productivity (Bartel, 1994).

The results show a negative impact of HRM intensity on voluntary turnover. We also notice a negative effect of voluntary turnover on productivity. However, both relations are not significant. Hypothesis 2 is therefore not supported. This can partially be explained by the labor market situation at the time of the survey. The extreme shortage of qualified staff gave rise to high labor mobility. It is possible that this shortage was so

extreme that efforts at the level of retention management produced hardly any results, especially not in smaller companies which cannot compete with the labor conditions of the major players. The pull factors (tempting signals from larger and/or older companies) could be so strong that investment in retention-oriented HRM was not recouped by lower voluntary turnover.

We expected that higher voluntary turnover would lead to lower productivity. Not finding suitable replacement in time can temporarily lead to lower productivity. High turnover costs (e.g. costs of intensive training, induction time, socialization, supervision of replacements) can reinforce this effect. To a certain extent, the notice period

of the departing employee is a buffer against this. Nonetheless, lower productivity can also occur while this employee is 'waiting out' the notice period (lower motivation). We indeed find a negative link, although it is not significant. The large number of unfilled vacancies in the organizations surveyed can possibly explain this. If replacements are difficult or impossible to find, companies can be encouraged to carry out the same work using fewer staff, by reallocating employees and redesigning the organization of work. This can increase productivity. The organic structure of smaller organizations often makes this kind of flexible redesign possible.

7.2. *The impact of productivity on financial performance*

Higher productivity implies that more value added is generated using the same number of employees. Since personnel costs remain (approximately) constant for the same number of employees, a rise in productivity implies a fall in personnel costs/value added. This explains the negative link between the two variables (Table V). This link is strongly supported by the data.

In combination, profitability, solvency and liquidity are an indicator of the health and chances of survival of a company. A decrease in the share of personnel costs/value added will impact this financial performance positively. The higher the value added remaining after subtracting the personnel costs, the higher the margin that can be used in order to safeguard liquidity and solvency and the more that can be paid out to the owners (profitability). These propositions are each of them supported by the data (Table V).

Thus, investments in HRM impact financial health since (1) HRM intensity stimulates productivity, (2) increased productivity lowers the share of personnel costs/value added and (3) this reduction in personnel costs/value added boosts profitability, solvency and liquidity. Hypothesis 3 is supported. However, this line of reasoning only forms part of the total picture. This becomes obvious when we focus on the direct links between HRM intensity on the one hand, personnel costs/value added and profitability on the other hand.

7.3. *The impact of HRM intensity on financial performance*

HRM intensity and personnel costs/value added. In addition to the earlier described indirect link between HRM intensity and personnel costs/value added (via productivity), we also observe a direct link. This is one of the paths we added while optimizing the model. The more HR practices are introduced, the greater the share of personnel costs in the value added. HRM intensity can indeed generate both direct and indirect costs. Starting up a personnel department or recruiting a HRM officer increases personnel costs. The introduction of performance-related pay or non-statutory benefits directly increases costs. After all, these constitute part of personnel costs for accounting purposes. Indirect effects are also present. Sending an employee to training does not directly lead to an increase in accounting personnel costs, but leads to a reduction in value added because the employee makes very few, if any, products for a certain time. The cost of external training can also be reflected as a decrease in value added.

These indications of a cost-increasing effect of intensive HRM are consistent with the results of Cappelli and Neumark (2001). These authors found that high performance work practices may raise productivity slightly, but also raise labor costs. In our sample this effect is so strong that it completely cancels out the previously described negative impact on personnel costs/value added through increased productivity. This is indicated in Table VI, which contains the total effects of HRM intensity on the different performance outcomes. If we calculate the total effect of HRM

TABLE VI
Total effects of HRM intensity on different levels of performance

Performance outcome	Total effect of HRM intensity on outcome
(1) Voluntary employee turnover	-0.01
(2) Productivity	0.12
(3) Personnel costs/value added	0.04
(4) Liquidity	-0.005
(5) Solvency	0.006
(6) Profitability	0.10

intensity on the share of personnel costs in the value added – the combination of the positive direct and the negative indirect effects – we then achieve an effect of approximately 0.04. HRM critics will lose no time in referring to a *zero sum game*. After all, the cost increasing effect of intensive HRM not only cancels out the productivity gains mentioned earlier, but at the same time affects the (indirect) impact on important financial parameters such as liquidity and solvency. Table VI shows that the total effects of HRM intensity on liquidity and solvency are very close to zero (−0.005 and 0.006, respectively). In other words, building out an intensive HRM increases costs and does not affect the liquidity and solvency position of the company.

HRM intensity and profitability. The previous argumentation suggests that there is no return on investment in HRM for smaller organizations. However, the final evaluation turns out to be positive once we take the direct effect of HRM intensity on profitability into account. In addition to the already mentioned indirect effect of HRM intensity on profitability we also observe a direct effect (Table V; Figure 2). This effect had to be added during the analysis while optimizing the model.

This direct effect implies an impact of intensive HRM not only by increasing productivity. The deployment of HR practices also affects profitability in other ways. We can assume that this direct relationship is a combined representation of all HRM effects that are not expressed via productivity and/or value added. After all, productivity is only one operational performance outcome that can be influenced by HRM. Other operational outcomes include, for example, the innovation rhythm, the quality of the product or service obtained, customer satisfaction, lead time, on-time delivery and so on (Peccei and Rosenthal, 2001). In this sense, the explanatory model remains incomplete. It is a complex process to develop criteria for a cross-sector survey which enable the standardized measurement of all operational performance measures mentioned. The social climate or the numbers of conflict are also not included, even though previous research has demonstrated the relevance of these types of effects (Katz et al., 1985). The effect on profitability therefore represents a combination of

effects that are produced through non-measured operational performance outcomes.

We learn from Table VI that the integration of both the direct and indirect effects on profitability ends up with a strong and positive total effect of HRM intensity on profitability. This is in line with hypothesis 3. The total effect amounts to 0.10, which indicates that for every unit of increase on the HRM intensity scale, we obtain an average increase in profitability of about 10%.

8. Discussion

We have demonstrated in this paper that intensive HRM can offer surplus value for small businesses. This conclusion is in line with prior empirical work on this topic in larger companies. In this closing discussion, we focus on the contributions and limitations of this study and make some suggestions for future research.

In this paper we tested whether the research findings on the HRM–performance relationship can be generalized to smaller organizations. The conceptual framework was developed based on human capital theory and bankruptcy prediction models, thereby taking the specific small business context into account. The results show that HRM intensity has a strong positive effect on productivity and, through this productivity, a squeezing effect on personnel costs/value added. However, this effect is not strong enough to compensate for the cost increases which HRM intensity involves. On the other hand, the total effect of HRM intensity on profitability is positive and very strong. This effect can be explained by the positive impact of HRM intensity on some non-measured operational performance outcomes such as a lower level of disputes, better quality and/or more innovation. A last important observation is that the positive impact of HRM intensity on profitability is not at the expense of a deteriorated solvency and liquidity score.

The findings however should be interpreted within the context of their limitations. First, we only studied Belgian small businesses and are thus unable to pronounce upon the extent to which these results can be generalized to small companies in other countries.

Second, based on the analysis demonstrated, we can say something about the surplus value of HRM intensity in general terms. We do not yet know whether some individual practices have stronger effects than others, how each of the individual practices affects performance, and whether complementarities or synergistic interdependent relationships (“powerful connections”) among such practices can further enhance organizational performance (Delaney and Huselid, 1996; Delery, 1998). We have however learned much about the contribution of individual HR domains and practices to productivity and financial performance from a long series of more detailed path analyses (Faems et al., in press). A first conclusion from these analyses is that there are strong effects for most individual HR domains (with top positions for compensation, performance management and training). A second observation is that the paths of influence differ according to the specific HR domain under consideration. A third remark is related to the effects of individual HR practices. While strong main effects are measured for certain HR practices, other practices only affect performance in interaction with one another. For example, we see that providing training only has an effect if it is rooted in strategic training planning and managed by intensive efforts at the level of needs detection. The example indicates that it would be worthwhile devoting more attention both to the contribution of individual practices (controlled for other HR practices) and to the strength of bundles of practices (Ichniowski et al., 1997).

Third, we examined the effect, in all organizations, of an identical set of HR practices and did not look at the additional performance effects of a strong vertical fit between HRM and business strategy, nor at the importance of HRM intensity in the different stages of a small business’ life cycle. While our results indicate the overall importance of HR practices, future research could test the importance of strategic alignment of the HR system in small businesses. In addition, further research may also lead to stimulating questions regarding the surplus value of HRM investments in the different stages of the life cycle. In models such as that of Churchill and Lewis (1983), it is assumed that organizations progress through different stages of life (conception, survival, growth, expansion, matu-

rity) and that the intensity and nature of the contribution to the chances of survival made by various functional business domains fluctuates depending on the stage (Kazanjian, 1988; Milliman et al., 1991).

One last point for discussion relates to the constantly recurring problem of reversed causality. It is indeed not inconceivable that the performance of the company will give rise to change – often even improvement – in HR practices. In other respects, it is quite possible for the direction of the causality to differ depending on the HR practice and the performance criterion under consideration. Despite the use of one year lagged financial performance indicators, the control for past performance and structural equation modeling, the cross-sectional nature of the data still leaves some room for interpretation.

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