The Effect of Firm Resources on Business Performance of Male- and Female-Headed Firms in the Case of Lao Micro-, Small-, and Medium-Sized Enterprises (MSMEs)

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ABSTRACT

Resource-based view (RBV) is a popular theory that explains the resources of business firms. Because this theory can be useful for practitioners and academicians in management fields, this study adopts the concept of RBV and Grant (2002) to analyze the success of firms. More specifically, RBV theory can assist firms in selecting key resources and formulating the strategy for deploying these resources to gain competitive advantage. In this connection, the relationship between firm resources and firm performance has been widely investigated in the field of management. There is little knowledge, however, on this issue with regard to the Lao People’s Democratic Republic (PDR), particularly for micro-, small-, and medium-sized enterprises (MSMEs). This paper applies the concept of RBV to different gender-headed firms in an effort to examine whether male-headed firms out-perform female-headed firms in Lao MSMEs. Moreover, it investigates the effects of firm resources (human, intangible, and tangible resources) on the performance of both gender-headed firms. The sample consists of 840 observations. The ordered probit models are used to test the performance of male- and female-headed firms for the Lao MSMEs. The empirical results show some differences and similarities that are consistent with previous literature on the subject of Lao MSMEs.

Keywords: RBV, firm resources, human resources, intangible resources, tangible resources, male- and female-headed firms and performance
1. INTRODUCTION

Since 1986, the Government of the Lao People’s Democratic Republic [PDR] has adopted a ‘new economic mechanism’ and has moved to a market-oriented economy incorporating market reforms designed to integrate into a regional global economy. In order to achieve these objectives, the Government of Lao (hereinafter, GoL) has implemented several mechanisms to promote both small- and medium-sized private sector enterprises since the private sector has emerged as a significant force in the economic development of Lao PDR. The Government has carried out a number of development projects involving several sectors such as credit and income generation, health care, education and infrastructure development, in order to increase the benefits of market reforms for both females and males.

Government laws and regulations encourage females to engage in any business of their choosing. Article 37 of the Constitution of the Lao PDR states, “Citizens of both genders enjoy equal rights in the political, economic, cultural, and social fields and in the family” (Lao National Assembly, 2003). Compared with their male counterparts, however, female entrepreneurs do not seem to enjoy the full benefits of market reforms, as they have encountered a number of obstacles including lack of knowledge of business, laws, and regulations, and a lower level of education attainment. Furthermore, most females are not aware of their legal rights, which could be due in part to illiteracy issues, especially among poor and uneducated females (ILO & GRID, 2006).

To analyze the issue of gender with regard to business performance, we apply the concept of RBV, which the literature shows to be a useful tool to investigate the relationship between firm resources and firm success. This relationship has been widely explored in management fields. To our knowledge, however, hardly any research has been undertaken regarding the application of RBV to the effect of firm resources on the performance of both gender-headed firms, particularly in Lao PDR. This study aims, therefore, to provide good knowledge regarding firm resources as influential factors in the performance of male- and female-headed firms through both qualitative and quantitative results. Our study not only provides a self-check on current male and female entrepreneurs, but also increases male and female participation in entrepreneurship through a better understanding of the determinants of business performance specifically in the Lao context. Such an understanding can be the prerequisite for Lao male and female entrepreneurs to succeed in their businesses which are of critical importance in an increasingly competitive business environment.

The present study adopts the concept of RBV under the condition of Lao micro-, small-, and medium-sized enterprises (MSMEs). The objectives of the study are to investigate whether male-headed firms (henceforth, MHFs) perform better than female-headed firms (henceforth, FHFs), and to examine the relationship between firm resources (human, intangible, and tangible) and the performance of MHFs and FHFs. The results are presented in this paper, which is
organized into six sections – introductory remarks (Section 1); conceptual framework (Section 2); literature review and hypotheses development (Section 3); research methodology (Section 4); data analysis and discussion (Section 5); and conclusions and policy implications (Section 6).

2. CONCEPTUAL FRAMEWORK

The conceptual framework provides a snapshot of the objectives of this study. We have drawn the framework from the concept of RBV and Grant (2002) to develop the theoretical explanation underlying the causal relationships between firm resources and the performance of MHFs and FHF (Figure 1). The framework is based on the assumption that, if MHFs and FHF control similar resources, they can expect to have similar outcomes. We hypothesize on whether there is a gender difference in the performance for Lao MSMEs and we test the impact of the human, intangible, and tangible resources of MHFs and FHF on firm performance.

3. LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

This section presents a review of literature and the development of hypotheses relating to gender and firm performance, firm resources and firm performance, firm performance, and control variables.

3.1. Gender and Firm Performance

This paper applies the concept of RBV to examine whether there is a causal relationship between different opportunities to control important resources, and to observe strategy approaches by genders that can affect their performance. Several types of firm resources are discussed in-depth.

Male entrepreneurs have attained superior performance compared with their female counterparts. This is partly because MHFs are capable of controlling various forms of firm resources. Liberal and social feminist theories suggest that female entrepreneurs are reluctant to grow their businesses because they have fewer resources available; for instance, insufficient business experience, a lack of freedom from their domestic role, and less value for business expansion (Cliff, 1998). Because female entrepreneurs are faced with limited resources, they deliberately adopt a lower growth expectation (Lee-Gosselin and Grise, 1990). Low growth expectation can lead to inferior performance of firms. In fact, liberal feminist theory proposes that, if males and females have an equal opportunity to access available resources such as education and work experience, females can be expected to behave in ways similar to males (Unger and Crawford, 1992), and the performance of both genders may eventually result in similar outcomes.
Figure 1. Conceptual Framework Showing Effect of Firm Resources on Business Performance of Male- and Female-Headed Firms
Education and the work experience of entrepreneurs are among key firm resources. Honig (1998) investigated the education levels of micro-entrepreneurs in order to evaluate the validity of the human capital theory, which is expected to increase the possibility of entrepreneurial activity, productivity, and relative success for Jamaican firms. Robinson and Sexton (1994) also observe that the general education and experience of entrepreneurs have a strong positive impact on firm success. In contrast, Birley et al. (1987) found insignificant differences in the education backgrounds and previous experiences of gender entrepreneurs. One of the justifications of these differing empirical results depends on the sensitivity of the social conditions of countries in the case studies.

The current situation of Lao female entrepreneurs seems to support liberal and social feminist theories; that is, that they have encountered problems similar to those stated in previous literature. Lao female entrepreneurs are faced with both business-related and personal-life issues (ILO and GRID, 2006). Business-related issues include illiteracy, insufficient labor, seasonal fluctuations of business, and lack of capital, marketing knowledge, technical skills for doing business, business knowledge, and knowledge about laws and regulations such as taxes. Personal-life issues include responsibility for home-based activities and lack of family support. As discussed earlier, female entrepreneurs seem to face several issues that can worsen their firm performance, compared with that of male counterparts. We can hypothesize, therefore, that MHFs perform better than FHFs.

**Hypothesis 1: MHFs out-perform FHF's.**

### 3.2. Firm Resources and Firm Performance

Resources of a firm are attractive issues for researchers. Andrews (1980) looks at resources in the conventional concept of strategy, concerning how the resources of a firm can improve its strengths and weaknesses. RBV refers to the resources of a firm as a bundle of resources that have an impact on business performance (Barney, 1986; Dierickx and Cool, 1989; Grant, 1991; Ray and Barney, 2004; Wernerfelt, 1984). RBV highlights the internal strengths of the firm regarding how specific resources can be deployed to achieve competitive advantage (Manohey and Pandian, 1992). An achievement of competitive advantage can be indicated by earning above-normal rates of return and sustainable advantage (Amit and Schoemaker, 1993; Barney, 1986, 1991; Dierickx and Cool, 1989; Fahy and Smithee, 1999; Mahoney and Pandian, 1992; Oliver, 1997; Wernerfelt, 1984, 1995). In sum, firms can identify, develop, and deploy strategic resources to generate optimal returns (Fahy, 2000).

The resources of the firm include land, equipment, labor (from top managers and employees' capabilities and knowledge), and capital (organizational, tangible, and intangible), in which these categories may be subdivided as far as it is useful for the problem at hand (Penrose, 1995). The resources of the firm refer to “all the assets, capabilities, organizational processes,
firm attributes, information, and knowledge, which are controlled by the firms that enable them to conceive and implement strategies that improve efficiency and effectiveness” (Barney, 1991). Generally, heterogeneity of firm resources makes it difficult to measure the competitive advantage of individual resources that should meet four criteria: add positive value to the firm; be unique; be imperfectly imitable; and non-substituted by other resources (Barney, 1991). Having the critical resources is not enough; a firm must be able to formulate strategy and to deploy such resources in order to maximize profit. For this study, the resources of the firm are classified into three categories – human, intangible, and tangible resources (Grant, 2002) – that are expected to have an impact on firm performance.

3.2.1. Human Resources

Skilled personnel and an effective internal and external relationship take time to develop. A firm’s human resources (HR) consist of unskilled and skilled labor, including clerical, administrative, financial, legal, technical, and managerial personnel (Penrose, 1995). Penrose (1995) refers to entrepreneurs and employees as tangible resources for the organization. Grant (2002), however, perceives HR as being similar to intangible resources because human resources can generate a competitive advantage better than other tangible resources. HR involves the productive services that people provide to the firm in the form of knowledge, skills, expertise, and decision-making capability (Grant, 2001).

HR is “actually an accumulated stock of knowledge, skills and abilities that individuals possess which are time consuming to be developed as an identifiable expertise” (Cappelli and Singh, 1992). Excellent, talented entrepreneurs can transfer their knowledge to a team and strengthen organizational capabilities (Boxall, 1996). They also possess leadership skills and human relation skills. As effective organizational activities are achieved through HR capabilities, they can represent the firm’s capabilities associated with its HR; its strategic objectives and a behavioral representing expertise (Kamoche, 1996). Expertise of entrepreneurs can be realized from a behavior that is consistently focused on the creation of skills that become fundamental for competition (Klein et al., 1991).

In addition to the above-mentioned aspects of HR characteristics, this study looks at gender differences in terms of education, the training of entrepreneurs, and the work experience of entrepreneurs, all of which can have an impact on the performance of MHFs and FHFs.

Education. Previous literature states that education is one of the important entrepreneurial variables. It is expected to be an influential factor in business success because it can enhance an entrepreneur’s psychological confidence, knowledge, and skills. An absorptive capacity has accumulated within firms as it becomes a function of the level of the firm’s related knowledge in the past; the firms’ previously accumulated knowledge facilitates the absorption of knowledge (Danneels, 2008). Numerous previous studies suggest that years of the formal education of entrepreneurs before they start a business
has a positive effect on firm performance (Brush and Hisrich, 1991). In a study of firms in Oklahoma, USA, Box et al. (1993) also confirm that there was a positive relationship between the high education level of entrepreneurs and the performance of manufacturing firms. In small businesses, the education level of entrepreneurs can be a critical success factor in helping firms to survive and manage in difficult conditions and can keep the business profitable (Yusuf, 1995). Schutjens and Wever (2000) suggest that entrepreneurs with a reasonably good education can better deal with complicated business activities. The accumulation of knowledge and prior qualification can increase the confidence of entrepreneurs. Hence, the entrepreneurs’ skills and competencies are associated with business success (Casson, 1982). Therefore, education levels of entrepreneurs have a similar impact on the performance of different gender-headed firms.

**Hypothesis 2:** The education level of entrepreneurs has an impact on the performance of both MHFs and FHFs.

**Training of Entrepreneurs.** Training for entrepreneurs is crucial to upgrade and update their know-how, knowledge, and skills, particularly for the leadership positions that can enhance firm performance. This training can be in the form of off-the-job training. Training which is in line with the objectives of a firm can therefore increase the competency of entrepreneurs.

Training can increase knowledge and skills that have gradually become a “strategic asset” (Winter, 1987). Benefits of training have accumulated from the past which builds “bundles” of routines that can be difficult to understand and imitate (Koch and McGrath, 1996), and which can improve competitive advantage and consequently lead to superior performance. We hypothesize, therefore, that human resource development (HRD) through the training of male and female entrepreneurs is positively associated to firm performance.

**Hypothesis 3:** Training of entrepreneurs affects the performance of both MHFs and FHFs.

**Work Experience.** Prior work experience is an important factor in the performance of both male and female entrepreneurs. Many studies have found that female entrepreneurs seem to have less work experience than their male counterparts. The work experience of an entrepreneur is one of the prerequisites for starting a business and is considered to be an influential factor in firm performance (Cooper, 1981). Studies indicate that previous experience can be a source of sustainable competitive advantage, which, in turn, can contribute to the better performance of a firm (Yusuf, 1995) because prior experience provides both general and specific knowledge and skills to entrepreneurs. In a study of 300 manufacturing firms in Tulsa, Oklahoma, USA, Box et al. (1993) indicate that prior years of experience of entrepreneurs was significantly correlated with performance.
Previous experience accumulates know-how through “learning by doing” and on-the-job training, both of which play a crucial role in firm performance (Bishop, 1991; Castanias and Helfat, 1991). The benefit of on-the-job training is that it is low cost, involves minimal extra time, and can affect immediate productivity and a concurrent trial period. When firms need basic skills, on-the-job training can be the most appropriate means of attaining it (Snell and Dean, 1992).

Experience accumulated from past and present work can be realized in general and specific knowledge and in skills including management, team work, sales, cooperation, and industrialization. Hatch and Dyer (2004) suggest that the value of an experienced HR cannot be imitated for some time, and the dynamic adjustment costs of training, work experience, and use of new HR can result in continual differences in performance. Work experience in management is one of the factors for success of a firm (Schutjens and Wever, 2000). In summary, entrepreneurs with a longer work experience can have an impact on the performance for both gender-headed firms.

Hypothesis 4: The work experience of entrepreneurs influences the performance of both MHFs and FHFs.

3.2.2. Intangible Resources

Intangible resources are a kind of asset legally possessed by the firm, and include intellectual property rights, contracts, and confidential data (Peteraf, 1993). Among other intangible resources, we would like to focus also on reputation, which is an invisible asset. There are several kinds of reputation; e.g., the reputation with customers through the ownership of brands and trademarks; the reputation developed through relationships with customers; the reputation of a firm for the quality and reliability of its products or services; the reputation of a firm with suppliers (including component suppliers, banks and financiers, employees, and potential employees); and the reputation with government and with communities (Grant, 2002). One of the key indications of reputation among firms is brand recognition and brand equity (Grant, 2002). Creating a good reputation, however, is time-consuming, and maintaining one is sometimes difficult because it can be damaged easily (Hall, 1993). Reputation is not clearly protected by law unless the firm has strong evidence to prove that the other party deliberately damaged its reputation. Investment in marketing and advertising can be expected to increase brand loyalty and the reputation of goods and services; therefore, such investment is used as a proxy for both brand name and reputation.

Reputation. Reputation can affect firm performance because it can create the kind of trust and confidence that prompt consumers/customers to buy the goods and services of a firm, thus increasing brand loyalty. Such a reputation cannot occur without a firm’s investment in marketing and advertising. Investment in advertising communicates to the consumer information about the goods and services of a firm. Tesler (1961) indicates that consumers tend to
In my opinion, continuous advertising is needed to maintain a given rate of sales. Investment in advertising, therefore, can be treated as an “asset” that depreciates over time and needs maintenance and repair. Advertising is done to build a firm’s intangible assets such as brand name and reputation (Mahoney and Pandian, 1992). Reminder advertising can lead to increased sales because it communicates the features of new products and services (Doyle, 1994). Advertising also communicates to potential customers information about the special benefits of various products or services. Some products, however, need heavier advertisement than others because they have a short life span (Telser, 1961). For products that frequently change or for the introduction of new products, consumer knowledge of such goods needs to be updated.

Investment in marketing can increase the volume of sales for a firm. For instance, direct marketing has been shown to boost immediate sales (Doyle, 1994). Marketing can also improve the profile of a business, thus contributing to its growth. Marketing competence has to create a bundle of benefits for consumers and provide value through products and services because it can characterize a firm’s marketing capability as measured by market sensing and customer connecting (Day, 1994). Characterization of marketing capability refers to a firm’s ability to develop and maintain customer relationships (Moorman and Slotegraaf, 1999). Marketing competence emphasizes a firm’s ability to identify and create relationships with both new and existing customers that can establish new resources to serve new customers when exploring new markets (Danneels, 2008). Maintaining strategy emphasizes marketing to improve networks and develop effective policies from product addition and elimination. Such strategies can lead to achieve sales levels that facilitate the use of plant capacity. A firm with very serious competition can survive by maintaining marketing activities. A high-competition industry needs to increase investment in advertising, promotion, and related marketing activities (Khandwalla, 1977). In addition, a well-built marketing research program and an effective sales organization have been found to be strongly associated with performance (Hitt and Ireland, 1985). A firm with competence in marketing activities emphasizes pricing strategies, advertising, marketing, promotion campaigns, and marketing research, all of which have a positive relationship with performance (Hitt and Ireland, 1985). To summarize, we hypothesize that the investment in marketing and advertising as a proxy for reputation of firms is expected to have a positive effect on the performance of different gender headed firms.

**Hypothesis 5:** The reputation of a firm has an impact on the performance of both MHFs and FHFs.

### 3.2.3. Tangible Resources

Tangible resources consist of the firm’s physical and financial resources (Grant, 1995, 2002). **Financial resources** are defined as the firm’s capability to get access to external finances and to allocate its internal financial resources in
order to maximize the return on investment. Physical resources include size, location (for land and buildings), technical sophistication, plant, equipment, and stock of raw materials. Tangible resources are easily identified and evaluated because financial resources and physical assets are recorded in the firm’s financial statements (Grant, 1995). However, such statements are based on ‘book values’ which cannot reflect the assets’ market value and therefore may misrepresent the true worth of resources (Grant, 1995). The true worth of resources depends on how the firms formulate the strategy and deploy them to achieve a better performance. In this study, Tangible resources include physical technology resources and business finance, which are expected to have an impact on performance.

Physical Technology. The definition is strictly within the context of Lao MSMEs because, in developing countries, physical resources often refer to the level of sophistication of the technology possessed by the firms. Grant (1995) defines physical technology as plants, machinery, equipment, and tools. The main component of technology is embodied in physical resources. A firm’s technology can be expected to improve production, services, and business operations. Firms that have successfully used technology to gain competitive advantage have been able to do so because of a history of choices about the acquisition and deployment of technology resources. Technology can provide competitive advantage if it has an important role in determining a firm’s relative cost position or success in differentiation (Porter, 1985). Since technology can affect several value-creating activities in a firm, it can have a strong effect on cost. Firms with high investment in technology can permit low-cost production and achieve economies of scale by spreading relatively high fixed costs over a large number of outputs. Porter (1985), however, argues that “not all technological change is strategically beneficial; it may worsen a firm’s competitive position and industry attractiveness because high technology does not guarantee profitability.” Overall, technology is considered to be the main driver of business success. Three out of five studies conclude that there are positive relationships between the sophistication of technology and the speed of a firm’s growth (Storey, 1994). Steiner and Solem (1988) also found that the use of new or improved technology has a strong connection with business success. It can therefore be concluded that giving importance to technology can improve the performance of both male- and female-headed firms.

Hypothesis 6: The physical technology of a firm has an impact on the performance of both MHFs and FHFs.

Business Finance. Business finance is a key factor for financing strategic resources and restructuring or expanding business which is matched with business objective; i.e., profit maximization. Firms need to obtain sufficient financial support to implement internal growth strategy. They can exploit advantages in raising financial capital to gain competitive advantage, as
evidenced by superior rates of return (Barney, 1986). Business finance can come either from internal or external sources. The main internal source is from retained earnings, which are a particularly important factor for new, micro-, and small-sized firms that have difficulty in raising external capital. External sources of business finance can be formal (e.g., banks and financial institutions) or informal. In fact, most micro- and small-sized firms in developing countries depend heavily on informal sources of funds from family members, relatives, friends, and money lenders. These sources, however, offer relatively small amounts on a short-term basis, mainly to address cash flow problems. Although these sources are available, they are not appropriate for funding the long-term capital needed to purchase strategic assets. They normally require little or no screening process (Hernández-Trillo et al., 2005). In Lao PDR, 64% of the small and large firms find that high interest rates are the main problem in obtaining loans (Dye and Webster, 1997). Business finance is a critical factor in sustaining long-term investment for generating profits to the firm. The key to success in small-scale business is the amount of initial investment and on-going access to finance (Yusuf, 1995). Having an appropriate financing strategy is crucial to achieve business success (Storey, 1985). Hitt and Ireland (1985) found that finance activities are positively associated with performance. Based on these studies, we can hypothesize that business finance has an impact on the performance of both male- and female-headed firms.

**Hypothesis 7:** The business finance of a firm influences the performance of both MHFs and FHFs.

### 3.3. Firm Performance

For indicators of a firm’s performance, financial data is preferable, but firms are often unwilling to disclose this type of confidential information to the public unless the law requires them to do so. It is more likely, however, that public disclosure will be required for listed companies than for MSMEs. Financial performance is a subjective measure that uses annual sales. Although financial data remain popular, subjective performance measures have been widely used in strategy-related and organizational research (Dess and Robinson, 1984; Robinson and Pearce, 1988; Venkatraman and Ramulujam, 1986; Spanos and Lioukas, 2001; Lawrence and Lorsch, 1967; Dess, 1987; Powell, 1992; Powell and Dent-Micalef, 1997). In this paper, we used subjective measures partly because of the difficulty in obtaining reliable financial information. Moreover, financial data is criticized for being unreliable and subject to inconsistent accounting practices or even to managerial manipulation for reasons such as avoiding payment of high corporate or personal income taxes (Dess and Robinson, 1984; Sapienza et al., 1988; Powell and Dent-Micalef, 1997).

Because of the limitation of secondary data, we cannot measure the performance indicator beyond the annual sales turnover, which is actually based
on the questionnaire. This method has also been used in previous studies (Rosa et al., 1996; Du Rietz, 2000; Anna et al., 1999). It should be noted that, although the number of studies on similarities and differences in the performance of male- and female-headed firms continue to increase, it is not easy to compare results across studies because performance in entrepreneurial businesses is measured differently in these studies, depending on data availability.

3.4. Control Variables

Control variables are used in this paper to justify factors other than theoretical variables, which could explain the variance in dependent variables. In this paper, firm size and firm age are used as control variables.

**Firm Size.** Firm size can reflect past success and may influence current firm performance (Aldrich and Auster, 1986, Aldrich, 2000, Ravichandran and Lertwongsatien, 2005). Firm size can also be an important determinant of firm performance and survival (Mukhtar, 2002). Bigger firms may enjoy greater economies of scale, compared with smaller firms (Dass, 2000). With economies of scale, bigger firms can produce a larger quantity of outputs by spreading fixed costs. Bigger firms also benefit from improved capacity to access critical resources such as business finance (Penrose, 1995), particularly with regard to low-cost capital (Goerzen, 2007). Hence, big firms can gain a competitive advantage and achieve better performance. Ghemawat (1986) suggests that larger firms gain advantages that are capable of accessing resources or customers and/or restricting rivals’ options. Chandy and Tellis (2000) and Kanter (1988), however, argue that bigger firms are less adaptive and flexible and less able to change their resource base. Since our study uses a firm’s sales as a performance indicator, it needs to control the firm size in order to avoid bias in the model. Firm size remains popular as a research variable as well as a control variable, but the findings seem to be inconsistent.

**Firm Age.** Firm age can be seen as an indication of the external legitimacy of inter-firm relationships, of staying power, and of the pervasiveness of internal routines (Fichman and Kemerer, 1993; Kalyanaram and Wittink, 1994), all of which can impact current firm performance. Younger firms, on the other hand, may face the responsibilities of newness, which can confound their performance (Aldrich and Auster, 1986, Hannan and Freeman, 1984, Ravichandran and Lertwongsatien, 2005). Firm age is also an important factor affecting firm performance. Young firms seem to have lower sales and therefore lower profits (Watson, 2002), whereas older firms seem to be larger in terms of sales turnover, number of employees, and capital assets (Rosa et al., 1996). Furthermore, older firms tend to establish good networks, enjoy a good reputation in selected markets, and have an established relationship with business partners, suppliers, financial institutions, communities, government, and customers. For these reasons, firm age can represent the power and experience of a firm in a chosen industry, which can be an influential factor for firm success.
4. RESEARCH METHODOLOGY

This section discusses sample and data collection and measurement.

4.1. Sample and Data Collection

The present study uses unbalanced panel data that was collected in 2005 and 2007 by the Enterprises Baseline Survey (EBS) from the German Agency for Technical Cooperation (GTZ). The EBS selected only formally registered enterprises and analyzed questionnaires seeking responses from entrepreneurs. The 2005 survey included 370 companies in four Lao provinces – Vientiane capital, Champasack, Luang Prabang, and Luang Namtha. The first three are economically dynamic, and the fourth is rural. For the 2007 survey, the sample size was 470 Lao MSMEs in five Lao provinces – Vientiane capital, Champasack, Luang Prabang, Luang Namtha, and Savanakhet. The fifth province is a new sample. The sample consisted, therefore, of a total of 840 observations comprising 493 male-headed firms and 347 female-headed firms with from 1 to 99 employees.

4.2. Measurement

Performance. This is the dependent variable in this study. It is measured by ordinal numbers from 1 to 5, corresponding to the level of annual sales turnover (as stated to the national tax office). From the lowest to the highest level, these are:

1 = Less than 200 million kip
2 = 200-400 million kip
3 = 401-700 million kip
4 = 701-1,000 million kip
5 = More than 1,000 million kip

At the time of the survey, one U.S. dollar was approximately equivalent to 9,323 Lao kip.

Gender. This refers to the gender of the entrepreneur. Male entrepreneurs are represented by 1; and female entrepreneurs, by 0.

0 = Female entrepreneur
1 = Male entrepreneur

Education of entrepreneurs. This is measured by ordinal numbers from 1 to 11, corresponding to the level of education of the owner/managers. From the lowest to the highest level, these are:

1 = No schooling
2 = Some primary school
3 = Completed primary school
4 = Some lower secondary school
5 = Completed lower secondary school
6 = Some upper secondary school
7 = Completed upper secondary school
8 = Vocational
Training of entrepreneurs. The question is whether any training has been received since the entrepreneurs started their business. If the respondent indicated “Yes,” then the next question asked them to describe the kind of management training they received; e.g., health and safety, cost calculation, business management, accounting, marketing, law and regulations, quality management, or business finance. This variable, therefore, is measured as a dummy.

Work experience. This is measured by the age of owner/managers, from which is subtracted the total years spent in education. The work experience of entrepreneurs has a close relationship with their education; thus, work experience is defined as the number of years an individual has been able to work after completing his or her education (Robinson and Sexton, 1994). Because of a limitation of the data set, a more comprehensive measure of experience cannot be specified.

Reputation. The question is whether the firm had some investment during the last year. If the respondent indicated “Yes,” the next question was related to the type of investment, such as machinery, office equipment, buildings, training, advertisement, marketing, etc., which are multiple answers. In this study, investment was measured by selecting only two answers: advertising and marketing.

Physical resources with technology. The question is measured by ordinal numbers from 1 to 5 corresponding to the level of technology in the business. From the lowest through the highest level, they are:

1 = Hand tools/utensils
2 = Portable power tools and electric appliances
3 = Small fixed motorized equipment
4 = Large machinery
5 = Motorized vehicles

Business finance. The question is whether the firm received loans. Consequently, this variable is measured as a dummy.

Firm size. This is measured by the total number of current full-time employees. According to Prime Ministerial Decree No. 42 (2004), the Lao PDR defines a micro-firm as consisting of 1 to 2 employees; a small firm as 3 to 19 employees; a medium firm as 20 to 99 employees; and a large firm as 100 employees or more.

Firm age. This is the number of years the MSME has been established/incorporated (Ravichandran and Lertwongsatien, 2005), which is taken to represent industry experience for the firm.
5. DATA ANALYSIS AND DISCUSSION

This section discusses the ordered probit model, as well as analysis results and discussion.

5.1. Ordered Probit Model

The dependent variable was measured using ordinal measures from 1 to 5. Therefore, an ordered probit model (Long, 1997; Godfrey, 1988; Davidson and MacKinnon, 1993) was used in the analysis to examine the impact of firm resources on the performance of male- and female-headed firms for MSMEs in the Lao PDR. The objective of the first model was to determine the probability of whether M HF s out-perform FHFs in equation [1]. Also, the second and third models were to determine the probability that firm resources affect the performance of M HF s and FHFs in equations [2] and [3]. The firm performance is the ordinal numbers from 1 to 5 corresponding to a level of annual sales turnover. Let us suppose that \( y_i \) depends on the value of a latent variable \( y_{i}^{*} \), which in turns depends on a set of observables:

1= less than 200 million kip
2= 200-400 million kip
3= 401-700 million kip
4= 701-1,000 million kip
5= more than 1,000 million kip

Hence, we can derive the specifics for the first model, and a latent variable \( y_{i}^{*} \) can be estimated as follows:

\[
y_{i}^{*} = \beta_{GD} G D_{i} + \sum_{k=1}^{2} \gamma_{k} X_{k_{i}} + \sum_{m=1}^{6} \phi_{m} Z_{m_{i}} + e_{i} \tag{1}
\]

We regress the latent variables on independent and control variables. The independent variable is gender (GD\(_{i}\)). We control the business characteristics (\( x_{i} \)) of firm age (FA) and firm size (FS), and also control firm resource variables such as education (EDU), training of entrepreneurs (TRNE), work experience (WEXP), reputation of firms through marketing and advertising (REP), physical technology (PTEC), and business finance (BF).

For the second and third models, the entire sample is divided into two groups – namely, the M HF s and FHFs – to compare the determinant factors that have an impact on firm performance for Lao male- and female-headed MSMEs. Ordered probit models are specified in equation [2] and [3] below:
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wherein, equation [2] is a latent variable for MHFs, and \( x_m \) are the independent variables, which refer to firm resource variables including: education (EDU), training of entrepreneurs (TRNE), work experience (WEXP), reputation of firms through marketing and advertising (REP), physical technology (PTEC), and business finance (BF). We control firm size (FS) and firm age (FA) and thus (\( z_m \)) are control variables.

\[
y_m^* = \sum_{i=1}^{6} \beta_i x_m + \sum_{j=1}^{2} \gamma_j z_m + e_m
\]

Wherein, equation [3] is a latent variable for FHF's, and \( x_f \) are the independent variables, which refer to firm resource variables including: education (EDU), training of entrepreneurs (TRNE), work experience (WEXP), reputation of firms through marketing and advertising (REP), physical technology (PTEC), and business finance (BF). We control firm size (FS) and firm age (FA) and thus (\( z_f \)) are control variables.

\[
y_f^* = \sum_{i=3}^{6} \beta_i x_f + \sum_{j=1}^{2} \gamma_j z_f + e_f
\]

5.2. Analysis Results and Discussion

The results displayed in Tables 1 and 2 are used to answer Hypothesis 1. The regression results, after controlling some firm resource and firm characteristic variables, indicate that gender matters because the gender variable is statistically significant. This means that MHFs out-perform FHF's in the Lao MSMEs, as shown in Table 1. One reason could be that MHFs are in a better position to control various firm resources. As a result, gender differences may be a consequence of the unequal controlling power in firm resources. In this regard, it is the business-related issues that FHF's may lack: i.e., capital, marketing knowledge, technical skills for doing business, business knowledge, knowledge about law and regulations such as tax law, illiteracy, insufficient labor, and seasonal fluctuations of business (ILO and GRID, 2006). The other reason could be that Lao female entrepreneurs may encounter more personal-life problems that can cause poor performance, compared with male entrepreneurs. For personal-life issues, females may face an overwhelming responsibility for home-based activities and lack of family support (ILO and GRID, 2006).

For firm resource variables, the majority of firm resources have an impact on the performance of different gender-headed firms, as shown in Table 1. All components of HR have an effect on firm performance. Entrepreneurs holding high education levels, having sufficient training, and accumulating longer work...
experience can absorb useful knowledge and skills that they can apply to business practices. This, in turn, can have an impact on their performance. Tangible resources are also found to be key factors in boosting performance. Having high technology can help firms produce more for fewer costs and otherwise be more efficient, thus maintaining good performance. Business finance is also one of the critical resources that allow firms to engage in strategic business that can sustain firm performance. As for business characteristics, firm size shows an impact on performance. However, firm age appears to be insignificant. It may be that older firms are more conservative and are not likely to engage in risky projects, in addition to being less adaptable with dynamic changes in business conditions.

More apparent are the results shown in Table 1 that seem to suggest that gender simply matters even after controlling other factors such as related firm resources. However, by taking the results displayed in Table 2 into consideration, we can also argue that, in those factors, gender differences have a positive impact on firm performance.

### Table 1

**Regression Results**

|                                | Coefficients | z    | P>|z| |
|--------------------------------|--------------|------|------|
| **Gender (GD)**                | 0.164        | 1.70 | 0.090*|
| **Firm Resources**             |              |      |      |
| Education (EDU)                | 0.098        | 4.77 | 0.000***|
| Training of Entrepreneurs (TRNE) | 0.357      | 3.90 | 0.000***|
| Work Experience (WEXP)         | 0.014        | 3.21 | 0.001***|
| Reputation (REP)               | -0.028       | -0.18| 0.859 |
| Physical Technology (PTEC)     | 0.748        | 2.24 | 0.025**|
| Business Finance (BF)          | 0.323        | 3.54 | 0.000***|
| **Business Characteristics**   |              |      |      |
| Firm Size (FS)                 | 0.041        | 10.67| 0.000***|
| Firm Age (FA)                  | 0.005        | 0.66 | 0.510 |
| Pseudo $R^2$                   | 17.74        |      |      |
| Log Likelihood                 | -796.30      |      |      |
| LR Statistic                   | 343.56***    |      |      |
| N                              | 840          |      |      |

*Significant at 1%≤; **5%≤; *≤10%

Other results shown in Table 2 indicate that most resource and business characteristic variables for MHFs show higher mean scores, and the differences between MHFs and FHFAs are statistically significant in terms of the education level, training, and work experience of entrepreneurs, technology, business
The Effect of Firm Resources on Business Performance of Male- and Female-Headed Firms in the Case of Lao MSMEs

finance, and firm size. The results confirm that MHFs possess human resources with higher human capital, high technological capabilities, sufficient business finance, and benefits from having a larger firm size.

These findings are supported by liberal and social feminist theories stating that female entrepreneurs have fewer resources available, such as insufficient business experience, education, and a lack of freedom from their domestic role (Cliff, 1998; Lee-Gosselin and Grise, 1990; Unger and Crawford, 1992). Overall, MHFs are in a better competitive position compared with FHFs. In contrast, reputation building from marketing and advertising is insignificant between MHFs and FHFs. In fact, FHFs are keen to invest more in marketing and advertising, compared with MHFs. This can be interpreted that FHFs are aware of their constraints and may therefore emphasize investments that improve their reputation and contribute to better performance.

It can be concluded that the number of existent obstacles of FHFs, as presented above, could be the associated reasons why MHFs out-perform FHFs for the Lao MSMEs. Therefore, Hypothesis 1 is supported.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Means for Independent Samples T-Test for MHFs and FHFs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MHFs</td>
</tr>
<tr>
<td>Education (EDU)</td>
<td>6.710</td>
</tr>
<tr>
<td>Training of Entrepreneurs (TRNE)</td>
<td>0.497</td>
</tr>
<tr>
<td>Work Experience (WEXP)</td>
<td>33.204</td>
</tr>
<tr>
<td>Reputation (REP)</td>
<td>0.085</td>
</tr>
<tr>
<td>Physical Technology (PTEC)</td>
<td>2.533</td>
</tr>
<tr>
<td>Business Finance (BF)</td>
<td>0.499</td>
</tr>
<tr>
<td>Firm Size (FS)</td>
<td>13.722</td>
</tr>
<tr>
<td>Firm Age (FA)</td>
<td>8.740</td>
</tr>
<tr>
<td>N</td>
<td>493</td>
</tr>
</tbody>
</table>

*** Significant at 1%≤; **5%≤; *≤10%

As shown in Tables 2 and 3, the results of H2 to H7 indicate that some firm resources contribute to the performance of MHFs and FHFs – i.e., HR (H2 to H4) are fully supported; and tangible resources (H6 to H7) are only partly supported. Last, intangible resources (H5) have no effect on firm performance and are thus not supported for this case.
5.2.1. Human Resources and Firm Performance

On average, findings indicate that HR had a strong impact on the performance of MHFs and FHF, as indicated in Table 3. The results may be in line with the scarcity of qualified and skillful HR at the development stage. This fact may encourage firms to emphasize their HR as one of the key drivers to firm success and maintenance of a sustainable competitive advantage. The accumulated stock of know-how, knowledge, and skills from general education, training, and work experiences is three good drivers of HRD; they have absorbed both practical and theoretical aspects.

Table 3
Regression Results for MHFs and FHF

| FIRM RESOURCES | MHFs | FHF | Co-efficients | Z  | P>|IzI| | Co-efficients | z  | P>|IzI|
|----------------|------|-----|---------------|----|------| |---------------|----|------|
| Education (EDU) | 0.118 | 4.63 | 0.000*** | 0.058 | 1.65 | 0.098* |
| Training of Entrepreneurs (TRNE) | 0.305 | 2.65 | 0.008*** | 0.467 | 3.00 | 0.003*** |
| Work Experience (WEXP) | 0.014 | 2.49 | 0.013** | 0.013 | 1.90 | 0.058* |
| Reputation (REP) | 0.169 | 0.82 | 0.410 | -0.306 | -1.21 | 0.227 |
| Physical Technology (PTEC) | 0.053 | 1.31 | 0.191 | 0.136 | 2.24 | 0.025** |
| Business Finance (BF) | 0.361 | 3.10 | 0.002*** | 0.271 | 1.82 | 0.068* |
| FIRM CHARACTERISTICS | | | | | | |
| Firm Size (FS) | 0.037 | 8.28 | 0.000*** | 0.052 | 6.49 | 0.000*** |
| Firm Age (FA) | 0.005 | 0.60 | 0.546 | 0.003 | 0.23 | 0.816 |
| Pseudo R² | 16.05 | | | 18.39 | | |
| Log Likelihood | -511.30 | | | -272.48 | | |
| LR Statistic | 195.58*** | | | 122.79*** | | |
| N | 493 | | | 347 | | |

*** Significant at 1%; **5%; *≤10%
As indicated in Table 3, the first component of HR – the education (EDU) of entrepreneurs – is statistically significant among MHFs and FHFs. One cannot deny that education is a fundamental factor that influences firm success. Since education can enhance psychological confidence, knowledge, and skills, prior studies indicate that longer years of formal education prior to an entrepreneur establishing his or her business had a positive relationship with firm performance (Box et al., 1993; Brush and Hisrich, 1991; Yusuf, 1995) particularly in small businesses. Since accumulated know-how, knowledge, skills, and qualifications can improve the capabilities and competencies of entrepreneurs, individuals with these traits achieve business success (Casson, 1982). The education level of entrepreneurs has a similar effect on the performance of different gender-headed firms; therefore, Hypothesis 2 is supported.

The second component of HR – training of entrepreneurs (TRNE) – is statistically significant to the performance of both gender-headed firms. Renewing the stock of know-how, knowledge, and skills is needed in order for entrepreneurs to cope with dynamic changes in the business environment. Such training provides upgraded know-how, knowledge, and skills in business management, quality management, marketing, laws and regulations, health and safety, and cost calculation; provides updated knowledge on dynamic business growth; and is particularly important to maintain good performance. Long-life learning can provide a competitive advantage for firms, making it difficult for competitors to fully understand the accumulated know-how, knowledge, and skills or to imitate these traits completely (Koch and McGrath, 1996). Such knowledge eventually becomes a “strategic asset” for firms (Winter, 1987). Hence, Hypothesis 3 is supported.

The last component of HR – the work experience of entrepreneurs (WEXP) – is also statistically significant to the performance of both gender-headed firms. WEXP indicates that a longer work experience is a key factor influencing firm performance. As indicated by the results, the accumulated know-how, knowledge, and skills from the past via learning from on-the-job training, learning by observation, learning by doing, and learning by practice can be a barrier to imitation or duplication by competitors (Bishop, 1991; Castanias and Helfat, 1991). In turn, such knowledge can contribute to a sustainable competitive advantage and help maintain good performance (Yusuf, 1995). Since specific know-how, knowledge, and skills are ingrained in entrepreneurs as their work experience increases over time and thus become core competencies of firms, these factors can affect firm success (Cooper, 1981; Box et al., 1993; Schutjens and Wever, 2000). In summary, Hypothesis 4 is supported.

5.2.2. Intangible Resource and Firm Performance

As shown in Table 3, intangible resources are found to be insignificant to the performance among different gender-headed firms. In this paper, the representative of intangible resources refers to a reputation (REP) that has been
built through advertising and marketing; hence, the reputation of a firm can be realized as brand recognition and brand equity (Grant, 2002).

The finding that reputation through marketing and advertising is insignificant to the performance of different gender headed firms may be surprising. As indicated earlier in Table 2, however, FHF s show a higher investment in marketing and advertising than do MHFs, but they cannot consequently improve performance, which indicates that their investments are not effective. The overall results are insignificant to the performance of both gender-headed firms. The reason could be that their marketing and advertising may be aimed at the wrong types of consumers or customers. For FHF s, reputation through marketing and advertising is negatively insignificant to firm performance. As observed among different gender-headed firms, one reason could be the perception of particular MSMEs in developing countries toward marketing and advertising. They may not be accustomed to the modern ways of introducing and promoting their goods and services to customers through marketing and advertising. In fact, under the current level of the firms’ capabilities, both traditional and modern marketing strategies seem to have no real impact on firm performance. The modern marketing approach is expected to have a high potential contribution to firm performance, compared with the traditional word-of-mouth marketing approach. In this study, however, entrepreneurs failed to take the modern marketing approach to boost sales. As a result, both male- and female-headed firms did not achieve better performance through marketing and advertising. Therefore, Hypothesis 5 is not supported.

5.2.3. Tangible Resources and Firm Performance

As Table 3 indicates, the overall influence of tangible resources on firm performance is only partly supported; i.e., only the business finance variable is fully supported, whereas physical resources with technology received partial support.

The first tangible resource variable – the physical technology (PTEC) of firms – is only positively related to the performance of FHF s, but it is insignificant for MHFs. The results can be explained in that MHFs may have acquired modern and high technology in the past; thus, the technology factor may not be their main concern at this point in their business cycle. Both MHFs and FHF s had already made the necessary investment in technology and had accomplished a certain level of performance. We do not, however, observe significant differences in the impact of technology on the performance of MHFs. We expect to see the same outcome for FHF s. With regard to high technology among FHF s, however, we found that some have made the necessary physical investments, whereas others have not. Consequently, we found that, on average, the firms that had already acquired the necessary investment in technology are more likely to perform better than the firms that failed to acquire such technology because of financial constraints. We observed the positive impact of technology
on the performance of FHF s. Only FHF s received support; MHF s did not. Therefore, Hypothesis 6 is partially supported.

The second tangible resource variable – business finance (BF) – was found to have a positive impact on the performance of both male- and female-headed firms. For them, business finance is a crucial factor in supporting strategic business activities by funding the strategic equipment and plants to improve their products and services. This finding is supported by several studies. For example, exploiting business credits or raising financial capital is essential to achieve a competitive advantage. This development, in turn, can result in better performance (Barney, 1986). Other previous studies found that success in small-scale business is related to the level of business credits in its initial investment and continuing access to finance (Yusuf, 1995). An appropriate financing strategy (Storey, 1985) and finance activities (Hitt and Ireland, 1985) are also found to be positively related to firm performance. Hence, Hypothesis 7 is supported.

6. CONCLUSIONS

This section discusses findings and conclusions and policy implications of the current study, and offers comments on research limitations and future research.

6.1. Findings and Conclusions

This paper examined whether MHF s out-perform FHF s and took a close look at the relationship between the resources (human, intangible, and tangible) of a firm and the performance of MHF s and FHF s. We developed seven hypotheses that have been empirically tested from a sample of 840 observations of Lao MSMEs. Even after taking into account several factors such as firm resources and firm characteristics variables, our findings confirm that MHF s perform better than FHF s for Lao MSMEs. Moreover, we found that only some firm resources have an impact on the performance of MHF s and FHF s. We found that human resources (H2 to H4) are fully supported, indicating that three components of HR (education of entrepreneurs, training of entrepreneurs, and work experience) have a strong impact on the performance of both MHF s and FHF s. With regard to tangible resources (H6 to H7), H7 is supported whereas H6 is only partly supported. For H6, physical technology of firms is positively associated only with the performance of FHF s, but it is insignificant for MHF s. H7 is fully supported because business finance has a positive effect on the performance of both male- and female-headed firms. With regard to intangible resources (H5), on the other hand, they were found to be insignificant to firm performance among different gender-headed firms. From the findings, we observe that both male- and female-headed firms control similar resources and use similar business approaches to achieve better performance.
6.2. Policy Implications

It is expected that the current study will provide information that will be useful to policymakers and implementers in addressing problems and designing appropriate policy measures to positively impact the performance of both male- and female-headed firms in the case of Lao MSMEs.

Policymakers working under current conditions can reduce the gender gap by providing an incentive to MSMEs to improve firm resources. Although policymakers should support both male- and female-headed firms, they should focus greater attention on disadvantaged FHFs. To narrow the gap between genders, policymakers can develop an appropriate policy for use by the education sector, which would match the needs of MSMEs, particularly for FHFs. Educators can develop curricula to improve the quality of both the formal education system and vocational training, thus creating qualified entrepreneurs for MSMEs. They can also provide appropriate practical training for entrepreneurs in line with the objectives of firms in order to boost the performance of MSMEs.

In addition, policymakers can provide useful information to both male- and female-headed MSMEs on how to obtain business credit from commercial banks in order to finance technology and strategic business activities in the private sector. Furthermore, they can enhance MSMEs through subsidies for HRD, business finance, and modern technology. In addition, they can channel funds to commercial banks for MSMEs; simplify and unify the accounting system for MSMEs; and encourage MSMEs to adopt accounting practices that would help provide reliable financial statements for use in obtaining obtain bank loans. Last, even though the finding has no support for building a firm’s reputation through marketing and advertising, both male- and female-headed firms are advised to engage in modern marketing and advertising by cautiously selecting target customers in order to be effective in their investments.

In order for MHFs and FHFs to maintain a superior performance, both need to implement a self-check mechanism that would emphasize certain key firm resources necessary to maintain good performance. For example, this study found that human resources contribute greatly to a firm’s performance. Entrepreneurs with a high level of education, longer work experience, and continuous training achieve better job performance because they can apply their accumulated knowledge and skills to business practices. Lao MSMEs should be more active, therefore, in building important capabilities and competencies in their entrepreneurs. To build reputation through marketing and advertising, these firms should carefully select their target customers in order to maximize return on their investments. Finally, both male- and female-headed firms should acquire credits to finance strategic business activities that will improve performance and thus allow the firm to gain a competitive advantage. To increase their ability to obtain loans, MSMEs should adopt bookkeeping and accounting practices that produce reliable financial statements for banks.
Some factors are expected to play a more important role than others among both male- and female-headed firms in the long run, even though they did not show a positive impact on performance in our analysis. As stated earlier, physical technology among female-headed MSMEs plays an important role in firm performance since it can increase efficiency and productivity. For MHF, although results suggest that MHF are in a better position than FHF in many aspects, this does not seem to be true with regard to physical technology. It is strongly advised, therefore, that MHF place greater priority on acquiring modern technology in order to boost performance. For female entrepreneurs, personal-life issues are also important and should be improved because the support of their spouses is a powerful factor in enhancing performance by allowing them to spend more time participating in business activities.

6.3. Research Limitations and Future Research

Despite the limitations of secondary data, the findings of this study can provide some useful information and contribution to the literature. Future research may wish to expand into an in-depth concept of firm resources and to test different variables to ascertain the different dimensions of firm performance. It is suggested that, in particular, more variables be included for intangible resources. Because of limitations on secondary data, we could not measure the performance of firms beyond the annual sales turnover. Future research should include comprehensive performance indicators, such as return on assets (ROA), return on sales (ROS), and sale growth.

ACKNOWLEDGMENT

We express our sincere gratitude to editors and to several anonymous reviewers for their helpful suggestions and their valuable comments to improve this paper. Special thanks to the German Agency for Technical Cooperation (GTZ) that provided some data from their survey in 2005 and 2007. Any errors that appear in the present paper are entirely the authors' responsibility.

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