THE ROLE OF INTERNAL AND EXTERNAL CONTEXTUAL FACTORS ON FIRM'S RESOURCES-PERFORMANCE RELATIONSHIPS

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Abstract

The critical resources affect the power of company's competitiveness. Management and business literature have limited knowledge and empirical research concerning the problems faced by the Indonesian manufacturing sector in relation to resources management, strategy, and environment issues. The broad objective of this study is to investigate the effects of resources on performance in Indonesian manufacturing firms and to analyze sensitivity of the resource-growth relationship on the degree of competition, degree of uncertainty as well as firm's characteristics. This study is conducted by distributing a set of structured questionnaires to the CEOs of large-scale manufacturing firms. Simple random sampling is used in this study in order to provide the least bias and offer most generalizability. This study indicates that for the Indonesian manufacturing firms to survive and to grow, they need not only to improve its production capacities but also technological capabilities. The effects of firm's resources on performance depend on contextual factors such as environment and business strategies.

Keywords: Firm's Resources, degree of competition, uncertainty, firm's characteristic, firm's performace.

1. INTRODUCTION

Entering 21 century, Indonesian companies face many business difficulties to maintain their sustainability. In 1997, Indonesia suffers due to financial crisis which lead many companies have gone to bankruptcy. It need more than five years to recovery the financial resource crisis. While the financial resource problems have not fully resolved, in recent years, Indonesian companies also address crisis of resource in energy (including gas, oil, and electric power). Indonesia has comparative advantage in natural resources, these phenomena however, have been often occurred. Some industries such as fertilizers and metal industries bear a problem in continuing their operation due to the lack of energy.

Other problems may occur in some industries which address difficulties to acquire material resources. It is not only in quantity but also in quality of the material resources. Some suppliers may have inconsistent (low or high) quality of material, which lead to the uncertainty of the product and service qualities. Furthermore, the classic problems in developing countries, such as Indonesia, are lack of skill and expertise workers (reflected from many expatriate skilled workers) and lack of advance and sophisticated technologies.

These critical resources will affect the power of company's competitiveness. While the practical issues are not fully resolved, Management and business literature have limited knowledge and empirical research concerning the problems faced by the Indonesian manufacturing sector in relation to resources management, strategy, and environment issues. Thus, this research was motivated by these considerations:

1. The dearth of a systematic and empirical research that simultaneously investigates the effect of overall resources on firm's growth and its performance.
2. The dearth of study that comprehensively investigates the moderating effect of internal and external factors on the relationship between resources and the performances.
3. The results of past studies on resources-performance relationship are still contradictive.

The broad objective of this study is to investigate the effects of resources on performance in Indonesian manufacturing firms. The specific objectives are as follows:

1. To investigates relationship between resources and firm performance.
2. To investigates relationship between resources and firm growth.
3. To analyze sensitivity of the resource-growth relationship on the degree of competition.
4. To analyze sensitivity of the resource-growth relationship on the degree of uncertainty.
5. To analyze sensitivity of the resource-performance relationship on firm's characteristics (including business relationships, business strategy, and type of ownership).

2. TEORITICAL FRAMEWORK AND HYPOTHESES

2.1. Critical Resources, Firms Growth and Its Performance

A theory that may explain why technology adoption, resources and management practices may increase organizational performance and creates competitive advantage is put forth by Barney (1991) and others who argue for resource based theory of competitive advantage. Under this theory, the firm's resources are key determinants of performance and competitive advantage. Firms can develop this competitive advantage only by creating value in a way that is difficult for a competitor to imitate. Specifically, Barney (1991) asserts there are four characteristics of a firm's resources that assure competitive advantage. Firstly, it must be valuable in the sense that it exploits opportunities and/or neutralizes threats in a firm's environment. Secondly, it must be rare (not easily obtained) among a firm's current and potential competition. Thirdly, it must be imperfectly imitable and lastly, there cannot be strategically equivalent substitutes for these resources that are valuable but neither rare nor imperfectly imitable. In other words, to gain competitive advantage, the resources add value and must be rare. These attributes of a firm's resources can be thought of as empirical indicators of how heterogeneous and immobile a firm's resources are and thus how useful these resources are for generating sustained competitive advantages.

Grant (1991) proposed three types of resources associated with a firm: (1) Physical capital resources include the physical technologies, plants and equipments used in a firm. (2) Human capital resources consist of the employees' knowledge and experiences. (3) Organizational capital resources include structure, system for planning, monitoring and controlling activities as well as informal relations among groups within a firm and between a firm and those in its environment.

Lado and Wilson (1994) stated that 'the firm is viewed as a nexus of resources and capabilities that are not freely bought and sold in the spot market. Along the general lines of this theory, two key concepts are resources and capabilities. Wernerfelt (1984) defined resources as anything, which could be thought of as strengths or weaknesses of a firm. Resources are the input into the production process (Grant, 1991). In contrast, capability must be defined apart from resources. Capability refers to a firms' capacity to deploy resources, usually in combination, using organizational processes, to affect a desired end (Amit & Schoemaker, 1993). Thus, capability is joint resources to produce any work or activity.

Based on the resource-based theory, AMT, material, capital, labor, and management practices are considered as a resource. Technological adoption greatly influences a firm's human resources and other firm's resources. The extents to which technology can be used to gain competitive advantage are partly determined by the environment in which a firm operates (Wernerfelt, 1984; Grant, 1991).

Technology. The fact that technology is a potential source of competitive advantage is widely accepted in management and economic literature. Technological adoption and technological innovation are powerful forces for industrialization, increasing productivity, supporting growth and improving the standard of living (Abernathy & Clark, 1985). Technological strength has affected manufacturing cost and other competitive drivers (Harisson & Samson, 1997). Schroeder (1990) found that technology adoption (innovation) creates competitive opportunities and threats for those who adopt them and for those who did not. Technology adoption and new operation techniques have proven to have a positive effect on SME's performance such as payroll size, asset size, financial rating, sales rating

and operating problem (Ignance, et al., 1998). Numerous studies (such as Youseff, 1993; Mechling et al., 1995; and Mc Gregor & Gomes, 1999) have emphasized the potential strategic benefit of flexibility responsiveness and improved productivity through purposeful adoption of advanced manufacturing technology. The literatures provide evidences that the benefits of AMT are not only to large firms but also to small firms (Mechling et al., 1995; Rishel & Burn, 1997; McGregor & Gomes, 1999). Most of the studies found that AMTs positively influence firms' performance (Youseff, 1993; Zammuto & O' Connor, 1992; Rishel & Burn, 1997; McGregor & Gomes, 1999). However, some of the studies revealed that hard technology has no significant impact on performance (Burgess et al. 1998; Dean & Snell, 1996). Even Beaumount and Scroeder (1997) found that hard technology has a negative impact on performance. Thus studies relating the impact of AMTs-performance relationship have produced contradictory results.

Capital. Capital defined as the elements of the sources of funds which stems from stems from bonds (long-term debt), stocks, hybrid financing and other sources of financing. Sources of funds are very important in countries attempting to develop. In emerging countries, such as Indonesia, information asymmetry often appear in capital market. This condition will reduce the ability of the prospective firms to acquire lower cost of capital. Hence, they will use more internal funds than external funds (Myers, 1984). Firms will add the funds from debt firstly when external fund needed. The capital is needed to exploit new product, processes, technologies are handsomely rewarded by markets. However, the current leverage level also determines the choice of sources of funds. Firm with high operating leverage may use less debt to reduce the firm's risk. The ability to generate new sources of competitive advantages may represent a key to long term prosperity and sustainable competitive advantage (Gofrey & Gregerson, 1999).

Human Resource/Labor. Bearing in mind the concept of intangible resources and the enumeration is issued by Hall (1993). It can be clearly deduced that human resources (skill, know how, talent and so on) are intangible resources. However until few years ago, little attempt has been made to identify and give structure to the nature and role of intangible resources (human resources) in strategic management. The capabilities and skill of human resources are crucial for a firm's success. A problem now arises from the condition regarding acquisition. Human resources may be attracted to an enterprise which offers higher compensation, career development program, and alike. Consider that human resources are able to be strategic resources. According to Hall (1993), human resources may generate functional and cultural capabilities due to experience, abilities, values, integration in the company and so forth. Thus, the resource-based theory suggests that human resources may create or sustain a competitive advantage through competency development and knowledge transfer.

Material. Material covers raw material, utilities and other supporting material in production process (Heizer & Render, 2000). Material resources are considered as those assets that create competitive advantage if they 'outperform' equivalent assets within competitor. The availability and the sourcing of material also determine the business survival. Harrison et al. (1993) found that the firms that engage in raw material extraction and primary manufacturing are more capital-intensive than company that produce and market finished product. Import of raw material and capital goods are usually very high in countries attempting to develop.

Management Practices. There are abundant articles and empirical studies that investigated the impact of management practices (e.g. TQM, JIT, TPM, MRP and benchmarking) on a firm's performance. Sohal and Terziovky (2000) argued that the effective implementation of quality improvement practices (TQM, benchmarking, process reengineering) lead to improvements in organizational performance in terms of both productivity and profitability, along with improved customer satisfaction.

Beaumount and Scroeder (1997) suggested that achieving competitive cost and quality may not be possible without some sophisticated technologies and modern management practices. They found that although sophisticated technologies, JIT and TQM are not strongly associated with cost reduction and dependability, these technologies give benefits in terms of increasing flexibility (reduction in new product development time) and increasing employees' morale. Sim (2001) investigated the impact of TQM, JIT and AMT on performance. Successive incremental technique could streamline the production process through the elimination of non-value added activities. On the other hand, capital investment in advanced manufacturing technology is often associated

with a 'quantum leap' in performance. Most of the studies have showed that management practices have a positive impact on firm's performance. However, some researchers found contradictory results. For example Dean and Snell (1996) found that JIT has no impact on firms' performance. The finding of Burgess et al. (1998) revealed that there is no significant relationship between soft technology (TQM, JIT, MRP) on sales and market shares. It is also surprising that Beaumont and Schroeder (1997) found that TQM increase the cost of quality. This may mean that the cost of correcting poor is made more explicit and tangible.

H_1: The higher the power to acquire the major resources the higher the firm's growth.
H_2: The higher the power to acquire the major resources the higher the firm's performance.

2.2. The Role of External Factors

Degree of Uncertainty. Spital (1992) argued that environmental uncertainty (caused by the rapid changes in product and process technology) resulted in differing competitive and technology strategies. In the environment in which there was high product technology dynamism, the firms tend to have a high level of investment in R&D, deep technical competence and followed a strategy of product innovation. In firms that had low product technology dynamism, the organizations had a lower level of investment in R&D, smaller breath of knowledge of product technology (as opposed to deep product technology know-how) and followed a strategy of product differentiation.

Moreover, in a more uncertain environment, firms were subjected to greater uncertainty, that either posed greater threats or provided opportunities. Firms with technology competencies and resources would be able to capitalize on these opportunities or were able to reduce these threats and outperformed its rival (Ellitan, 2003c, 2005b). When the environment was uncertain, and the environment changed rapidly and the customer needs fluctuated, the more innovative firms would get more benefit. Therefore, one can expect that the impact of resources on performance would be greater in a dynamic environment as opposed to a stable one. Thus, we proposed the following proposition.

H_3: The impact of firm's resources on firm's growth is greater in an uncertain economic environment, compared to a stable one.

Degree of Competition. Intensity of competitions refers to the degree of competition, degree of pressure and number of dimensions or sources of competition (Miller, 1988). Higher intensity of competition also reflects the keenness of competition market place (Badri et al., 2000). Technological innovation was needed more when the competition was more intense to achieve competitive advantage (Zahra & Covin, 1993). Thus, the more competitive the environment the greater the need to adopt new technology, managerial practices, and increase the competencies/capabilities and the firms were more likely to be more innovative. A competitive environment would open the windows of opportunities to exploit technology for greater returns to the more innovative and risk taker firms. In highly competitive environment, firms with competencies and capabilities would be able to overcome the pressures and threats. These firms would successfully differentiate themselves and perform better than its competitors, thus gaining competitive advantage. In sum, this study formulated the following proposition.

H_4: The impact of firm's resources on firm' growth is greater in a more competitive environment compared to the lower competitive one.

2.3. The Role of External Factors

Business Relationship. Chisea, Manzini and Tecilla (2000) argued that foreign owned and joint venture companies have a greater access to sources of technology and other resources. The greater the access to such sources of technology and other resources create greater opportunities for foreign and joint venture companies

to adopt more advanced technologies. It is also supported by the availability of skilled workers to operate the advanced technology in foreign and joint venture companies. In case of Indonesia, foreign and joint venture companies tend to adopt a higher level of AMTs compared to locally owned company (Ellitan, 2005). On the other hand, implementation of management practices is not significantly different between locally and foreign owned companies. It can be attributed to the nature of the modern management practices, which are easier to adopt and implement by locally owned companies.

Further, the level of AMT adoption also varies in terms of the extent of partnership. Companies having partnership with foreign counterparts tend to adopt more AMTs and implement new management practices. This phenomenon reflects that companies that have cooperative arrangement with foreign entities seem to be more proactive and have greater access to AMTs, new management practices, and other resources (skill workers, material, and capital) Schroeder and Sohal (1999).

H_5: The impact of firm's resources on firm' performance is higher due to business relationship.

Business Strategy. Critical resources have an important strategic potential in achieving competitive advantage (Wernerfelt, 1984; Grant, 1991; Russo & Fouts, 1997; Olala, 1999; Goldfrey & Gressen, 1999). In order to understand the relationship between resources and performance, we must consider an important aspect of the context in what situation technology and management practices are implemented, and the availability and the of other resources such as human resources, material resources and capital. Specifically, the impact of critical resources on performance depends on firms' choice of business strategy.

The role of critical resources in supporting the competitive advantage of firms is well recognized in classic management literatures such as Ansoff and Steward (1967), Kantrow (1980), Porter (1983) and Frohman (1985). For example, technology makes firms more profitable if it is managed well and if the technology strategy is formulated systematically (Ansoft & Steward, 1967). While, Kanthrow (1980) and Frohman (1985) argued that technology can create competitive advantage, if it is integrated into the firm's strategic planning. Further, Porter (1985) highlighted that technology has become the most important factor in expanding the market share.

In addition, the result of integrating critical resources into strategy can improve a company's list of priorities among technology options, identify the technical resources needed to achieve business goal, and to make the movement of ideas into products and processes faster (Buttler, 1988). This way, the company can also focus on the internal and external technological efforts. Frohman (1985) proposed a framework for incorporating resources issues into business strategy, which consists of the following: (1) to identify the distinctive competence of the companies, (2) to identify the technology that contributes or can contribute to business success, (3) to coordinate business goals and technological implications, and (4) to align organizational systems (people, technology, organization, external linkages, business policies, performance measurements, reward and budgets) for the implementations of the business strategy.

Schroeder et al. (1995) focused on the strategy-technology link. Importantly, they investigated the links between competitive business strategy and manufacturing technology of twenty SMEs. The study revealed that: (1) The strategic concept of strategy helps identify, assess and compare the type of technologies that are appropriate for competing within specific market environment (2) The appropriate technology adoption for firms within a given competitive situation are often dictated by customer demand and market forces. (3) The competitive advantage of technology can be exploited when technology is aligned with the firm's strategy. (4) The failure to adopt appropriate new technology or failure to align strategy to the new technology will weaken the competitive position of the firms.

The issue here is that critical resources must be viewed strategically, meaning they must be related to the whole strategic plan of the organization. There are two major points related to the resources-strategy connection:

1. Critical resources are enablers, and therefore they must fit in with the overall corporate strategy.
2. The performance will only materialize if there is a fit between the resources (technology adopted, management practices implemented, sourcing of capital, and of the labor/material) and the strategy.

Further, literature on resources based theory documented that the critical resources will produce sustainable competitive advantage when a company focus and put emphasize on diversification strategy (Barney, 1991; Harrison et al, 1991, Wernerfelt, 1984, Harrison, et al. 1993). The resources perspective provides a basis for addressing some key issues in the formulation of strategy for diversified firms, such as: 1. on which of the firm's current should diversification based be? 2. Which resources should be developed through diversification? 3. In what sequence and into what markets should diversification take place?

H_6: The impact of firm's resources on firm' performance is sensitive to business strategy.

Type of Ownership. The separation of ownership and control leads to an agency problem whereby management operates the firm aligning with their own interests, not those of shareholders (Jensen and Meckling 1976). This creates opportunities for managers to spend firm resources maximising their utilities rather than owners' utilities. Agency problem not only occurs in the conflict of interests between managers and owners, but also in broader conflict areas, such as shareholders through managers versus bondholders, and major (dominant) shareholders versus minor ones.

Principal-agent theory (Jensen and Meckling 1976) is widely used to explain why closely-held firms have better economic performance than do publicly owned firms. The theoretical framework tends to suggest that public enterprises are inefficient due to the fact that there is a lack of capital market discipline. Because of the lack of market monitoring, managers attempt to pursue their own interests at the expense of enterprises' interests. Thus, agency theory views that there is a relationship between controlling ownership and economic performance: the cost of monitoring makes private or closely-held firms economically more efficient than publicly -owned firms.

Recent research by Tandelilin et al. (2006) indicates type of ownership have a moderating variable function which induce different effect on performance. They classified the type ownerships into three types of ownerships: domestic private-owned enterprise, state-owned enterprise, and foreign-owned enterprise. Domestic private-owned represents concentrated ownership; state-owned enterprise represents perfectly dispersed ownership; and foreign-owned enterprise in emerging market represent reputable entity which have higher experience and technology in management practices and multinational business relationships than local entities. Foreign-owned enterprise also represents investment in emerging countries. They find that different types of ownership lead to different managerial behavior and firm's performance relationships. Parallel findings are also provided by Supriyatna (2006). He finds that foreign-owned enterprises have higher ability to control their resource which related with the firm's performance than local-owned enterprises.

The managers of state-owned enterprise may have many different incentives that are not aligned with those of taxpayers. These managers may maximize their wealth through several ways, including consumption of perquisites, leisure time and staff numbers. Shleifer and Vishny (1994; 1997) argue that the managers may also seek to advance their careers in political area by serving particular interest groups. The managers are less risk averse than shareholders who have managed their portfolio well. Therefore, managers will undertake less risk than is optimal from the taxpayers' point of view. In order to mitigate such opportunism, the managers may be given little autonomy.

Thus, owners who have higher power to control their resources will get more benefit to use the resources inline with their interest. In this conceptual framework, the firms with controlling ownership will increase the power effect of firm's resources s on firm's performance.

Based on the literature review related to the linkages amongst critical resources, business strategy, business partnership and controlling ownership, we formulate the following hypotheses:

H_7: More power in acquiring and controlling critical resources leads higher performance of the firm, especially due to controlling ownerships

2.4.The Relationship between Firm Performance and Firm Growth

Numerous variables influence firm's performance. However, this study focuses on the impact of critical resource on firm's performance. Swamidas and Newell (1987) described the difficulty in selecting performance measures. The appropriateness of the performance measurement used may depend on the circumstances and the uniqueness of the study (Badri et al. 2000). Measuring performance by comparing firm performance with average performance in industry, major competitor, and growth are frequently used as a perspective to measure firm's performance (Dess & Byard, 1984; Vickery et al. 1993). The use of growth has special appeal for previous research and this study due to the firms are faced with recession and increasing competition from abroad. Under these circumstances, growth provide a more rigorous test of performance rather than only measure the performance by comparing to average performance in industry or major competitor. Vickery et al. (1993) stated that there is interrelationship between firm's performance and firm's growth. Thus, we propose the following hypothesis.

H_8: There is causal inter-relationship between firm's performance and firm's growth.

3. RESEARCH METHOD

This research involves an empirical study to examine the relationship between independent variables and the dependent variable. The independents variables are level of technology adoption, capital, human resources, material, and management practices, while the independent variables are firm performance and its growth. Degree of uncertainty, degree of competition, business relationships, business strategy and type of ownerships are treated as moderating variable. This study is conducted by distributing a set of structured questionnaires to the CEOs of large-scale manufacturing firms. Simple random sampling is used in this study in order to provide the least bias and offer most generalizability. The relationship amongst the variable are tested using simultaneous regression analysis.

3.1.Population and Sample

The unit of analysis is the organization. For this study, medium and large companies will be obtained from the Directory of Manufacturing Industry, published by Statistic Center Bureau (Indonesia). Classification of the sized of the firms was based on the number of employees: (1) firms with 10-99 employees are classified as small, (2) firms of 100-499 employees are classified as medium, and (3) firms over 500 employees are classified as large. This short of classification techniques was undertaken by past researchers such as Ko et al. (2000) as well as Cagliano and Spina (2000). Based on these criteria, the sample selected is the manufacturing firms with more than 100 full time employees (medium and large companies). Random sampling techniques will be used to provide the least bias and offer generalizability. Data will be collected through mail questionnaires to the organization's CEO.

3.2. Variables and Measures

Based on the theoretical framework (Figure1), variables developed in this research require a number of measures, which are adopted and/or modified from different sources.

Technology. Technology in this research refers to a family of advanced manufacturing technologies and computer-based technologies, which include 17 types of hard technology. Five point Likert type scales (1 = not adopted to 5 = very high) are used in order to measure level of adoption of hard technology, an instrument developed by Youseff (1993), Schroeder & Sohal (1999), Ko, Kinkade, Brown, (2000) are used.

Capital. Capital refers to the sourcing of funds. Sourcing of fund stems from bonds (long-term debt), stocks, hybrid financing and other sources of financing. This variable is measured by using semantic differential scale ranging from local market to international market sourcing.

Human Resource. Human resource refers to the staffs and workers of the company, which includes managerial staff, administrative staff, technician, clerical worker, specialist, and production workers. We measure the human resource variable from two perspectives. First perspective is seen from the level of skill and capabilities (low and high). Second perspective measurement is seen from the abundant-scarcity of the human resources. Five point semantic differential type scales (1 to 5) are used in order to measure the skills/capabilities and availability of human resource. An instrument developed by Badri el al. (2000) is used for the purpose of this study.

Material. We define material resources as the resources of the company which is needed in the production process. It involves raw material, utilities and supporting materials. Material resources is gauged the material resources from the perspective of the availability (abundant-scarcity) of materials. Five point semantic differential type scales (1 to 5) are used in order to measure the availability of material resource. An instrument developed by Ellitan et al. (2003; 2005) is used for the purpose of this study.

Management Practices. Management practices refers to the system, which control the technical processes within the organization such as Total Quality Management, Just In Time, Total Productive Maintenance, Manufacturing Resources Planning, Concurrent engineering, Quality Function Deployment, Team Work, and Benchmarking. TQM measure are obtained and modified from. A five-point Likert scale anchored by 1 (not practiced) to 5 (very high) is used to measure the level of soft technology adoption. The instrument are modified from, Warnock (1996), Yasin et al. (1997), Sohal and Terziovsky (2000), Schroeder and Sohal (1999), Ko, Kinkade, and Brown, (2000), Tsang and Chan (2000), and Hinton, Franciss, and Holloway (2000).

Degree of Uncertainty. Environmental uncertainty refers to the unpredictability of change in the environment (Dess and Beard, 1984). To measure the extent of environmental uncertainty, a modified version of the instrument used by Badri et al. (2000) is adopted and five point Likert scale ranging from 1 (unpredictable) to 5 (very predictable) is used. These items involve business cost, exchange rate, law and regulation, rate of innovation of new product, rate of change in the taste and preferences of customers. This study uses dummy variable to measure the degree of uncertainty, 1 for high uncertainty and 0 for others. The dummy variable is based on mean values of the items.

Degree of Competition. Khandawala (1972) considered price, product, and marketing or distribution channel as factor comprising the market competition. Cooper (1995) extended Khandawala (1972) model by incorporating other competition factors such as new entrants in the market, competitor strategies and actions, number of competitors and the strength of company market position. Based on these studies, the current study conceptualized the intensity of market competition consisting of price, new product development, marketing distribution channels, market share, competitors' actions, and number of competitor in the market. Five point Likert type scales (1 = very low to 5 = very high) are used in order to measure the market intensity or degree of competition. This study uses dummy variable to measure the degree of competition, 1 for high competition and 0 for others. The dummy variable is based on mean values of the items.

Business Relationship. The type of business relationship is categorized in two types, namely local partnership and international partnership. International partnership is a partnership with foreign entities, whereas local partnership is the partnership or cooperation with the local entities (Ellitan, 2005). Two dummy variables are used to measure the business relationship. D_{BR1} is 1 for international partnership in supplies affiliations and 0 for others. D_{BR2} is 1 for international partnership in demand affiliations and 0 for others.

Business Strategy. Business strategy is defined as the long term plan of action a company may pursue to achieve its goal (Zahra and Covin, 1993). Three business strategy dimensions are examined in this study: differentiation, cost leadership and focus. These dimensions are chosen for examination because they represent fundamental strategic choices that are meaningful in a wide variety of environmental setting (Oster, 1990). Cost strategy refers to the business strategy which put high emphasis to achieve overall cost leadership within its industry. Important component of this strategy include the aggressive construction of efficient-scale facilities, vigorous pursuit of cost reduction from experience, emphasis on operating efficiency, tight cost and overhead control, avoidance of marginal customer accounts, a and cost minimization in areas like R&D, sales force, advertising etc (Vickery et al., 1993). Five items are used to measure the emphasis on cost strategy e.g. level of capacity utilization Level of

operating efficiency, offering competitive price, emphasis on finding ways to reduce cost of production, emphasis on finding ways to reduce cost of production, and efficiency of the distribution channel. Differentiation strategy concerns to the high emphasis of the company to differentiate its product offering by creating a product that is recognized industry wide as being unique and which is able to command a premium price due to the uniqueness of its attribute(s). Company managers devote a great deal of attention to product differentiation although cost reduction is not ignored. The approach or approaches of the company uses for differentiating the products from others concerns with the need to manufacture products and services that confirm to the specification and customers' need (Vickery et al (1993). The literature suggests that differentiation strategy can be measured with through the offering abroad line of production, emphasis on new product development process, rate of new product introduction to market, number of new product offered, and superior product performance. Focus strategy is an emphasis on offering specialty products, Uniqueness of the product attributes Targeting a clearly identified segment offering product suitable for high price segments (Zahra and Covin, 1993). Measuring this variable, four items were designed accordingly. The instrument used to measure manufacturing strategy is adopted from Zahra and Covin (1993) and Vickery et al. (1993). Here, the respondents are asked to indicate the importance to statements on five point Likert's scale (1 = very low to 5 = very high).

Furthermore, these variables will be classified into three types of strategies; namely differentiation, cost leadership, and focus strategies. The classifications are based on comparison of mean value of each strategy (the highest value is considered as the dominant strategy implemented by the firm). Two dummy variables are used to measure the business relationship. D_{BS1} is 1 for differentiation strategy and 0 for others. D_{BS2} is 1 for cost leadership strategy and 0 for others.

Type of Ownership. In this study, the type of ownership is categorized in three types, namely state-owned enterprise, domestic private-owned enterprise, Foreign-owned enterprise. Domestic private-owned represents concentrated ownership; state-owned enterprise represents perfectly dispersed ownership; and foreign-owned enterprise in emerging market represent reputable entity which have higher experience and technology in management practices and multinational business relationships than local entities. Foreign-owned enterprise also represents investment in emerging countries.This category is adopted from Tandelilin el al. (2006).

Current Performance: This study looks at performance from two perspectives. First, the firm performance compared to the major competitor in industry and second, changes in performance, which is measured by comparing current performance with performance of the previous year. Firms' performance as measured by return on investment (ROI), return on assets (ROA), return on equity (ROE), and return on sales (ROS). Five-point Likert-like scale ranking from 1 (much lower) to 5 (much higher) is used to measure firm performance compared to average performance in industry. Five-point Likert-like scale ranking from 1 (much lower) to 5 (much higher) is used to measure firm performance compared to previous firm performance.

Growth. Growth represents the firm's ability to maintain their operation and survival in the long run periods. This study uses the medium trend of growth (the last three years) based on financial reports and non financial reports. Proxies of growth are measured by growth of sales and assets (Beaumont and Schroeder, 1997), and overall productivity delivery (Bond, 1999). Seven-point Likert-like scale, rating from 1 (decrease more than 10%) to 7 (increase more than 10%), is used to measure growth of firms. The growth measures used include sales, assets, and overall productivity.

3.3.Statistical Techniques

For the purpose of data analysis and hypothesis testing, several statistical tools and method were utilized from SPPS software, version 12 and EVIEWS software. These include:

1. Validity and Reliability Analysis
2. Descriptive statistic to describe the characteristic of respondents.
3. Simultaneous Regression
4. Multiple regressions to test the effects of firm's resources on firm's performance

5. A hierarchical regression to test the moderating effect of business strategy, environmental uncertainty, and degree of competition on the relationship between firm's resources and firm's performance.

4. ANALYSES AND FINDINGS

4.1. Response Rate

Table 1 summarizes the response rate for this survey. Twenty six companies were dropped from the target sample because twenty two of them have moved to unknown addresses and the other four companies refused to participate. In addition, 13 incomplete responses cannot be used for this study. Finally, a total of 57 responses were collected and used for the purpose of this study. The response rate of 11.40% can be considered to be reasonable given that the respondents were the CEOs or the top managers.

Table 1. The Questionnaires Distribution

Questionnaires were distributed.	500
Not delivered.	22
Refuse to participate	4
Returned and usable.	57
Returned but unusable.	13
Not returned.	404
Response rate.	12.00%
Rate of usable response.	11.40%

4.2. Respondents' Profiles

The profile of the sample revealed an interesting spread of Indonesian medium and large companies' characteristics. Majority (more than 69%) of the responding firms have less than 1500 full time employees, and only 8 companies (14) % are very large firms having in excess of 2500 full time employees. It is not surprising that about 91% of them have assets in excess of 25 million Rupiahs (1 USD equal to 12,000 Rupiahs). Most of them (84.2%) have been in existence for more than 10 years with only 15 companies (26.3 %) are relatively new (less than 10 years).

Eighteen point eight percent (28.1%) of the companies are in fabricated metal, machinery automotive and electronic industry, while also 28.1% in food, beverage and tobacco industry. Seventeen point five percent of the companies operated in rattan, bamboo, and furniture and handicraft industry. The smallest (5.3%) group came from non metallic and mineral industry.

In terms of ownership, approximately 72 % are Indonesian owned, while the remainders are either joint venture companies or totally foreign owned. However, locally owned companies do have some degree of alliances, with only 42% indicated that they do not have any cooperative arrangement with foreign entities. Given that the data was collected at the end of 2009 (during the global recession), it is not surprising that more than 60% of them have shown a decrease or stagnant in financial performance over the last three years.

4.3. Reliability and Validity Test

Table 2 summarizes the reliability and validity test of the measures. As shown, the Cronbach alphas of the measures were all comfortably above the lower limit of acceptability (Cronbach's` alpha > .60), and the range of all homogeneity items. Hence, all the measures were highly valid and reliable (See Appendices 1 and 2).

Table 2. Reliability and Validity Test

Variables	Number of Items in Questionnaire	Reliability	Item homogeneity
Advanced Manufacturing Technology	13	.9347	.619-.829**
Skill and Availability Human Resources	12	.8507 & 8294	.563-.758**
Material Resources	3	.8419	.839-.901**
Management Practices	11	.9104	.565-.835**
Cost leadership strategy	5	.8509	.727-.859**
Differentiation strategy	5	.8440	.724-.892**
Environmental uncertainty	10	.7627	.379-.683**
Degree of competition	6	.6754	.433-.698**
Type of ownership	4	.4833	.391-.724**
Firm's performance relative to major competitor	4	.8808	.822-.917**
Firm's performance relative to previous year	4	.8194	.779-.848**
Performance growth	4	.9407	.850-.967**

4.4. Firm's Resources and Performance

Hypothesis 1 examines the impact of firm's resources on firm's performance. To test this hypothesis, multiple regression analysis was done with the extent of hard and soft technology adopted as the independent variables and performance as the dependent variable. The results are summarized in Table 3.

Table 3. The Impact of the Firm's Resources on Performance.

Independent Variables	FPMC	FPPY	FPGR
R^2	.369	.245	.188
Adjusted R^2	.364	.239	.182
Sig. F	.000	.000	.000
Standardized Coefficients (β)			
AMT	.095**	.059	.134***
HRM	.011	.097	.290***
MR	.008	.157**	-.265***
MPRAC	.555***	.262***	.281***

*** : significant at 0.01 ** : significant at 0.05 * : Sig. at 0.1

Note:
AMT: Advanced Manufacturing Technology MPRAC: Management Practices
MR: Material Resources HRM: Human Resources Management
FPMC: Firm Performance compared to Major competitor
FPPY: Firm Performance compared to previous year.
FPGR: Firm Performance Growth

On the whole, the model shows that the independent variables, the firm's resources jointly explained 36.4% of the variance of firm's performance compared to major competitor, 23.9% of firm's performance compared to previous year, and 18.2% of firm's performance growth. All the models were significant at 1% level (Sig. F = .000).

Hypothesis 1 stated that, the higher the power to acquire the major resources the higher the firm's performance and Hypothesis 2 stated that the higher the power to acquire the major resources the higher he firm's growth. In other words, there is a positive relationship between firm's resources and firm's performance. It is shown with the positive value of standardized beta advanced manufacturing technologies, material resources, and management practices on firm's performance. It is also shown the positive value of standardized beta advanced manufacturing technologies, human resources, and management practices on firm's performance growth.

Findings from test of the two hypotheses can be summarized as follows:

1. Both Advanced Manufacturing Technologies and Management Practices have positive impact on firm's performance compared to major competitor. Advanced Manufacturing Technologies and Management Practices jointly are able to explain 36.4%, of variation in firm's performance compared to major competitor.
2. Both Material Resources and Management Practices have positive impact on firm's performance compared to previous year. Material Resources and Management Practices jointly are able to explain 23.9%, of variation in firm's performance compared to previous year.
3. Firm's resources in tandem explain firm's performance (compared to previous year) better rather than firm's compared to previous year and growth of performance.
4. There is negative impact of material resources on firm's growth. This result is inconsistent with previous studies.

Based on the above findings, we conclude that the hypothesis 1 and 2 are partially accepted.

4.5. The Moderating Effect of the External Factors

The Moderating Effect of Environmental Uncertainty on Firm's Resources and Firm's Growth

Hypothesis 3 postulates that the impact of firm's resources and firm's growth is greater in uncertain environment compared to a stable one. In other words, the more dynamic the environment the higher the impact of firm's resources on firm's growth. A moderated regression analysis is utilized for testing this hypothesis. The results are given in Tables 4.

Table 4. summarizes the results of regression analysis to test the moderating effect of the environmental dynamism/uncertainty (ED) on the relationship between firm's resources and firm's growth. The addition of environmental dynamism and the interactions terms increase R^2 from 18.8% to 21.7%, and the F-change is significant at 5%. Furthermore, the standardized beta of interactions between environmental dynamism and human resources and management practices are found to be significant, indicating that environmental dynamism moderates the relationship between management practices and performance growth also between human resource and growth. Further our finding indicates that the impact of human resource on growth is greater in more uncertain environment but the impact of management practices on growth is greater in stable business environment. Our findings indicate that hypothesis 3 is partially accepted.

Table 4. The Moderating Effect of Environmental Dynamism on the Relationship between Firm's Resources and Firm's Growth

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
AMT	.134***	.090*	-.116
AVHR	.290***	.277***	-.795**
AVMR	-.265***	-.249***	-.479
MPRAC	.281***	.270***	1.582***
ED		-.124***	-.256
AMTxED			.213
AVHRxED			1.164***
AVMRxED			.257
MPRACxED			-1.474***
R^2	.188	.201	.217
R^2 change	.188	.013	.059
F change	28.669	7.839	2.601
Sig. F change	.000	.005	.035

*** : significant at 0.01 ** : significant at 0.05 * : significant at 0.1

The Moderating Effect of Degree of Competition on Firm's Resources and Firm's Growth

The fourth hypothesis in this study states that the impact of firm's on performance growth is greater in more hostile environment or highly competitive environment. Tables 5displays the result of the hierarchical regression analysis used to test this hypothesis.

Table 5. summarizes the regression results to test the moderating impact of environmental hostility or degree of competition (DOC) on the relationship between firm's resources and performance growth. This table clearly

shows that the introduction of degree of competition into the second step is not significant. However, the change in F-ratio and R^2 are significant with the introduction of the interaction terms. All the beta coefficients of the interaction terms are significant at 1% and 5% level. Thus, degree of competition moderates the impact AMT and performance growth and also the impact of management practices on performance growth. The impact of AMT on firm's growth is lower in more hostile environment. It is largely due in more hostile environment firms tend to be more risk averse thus they do not maximize the AMT implementation, thus the impact on performance growth is lower than in benign environment. On the other hand, the impact of management practices on firm's growth is greater in high competition. Regarding these findings, we conclude that hypothesis 4 is partially accepted.

Table 5. The Moderating Effect of Degree of Competition on the Relationship between Firm's Resources and Performance Growth

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
AMT	.134***	.133***	1.200***
AVHR	.290***	.290***	-.416
AVMR	-.265***	-.265***	.487
MPRAC	.281***	.280***	-.984
DOC		-.003	-.553***
AMTxDOC			-1.054***
AVHRxDOC			.834*
AVMRxDOC			-.869
MPRACxDOC			1.444**
R^2	.188	.188	.225
R^2 change	.188	.000	.037
F change	28.669	.004	5.789
Sig. F change	.000	.952	.000

*** : significant at 0.01 ** : significant at 0.05 * : significant at 0.1

The Moderating Effect of Type Ownership on Firm's Resources and Firm's Performance

The hypothesis 5 in this study states that the impact firm's resources on firm's performance are higher due to the type of ownership or business relationship. Firms with more disperse ownership will get better performance. Tables 6 displays the result of the hierarchical regression analysis used to test this hypothesis.

Table 6 and 7 summarize the regression results to test the moderating impact of type of ownership on the relationship between firm's resources and firm's performance. Those tables clearly show that: Firstly for the model with Firm' performance compared to major competitor as dependent variable: (a). the introduction of type of into the second step is significant. Further, the change in F-ratio and R^2 are significant with the introduction of the interaction terms. (b). the interaction term between human resources and type of ownership is significant at 1% and the interaction term between material and type of ownership also significant at 1% level. However, the finding indicate that the impact of human resources on firm's performance compared to major competitor is greater when the ownership is more disperse, on the other hand the impact of material resources on performance is greater when the ownership is more concentrated. Thus, type of ownership moderates the impact human and material resources with firm's performance compared to major competitor in different way.

Table 6. The Moderating Effect of Type of Ownership on The Relationship Between Firm's Resources and Firm's Performance Compared to Major Competitor

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
AMT	.095**	.137***	-.095
AVHR	.011	.029	-1.272***
AVMR	.008	-.004	1.307***
MPRAC	.555***	.550***	.934**
TOW		.155***	.132
AMTxTOW			.279
AVHRxTOW			1.490***
AVMRxTOW			-1.579***
MPRACxTOW			-.420
R^2	.369	.391	.427
R^2 change	.369	.022	.036
F change	72.353	17.626	7.651
Sig. F change	.000	.000	.000

*** : significant at 0.01 ** : significant at 0.05 * : significant at 0.1

Secondly, for the model with Firm' performance compared to previous year as dependent variable: (a). the introduction of type of into the second step is not significant. Further, the change in F-ratio and R^2 are significant with the introduction of the interaction terms. (b). All beta coefficient of the interaction term between firm's resources and type of ownership are significant at 1%. However, the finding indicate that the impact of human resources and management practices on firm's performance compared to previous year is greater when the ownership is more disperse, on the other hand the impact of material resources and advanced manufacturing technology on performance is greater when the ownership is more concentrated. Thus, type of ownership moderates the impact firm's resources with firm's performance compared to major competitor in different way. Thus, the findings revealed that hypothesis 5 of this research is partially accepted.

Table 7. The Moderating Effect of Type of Ownership on The Relationship Between Firm's Resources and Firm's Performance Compared to Previous Year

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
AMT	.059	.075	.889***
AVHR	.097	.104	-1.043***
AVMR	.157**	.152**	3.361***
MPRAC	.262***	.260***	-2.259***
TOW		.059	-.436***
AMTxTOW			-.781***
AVHRxTOW			1.436***
AVMRxTOW			-3.876***
MPRACxDOC			3.188***

R^2	.245	.240	.325
R^2 change	.245	.003	2.067
F change	40.094	2.067	16.575
Sig. F change	.000	.151	.000
*** : significant at 0.01	** : significant at 0.05	* : significant at 0.1	

4.6. The Moderating Effect of Business Strategy on the Relationship between Firm's Resources on Firm's Performance

Hypothesis 6 postulated that the relationship between the Firm's resources and performance is moderated by the business strategy. Hierarchical regression analysis was used to test the moderating effect of operation strategy on the relationship between firm's resources and firm's performance.

Moderating Effect of Cost Leadership Strategy

Tables 8 to 9 present the results of moderated regression analyzing the moderating effect of cost leadership strategy on the relationship between firm's resources and performance (compared to major competitor and compared to previous year. Table 4.15 displays the moderating role of cost leadership strategy (CS) on the relationship between firm's resources and firm's performance compared to major competitor. The R^2 change and the F-change from step 1 to 2 and from step 2 to 3 are significant, indicating that cost strategy does significantly influence the impact of firm's resources on firm's performance compared to major competitor. This is further supported by the fact that only interaction term between human resource and cost strategy which is not significant and the other three of the beta coefficient for interaction terms between firm's resources (AMT, Material, and Management Practices) are significant. This indicates that cost leadership strategy tend to moderate the impact of firm's resources on firm's performance compared to major competitor. In fact, cost strategy has a negative independent effect on firm performance. That is, the more the emphasis is placed on cost strategy the lower the firm's performance will be.

Table 8. The Moderating Effect of Cost Leadership Strategy (CLS) on The Relationship Between Firm's Resources and Firm's Performance Compared to Major Competitors.

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
AMT	.095**	.079*	-.642***
AVHR	.011	-.024	.157
AVMR	.008	.102	1.094***
MPRAC	.555***	.539***	-.244
CLS		-.156***	-.341*
AMTxCLS			.906***
AVHRxCLS			-.361
AVMRxCLS			-1.475***
MPRACxCLS			1.165***
R^2	.369	.389	.456
R^2 change	.369	.020	.067
F change	72.353	16.219	15.170
Sig. F change	.000	.000	.000
*** : significant at 0.01	** : significant at 0.05	* : significant at 0.1	

Table 9 shows the moderating role of cost leadership strategy on the relationship between firm's resources and firm's performance compared to previous year. The R^2 change and the F-change are significant at 1% level with the introduction the interaction terms, indicating that cost leadership strategy significantly influences the impact of firm's resources on firm's performance compared to previous year. The significant beta coefficient for interaction between human resource and cost leadership strategy (β = -3.902) indicates that the impact of human resources on firm's performance differ by the degree of emphasis on cost leadership strategy. The higher the emphasis on cost leadership strategy the lower of the impact of human resources on firm's performance compared to previous year. On the other hand the impact of AMT, material resources, and management practice on firm's performance is greater when the firms put more emphasis on cost leadership strategy.

Table 9. The Moderating Effect of Cost Leadership Strategy on The Relationship Between Firm's Resources and Firm's Performance Compared to Previous Year

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
AMT	.059	.056	-.720**
AVHR	.097	.091	2.429***
AVMR	.157**	.174	-1.473***
MPRAC	.262***	.259	-.216**
DS		-.029	.218**
AMTxDS			.925**
AVHRxDS			-3.902***
AVMRxDS			2.633***
MPRACxDS			.838***
R^2	.245	.245	.304
R^2 change	.245	.001	.059
F change	40.090	.457	10.345
Sig. F change	.000	.499	.000

*** : significant at 0.01 ** : significant at 0.05 * : significant at 0.1

The Moderating Effect of Differentiation Strategy on the Relationship between Firm's Resources and Firm's Performance

Tables 10 to 11 summarize the results of regression analyses on the moderating effect of differentiation strategy (DS) on the relationship between firm's resources and performance compared to major competitor and compared to previous year. Table 4.26 tabulates the results of hierarchical regression to test the moderating influence of differentiation strategy on the relationship between firm's resources and firm's performance compared to major competitor. The R^2 change and the F-change from step 1 to step 2 is not significant, indicating that delivery strategy doesn't have direct influence on firm's performance compared to their major competitors. On the other hand, the R^2 and F change from step 2 to 3 is not significant, indicating that the differentiation strategy significantly influence the relationship between firm's resources and firm's performance compared to major competitor. This is supported by the fact that all of the beta coefficients for the interaction terms are significant at 1% level. The significant beta coefficient for interaction between human resource and cost leadership strategy (β = -4.810) indicates that the impact of human resources on firm's performance differ by the degree of emphasis on differentiation strategy. The higher the emphasis on differentiation strategy the lower of the impact of human resources on firm's performance compared to major competitor. On the other hand the impact of AMT, material resources, and management practice on firm's performance is greater when the firms put more emphasis on differentiation strategy.

Table 10. The Moderating Effect of Differentiation Strategy on The Relationship Between Firm's Resources and Firm's Performance Major Competitor

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
AMT	.095**	.098**	-.442***
AVHR	.011	.012	2.773***
AVMR	.008	.004	-1.206***
MPRAC	.555***	.566***	.412
DS		-.021	1.240***
AMTxDS			.799***
AVHRxDS			-4.810***
AVMRxDS			1.762***
MPRACxDS			-.442***
R^2	.369	.369	.487
R^2 change	.369	.000	.117
F change	72.353	.259	28.002
Sig. F change	.000	.611	.000

*** : significant at 0.01 ** : significant at 0.05 * : significant at 0.1

Table 11 displays the moderating role of differentiation strategy on the relationship between technology and firm's performance. The result of moderated regression shows that R^2 change and the F change from step 2 to 3 are significant at 1% level. The significance of standardized beta of the interaction between firm's resources and differentiation strategy at 1% level indicates that quality strategy moderates the relationship between firm's resources and firm's performance compared to previous year. The relationship between firm's resources, delivery strategy and firm's performance is illustrated as follows: (1) The impact of human resources and management practices on firm's performance is greater when the firm put less emphasis on differentiation strategy, and (2). The impact of AMT and material resources on firm's performance compared to pervious year is greater when the firms put more emphasis on differentiation strategy.

Table 11. The Moderating Effect of Differentiation Strategy on The Relationship Between Firm's Resources and Firm's Performance Compared to Previous Year

Variables	Step 1	Step 2	Step 3
	Standardized Beta		
AMT	.059	.067	-1.648**
AVHR	.097	.099	2.655**
AVMR	.157**	.148**	-1.752**
MPRAC	.262***	.289***	.684
DS		-.051	.328
AMTxDS			2.255***
AVHRxDS			-4.358***
AVMRxDS			2.850***
MPRACxDS			-.602***
R^2	.245	.247	.353

R^2 change	.245	.002	.107
F change	40.094	1.232	20.189
Sig. F change	.000	.268	.167

*** : significant at 0.01 ** : significant at 0.05 * : significant at 0.1

4.7. The Interrelationship between Firm's Performance and Growth.

Hypothesis 3 postulates that there is causal relationship between firm's performance and firm's growth. Correlation analysis is conducted to provide a description of inter-relationship amongst the dependent variables. Table 12 tabulates the result of correlation analysis between firm's performance and performance growth. It indicates that both firm's performance compared to major competitor and firm's performance compared to previous year are positively correlated performance growth. Thus, hypothesis seventh of this study is accepted.

Table 12. The Correlation between Firm's Performance and Performance Growth.

	Relative Performance to major competitor	Relative Performance to previous year	Growth
Relative Performance to major competitor	1	.535**	.485**
Relative Performance to previous year	.535**	1	.464**
Growth	.485**	.464**	1

5. DISCUSSION AND CONCLUSION

5.1. Implications of the Study

Several implications are advanced from the outcomes of this research. In Indonesia, there is a lack of empirical research in management of firm's resources. This study contributes to the development of a resources management theory by adding to the existing body of literature on the subject. It takes an important step in the direction of the empirical development. This study provides a brief description of the extent of resources acquisitions by large manufacturing companies in fast developing countries such as Indonesia.

This study suggests that for the Indonesian manufacturing firms to survive and to grow, they need not only to improve its production capacities but also technological capabilities. The process of acquiring the technological capabilities and technological learning is not simple and effortless. Developing and maintaining these capabilities require both conscious efforts by the organizations and also support from other institutions and government, in terms of partnership programmed and government policy that encourage technological development.

This study finds that firm's resources positively influence performance. Thus, Indonesian manufacturing firms should consider adopting more advanced manufacturing technology which is currently at low level. However, the lack of technological dynamism (the ability to adapt or upgrade technologies to cope with changing circumstances) inhibits the adoption process (Zulkiefflumansyah, 2001). Most of the firms in Indonesia are also technically inefficient in using the advanced technology. One of the main reasons for the technical inefficiency in using advanced technology in Indonesia is the misconception of technology adoption. Albu (1997) stated that In Indonesian, technology is still viewed as machines and devices which are independently able to stand alone in improving the business and operational performance without considering the complementary factors such as human resources (e.g. expertise and skilled workers) and social contexts (e.g. environment conditions, internal and external culture).

In the real world, the evidence shows that the effective adoption and mastery of technology require not just the establishment of new production facilities (e.g. ancillary manuals, charts, schedules, diagrams, and people), but also the knowledge and expertise for implementing technical change (Clarck, 1993). Therefore, in order to survive in the era of hyper competition, Indonesian manufacturing firms must cope with the complex process of technological learning. They should continuously choose, use, and master technology.

The success of new technology adoption and resources management also depend on top management (CEOs) support. CEOs must be ready to make sacrifices and accept failures as well as provide supports by committing visible fund and resources. CEOs also should understand factors that drive resource management. In the case of Indonesia, the following factors are found to be critical for the success of resources management: (1) top management (support and involvement); (2) culture (openness of innovation, participation, cross functional working system, open communication system); (3) strategy (technology sourcing, monitoring systems); (4) skill development (employee training and education); and (5) resources (availability of finance, material and technocrat). The studies by Harrison and Samson (1997) as well as Lefvebre et al. (1997) are consistent with our exploratory study which found that top management support and involvement are the most critical for the success of technology adoption.

The effects of firm's resources on performance depend on contextual factors such as environment and business strategies. Of greater significance is the contribution of this study in understanding the alignment of resources required to support business strategies in achieving performance. Furthermore, this study contributes significantly to the understanding of the resources–performance relationship in an environment of developing nations, which are just learning to adopt technology in its development process and one that is thrown into turmoil resulting from Asian financial collapse. What has been shown in the study is that past finding about resources and performance does not hold true in such a unique environment (one in which technology is in its infancy and environment is dynamic and hostile). The correct environmental consideration should be identified and should be a part of any resources management framework. Ignoring the environment effects in a strategic model of resource management is likely to result in failure of management and performance achievement.

Finally, research partnership between academician-business enterprises-and government should exist and be effective in order to support the success of resource management in Indonesian firms. The pooling of information, knowledge, and expertise within this network would be a platform to better understand the real problem of the industry. It is important to provide practical solution to the problems and eventually to formulate appropriate policies and strategy based on the real experiences.

5.2. Limitations of the Study

As in most studies, this study has a number of limitations i.e.:

1. Data were collected based on perceived, self-rating, multi-choice questionnaire. This approach is adequate to gather a large amount of data within limited time. It should be desirable to develop a longitudinal study, but it was entirely beyond the scope and the possibilities of the study.
2. The questionnaires were directed to CEOs, thus only CEOs responded as their perception of the extent of resources management, the emphasis on business strategy, the environment to be faced and the performance achieved. In this case, the potential mono-response bias might emerge. The limitation is whether manufacturing executives would response the same way, even on priorities that clearly within the manufacturing domain?
3. The nature of requested data in some cases was considered confidential. It could limit their participation in this study.
4. The choice of firm's resources as a research topic places limitation on this study, particularly in the area of sample selection, data availability, and data collection. The major sample selection at the manufacturing firms level is difficult to obtain because firms perception in terms of firm's resources, business strategy, environment, and performance, may not be the same, thus it is difficult to ascertain relevant sample characteristics.

5. This study was conducted in Indonesia only, so the finding of this study might not be generalized to other cultures or other countries.

REFERENCES

Amit, R. & Schoemaker, P. (1993). Strategic asset and organizational rent. *Strategic Management Journal,* 14. pp. 23-46.

Armstrong CE, Shimizu K. 2007. A Review of Approaches to Empirical Research on the Resource-Based View of the Firm. *Journal of Management* **3**3(6): 959-986

Ansoff, I. & Steward. J.M. (1967). Strategies for a technology based business. *Harvard Business Review*, November-December, pp. 71-83.

Badri, M.A., Davis, D. & Davis, D. (2000). Operation strategy, environment uncertainty, and performance: a path analytic model of industries in developing country. *Omega, International Journal of Management Science*, 28, pp. 155-173.

Barney, J. (1991). Firm's resources and sustained competitive advantage, *Journal of Management,* 17. pp. 791-800.

Barney J, Clark DN. 2007. *Resource-Based Theory. Creating and sustaining competitive advantag*e. Oxford University Press

Beaumont, N.B. & Schroeder, R.M. (1997). Technology, Manufacturing Performance, and Business Performance Amongst Australian Manufacturers. *Technovation,* 17 (6), pp. 297-307.

Bond, T.C. (1999). The role of performance measurement in continuous improvement. *International Journal of Operation and Production Management*, 19(12), pp. 1318-1334.

Bueno E, Morcillo P, Salmador MP. 2006. Distinctions that matter: a classification of resources and discussion of implications for dynamic capabilities of firms. *International Journal of Management Practice* 2(1): 72-82

Burgess, T.F. Gules, H.K. Gupta, J.N.D., & Tekin, (1998). Competitive priorities, process innovations and time based competition in the manufacturing sectors of industrializing economies: the case of Turkey. *Benchmarking for Quality Management and Technology*, 5(4), pp. 304-316.

Buttler, J. (1988). Theories of technical innovation as useful tools for corporate strategy. *Strategic Management Journal*, Jan-Feb. pp. 15-30.

Cagliano, R & Spina, G. (2000). How improvement programs of manufacturing are selected: the role of strategic priorities and past experience. *International Journal of Production and Operation Management*, 20 (7), pp. 772-791.

Calantone, R. J., Cavusgil, S. T., dan Zhao, Y., 2002. Learning Orientation, Firm Innovation Capability, and Firm Performance. *Industrial Marketing Management,* 31: 515–524.

Chiesa, V., Manzini, R., Teccila, F., (2000). Selecting sourcing strategies for technological innovation: an empirical case study. *International Journal of Production and Operation Management,* 20(9), pp. 1017-1037.

Chiu, I. & Brennan, M. (1990). The effectiveness of some techniques for improving mail survey response rate: a meta analyses, *Marketing Bulletin*, 1, pp 13-18.

Chuang, S.H., 2004. A Resource-based view on Knowledge manufacturing Capability dan Competitive advantage: An Empirical Investigation, 27, 459-465

Cooper, R. 1995. When Learn Enterprise Collide: Competing Through Confrontation, Boston, MA, Harvard Business School Press.

Dean, J.W. & Snell, S.A. (1991). Integrated manufacturing and job design: moderating effects of organizational inertia. *Academy of Management Journal*, 34(4), pp.776-804.

Dean, J.W. & Snell, S.C. (1996). The strategic use integrated manufacturing: an empirical examination. *Strategic Management Journal*, 17, pp. 459-480.

Dess, G.G. & Beard, D. (1984). Dimension of organizational task environment. *Administrative Science Quarterly*, 29, pp. 52-73

Donier, P., Ernest, R., & Kouvelis, P. (1998). *Global Operation and Logistic: Text and Cases*, New York, NY, John Willey & Son.

Frohman, A.L. (1985). Putting technology in strategic planning*. California Management Review,* 27(1), Winter, pp. 48-68.

Godfrey, P.C. & Gregersen, H.B. (1999). Where do resources come from, *Journal of High Technology Management Research*, vol. 10, Issue 1, pp. 37-51.

Grant , R.M. (1991). The resources based theory of competitive advantage: implication for strategy formulation*, California Management Review*, vol. 33(3) pp.114-135.

Gulfielt, R. (1992), CBOT selected to run auctions for polluters, Wall Street Journal, Sept 25, pp. 16-17.

Hall, R.K. (1990). Total Productive Maintenance: a timely integration of production and maintenance. *Production & Inventory Management Journal*, 33 (4), pp. 6-10.

Harrison, Jeffrey S., Ernest H. Hall Jr, and Rajendra Nargundkar. (1993). Resource Allocation as an Outcropping of Strategic Consistency: *Performance Implication, Academy of Management Journal,* 36(5), 1026-1051.

Harrison, N & Samson, D. (1997*). International Best Practice in the Adoption and Management of New Technology*, Department Industry, Science and Tourism, Australia.

Heizer, J. & Render, B. (1993*). Production and Operation Management: Strategies and Tactics.* 3rd edition, Englewood Cliffs, N.J. Prentice Hall.

Hinton, M., Francis, G. & Holloway J. (2000). Best practice benchmarking in UK. *Benchmarking : An International Journal*., vol. 7(1), pp. 52-61.

Ignance, Ng. Dart, J. & Shakar, A. (1998). The impact of management technology on SMEs peformance, *Proceeding International Conference On Small and Medium Scale Enterprices,* University Utara Malaysia, pp. 93-101.

Jensen Michael and William Meckling. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, 3, 305-360.

Kantrow, A.M. (1980). The strategy-technology connection, *Harvard Business Review*, 58, July-August, Pp. 6-21.

Khandawala, P. 1972. The effect of different types of competition on the use of management control, Journal of Accounting Research. Vol. 10, pp.275-285.

Ko, E; Kincade, D. & Brown, J.R. (2000). Impact of business type upon the adoption of quick response technologies: the apparel industry experience. *International Journal of Production and Operation Management,* 20(7), pp. 772-791.

Lado, A.A & Wilson, M.C. (1994). Human resources systems and sustained competitive advantage: a competency based perspective, *Academy Management Review*, 19 (4), pp. 699-727.

McGregor, J & Gomes, C. (1999). Technology uptake in small and medium-sized enterprises: some evidence from New Zealand. *Journal of Small Business, Management*, 37(3) pp. 94-103.

Mechling, G.W. Pearce, J.W. & Busbin, J.W. (1995). Exploiting AMT in small manufacturing firms for global competitiveness, *International Journal of Operation and Production Management,* 2, pp. 61-76.

Myers, S.C., 1984, The Capital Structure Puzzle, *The Journal of Finance,* 39, July, 575-592.

Newbert SL. 2007. Empirical research on the resource-based view of the firm: an assessment andsuggestions for future research. *Strategic Management Journal* **2**8(2): 121-146

Olala, M.P. (1999). The resources based theory and human resources, *International Advances in economic Research,* vol. 5 Issue 1, p. 84-95.

Paiva, E.L., Roth, A.V., Fensterseifer, J.E., 2008. Organizational Learning Capability on Product Innovation Performance: An Empirical Test. Technolovation, 28, 315-326.

Porter, M. (1985). *Competitive advantage*. New York: Free Press.

Rishel, T.D. & Burn, O.M. (1997). The impact of technology on small manufacturing firms. *Journal of Small Business Management*, 35 (1), p. 2-11.

Russo, M.V. & Fouts, P.A. (1997). A resource-baed perspective on corporate environmental performance and profitability, *Academy Management Journal*, Vol 40 no. 3, pp 535-559.

Sakakibara, S., Flynn, B., Schroeder,R. & Morriss, W.T. (1997). The impact of JIT manufacturing and infrastructure on manufacturing performance. *Management Science*, Vol. 43. pp. 1246-1257.

Schroeder, D.M. (1990). Dynamic Perspective on the impact of process innovation upon competitive strategies. *Strategic Management Journal*, 11. pp. 25-41.

Schroeder, R. & Sohal, A, (1999). Organizational characteristics associated with AMT adoption: toward a contingency framework. *International Journal of Operation & Production Management*, 19 (12), pp. 1270-1291.

Sekaran, U. (2000). *Research Method for Business*, N.Y. John Willey & Sons, Inc.

Shleifer, Andrei and Robert W. Vishny. (1994). Politicians and firms, *Quarterly Journal of Economics* 109/4, 995-1025.

Shleifer, Andrei and Robert W. Vishny. (1997). A survey of corporate governance, *Journal of Finance* 52, 737-783.

Sim, K.L. (2001). An empirical examination of successive incremental improvement techniques and investment in manufacturing strategy. *International Journal of Operation and Production Management,* 21(3), pp. 1-19.

Sohal, A.S. & Terziovsky, M. (2000). TQM in Australian manufacturing: factor critical to success. *International Journal of Quality and Reliability Managem*ent, 17 (2). pp. 158-167.

Stonebaker, P. & Leong, G. (1994). *Operation Strategy: Focusing Competitive Excellence*. Boston, MA, Allyn and Bacon.

Song M, Droge C, Hanvanich S, Calantone R. 2005. Marketing and technology resource complementarity: an analysis of their interaction effect in two environmental contexts. *Strategic ManagementJournal* **2**6(3): 259-276

Swamidas, P. & Newell, P. (1987). Manufacturing strategy, environmental uncertainty: a path analytical model. *Management Science*, 33(40), pp. 509-524.

Tandelilin, Eduardus., Hermeindito Kaaro, Putu Anom M., and Supriyatna. (2006). Corporate Governance, Risk Management, Bank Performance: Does Type of Ownership Matters? *EADN Research Report*.

Tsang, A.J.H., & Chan, P.K. (2000). TPM implementation in China a case study. *International Journal of Quality and Reliability Management,* 17(2), pp. 144-157.

Vickery, S.K, Droge, C. & Markland, (1993). Production competence and business strategy: do they affect business performance, *Decision Science*, vol. 24, pp. 435-453.

Warnock, I. (1996). *Manufacturing and Business Excellence: Strategies, Techniques, and Technologies*. Prentice Hall Europe.

Wernerfelt, B. (1984). A resources based view of the firm*, Strategic Management Journal*, 5. Pp. 171-180.

Yasin, M.M., Small, M., & Wafa, M.A. (1997). An empirical investigation of JIT effectiveness: an organizational perspective. *Omega, International Journal of Management Science*, 25 pp. 461-471.

Youseff, M.A. (1993). Computer based technology and their impact on manufacturing flexibility. *International Journal of Technology Management*, 8. pp. 355-370.

Zahra, S.J. and Covin J.G. (1993). Business Strategy, technology policy, and firms performance*, Strategic Management Journal*, 14 pp. 451-478.

Zammuto, R.F. & O'Connor, K. (1992). Gaining advanced manufacturing technologies benefit: the role of organization design and culture*. Academy Management Review,* vol. 17(4). Pp. 701.