# INVESTMENT CRITERIA OF VENTURE CAPITAL COMPANIES

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## ABSTRACT

This paper reviews research literature pertinent to the criteria venture capital companies use when deciding whether or not to invest in a particular business deal.

Development of literatures in the field is discussed at length and taxonomized into three stages: (1) exploratory research stage, (2) validation research stage, and (3) advanced research stage. In the exploratory stage, researchers focus on indicating investment criteria and identifying the entire investment process within an American setting. In validation stage, researchers seek applicability and implications of the criteria to investors' performance and strategy within and outside the U.S. In advanced stage, researchers employ advanced statistical tools to simulate and create multi-dimensional models of evaluation criteria and the investment process.

Two theoretical frameworks regarding competitive advantage, namely industrial organization and the resource-based views, are employed to systematically integrate existing evaluation criteria into one model. The industrial organization framework encompasses criteria outside an investee context, while the resource-based view considers internal characteristics of entrepreneurs and their firms.

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## Subject significance and knowledge gap

Drawing from the works of Hoffman (1972), Wells (1974), Poindexter (1976), Dorsey (1977), and Timmons & Gumpert (1982), Tyebjee & Bruno (1984) modeled five salient steps which venture capital companies follow during the investment process: deal origination, deal screening, deal evaluation, deal structuring, and post-investment activities.

This paper focuses on the third step, in which venture capitalists assess the potential risk and return of a specific business deal. Intuitively, venture capital firms will pursue final investment agreements with entrepreneurs if the expected returns are greater than the risks. Empirically, the venture capital industry shows an economic efficiency because its higher risks are compensated by higher returns (Poindexter 1976, Charles River Associates 1976). It is the central concern of this paper to explore which criteria venture capital investors use to measure such risks and returns during their decision-making.

The findings would enable entrepreneurs to become more aware of investor expectations, knowledge entrepreneurs can use to produce more effective business proposals and thus increase the chance of finalizing deals. As Hall and Hofer (1993) put it, “Blindly sending business plans with a generic cover letter was not a successful approach in the proposals studies.” These findings would be useful to venture capitalists as a checklist to review their own operations. Policy makers, such as the government, could use the findings to become more aware of how investors and investees interact, knowledge that could be applied to creating more effective national policies that promote the venture capital industry as a whole.

Given that there are already a considerable number of previous studies along this line, why is more research is necessary? This paper addresses three major gaps in knowledge.

First, after extensive research to uncover a single study that covers all possible criteria, it is clear that no such single study exists. More recent works have added new variables while leaving previous criteria behind. For example, Tyebjee and Bruno (1981 and 1984) added more extensive criteria to Poindexter’s 1976 study. MacMillan and his colleagues (1985), though following up to Tyebjee and Bruno’s 1981 work, excluded certain criteria after the preliminary telephone survey.

Second, there seems to be no consensus among studies and between venture capitalists and scholars about the relative weight of specific evaluation criteria. Is there a key criterion that outweighs all others? Table 1 summarizes the different findings from major studies. A few examples: Tyebjee & Bruno (1984) found that, in the U.S., attractive market characteristics had the strongest impact, and cash-out method was statistically insignificant. Feeney and her colleagues (1999) interviewed 311 Canadian participants and found that overall business opportunity was the key criterion. When similar categories of the evaluation criteria, which combined criteria employed in Tyebjee & Bruno (1984), MacMillan et al (1985), and Pandey (1995), were tested in three Asian countries by Chotigeat and his team in 1997, they found that Taiwanese and Sri Lankan investors see financial considerations and characteristics of the management team as most significant; for Thais, characteristics of the management team and entrepreneurs are most significant. Tyebjee & Bruno (1984) also reported that though they categorize the capabilities of the management team as one of the best indicators of risk level, some venture capitalists view it as a better indicator of return, not risk, level. They also reported that some investors did not use separate criteria for risk and return, invalidating any study that separate risk and return factors from each other.

The third reason is derived from the second. It is unclear whether the differences in the findings stem from location, time, or other factors. This is particularly the case if the variations originate from geographically diverse regions, because most previous studies were based on U.S. data. In addition, Siskos and Zopounidis (1985) maintain that "[T]he decision maker learns his preferences through a trial-error process and, gradually, structures his own model, based on his own criteria." Therefore it is compelling to conduct research locally and periodically before advising entrepreneurs, venture capitalists, and public policy makers about investment decision criteria and process.

In light of these knowledge gaps, the following sections of this paper attempt to achieve two goals. First, review major literature relevant to the investment decision process, with the main focus on evaluation criteria during the decision process. Second, extract all possible evaluation criteria from the literature under well-established theoretical frameworks. The expected final result is an integrated list of evaluation criteria, which can be used in local and periodical research in the future.

## Research progression and literature related to evaluation criteria

Fried and Hisrich (1988) maintained that academic research in the field of venture capital was rare before 1980. However, they found 16 studies between 1981 and 1987 which surveyed and provided recommendations for future research on venture

capital investment decisions from five major resources—*American Journal of Small Business, Journal of Business Venturing, Journal of Small Business Management, Proceedings of the Babson Research Conference,* and *Proceedings of the Academy of Management (Entrepreneurship Division).*

An extensive search on academic literature shows that Wells' 1974 dissertation marks the first and most inclusive research done regarding venture capital decision criteria. This section is aimed at thoroughly reviewing the progress in academic research since Wells' contribution. Here, the chronological development is divided roughly into three overlapping stages according to the nature and content of the literatures: exploratory research stage, validation research stage, and advanced research stage.

**Exploratory Research Stage**

Zacharakis and Meyer (2000) concluded the studies in early exploratory stage depended on surveys and questionnaires and derived the criteria that experts would include in a "bootstrap" model. They described the bootstrap model as follows:

> In essence, the questionnaires and surveys yield the cues that experts believe are most important to the decision to accept or reject investing. In other words, a bootstrap model reaches the same conclusion as an expert since it uses the same information as the expert.

Basically, this research stage focuses on understanding what constitutes investment activities and on finding specific investment criteria consistent with the academic paradigm. The studies that fit this description are Wells (1974), Poindexter (1976), Tyebjee and Bruno (1981 and 1984), and MacMillan et al (1985).

Wells (1974) conducted personal interviews with eight venture capital companies. The criteria which his respondents used to evaluate business proposals and deals include, in order of significance management commitment, product, market, marketing skill, engineering skill, marketing plan, financial skill, manufacturing skill, references, other participants in the deal, industry/technology, and cash-out method.

Poindexter (1976) added to Wells's criteria (1974) and re-ranked them with a more extensive sample size of 97. The new criteria, with modified rankings according to their significance, include quality of management, expected rate of return, expected risk, percentage equity share of venture, management stake in firm, financial provisions for investor rights, venture development stage, restrictive covenants, interest or dividend rate, present capitalization, investor control, and tax shelter considerations.

Tyebjee and Bruno (1981) interviewed 46 venture capital houses over the telephone. They found that the primary barrier to the size of the venture capital industry was the lack of investment opportunities. Potential ROI, calculated from pro forma financial statements, was commonly used to evaluate the deals. Tax policy was revealed as the most important governmental policy to the venture capital industry.

In 1984, conducting telephone surveys with the same 46 venture capital companies, Tyebjee and Bruno published a seminal study, which modeled the steps of venture capital investment activities. They summarized the criteria which venture capitalists mentioned most frequently: management skill and history, market size/growth, rate of return, market niche/position, financial history, venture location, growth potential, barriers to entry, size of investment, market/industry expertise, venture stage, and stake of entrepreneur. They categorized the criteria into five groups: market attractiveness (size of market, market need, market growth potential, and access to market), product differentiation (uniqueness of product, technical skills, profit margins, and patentability of product), managerial capabilities (management skills, marketing skills, financial skills, and references of entrepreneur), resistance to environmental threats (protection from competitive entry, protection from obsolescence, protection against downside risk, and resistance to economic cycles), and cash-out method. They also modeled that market attractiveness along with product differentiation are the indicators of return prospect, and that managerial capabilities together with resistance to environmental threats are the indicators of risk level.

MacMillan, Siegel, and Subba Narasimha (1985) conducted a follow-up study, replicating criteria used in Tyebjee & Bruno (1981). The criteria were grouped into five categories: the entrepreneur's personality (capable of sustained intense effort, able to evaluate and react to risk well, articulate in discussing venture, attends to detail, and compatible personality with investors), the entrepreneur's experience (thorough familiarity with the market, leadership in past, track record relevant to venture, being referred by trustworthy source, and reputation), characteristics of the product or service (proprietary product, market acceptance of the product, development of functioning prototype, and high-tech attribute of the product), characteristics of the market (significant growth rate, existing market, investors' familiarity with the market, low threat of competition during the first three years, and ability to create a new market), and financial considerations (at least 10 times return in 5-10 years, investment is easy to liquidate, at least 10 times within at least 5 years, subsequent investment, and participation in latter round of investment). They received mail questionnaires back from 102 respondents who were members of the National Venture Capital Association (NVCA) and found ten most frequently rated criteria: capability for sustained intense effort, thorough familiarity with the market, at least 10 times return in 5-10 years, demonstrated leadership, evaluates and reacts well to risk, investment can be made

liquid, significant market growth, track record relevant to venture, articulates venture well, and proprietary protection.

**Validation Research Stage**

Most research studies on the exploratory stage, interestingly, were not explicitly built on a theoretical framework (Fried & Hisrich, 1988). Despite the absence of theory-driven research, scholars moved to the next stage, where attempts have been made to validate the applicability and implication of the existing criteria. Significantly, researchers outside the U.S. also replicated criteria established by their American counterparts and validated them within their local settings.

Taken as a whole, validation stage research (1) attempts to relate evaluation criteria to performance and strategy of the investors, (2) attempts to find applicable criteria for venture capital in countries outside the U.S., and (3) extends the search for the most important set of criteria in the U.S. as well as in other parts of the world. The research literatures that contain these characteristics are discussed below.

MacMillan and Subba Narasimha followed up their 1985 research with Zemann in 1987. They attempted to disclose how the evaluation criteria in use predict the success of ventures after the investment (MacMillan et al, 1987). They asked 67 venture capitalist respondents to rate highly successful and highly unsuccessful ventures, 150 ventures in total, on 25 screening criteria and on several performance criteria. They found two categories of evaluation criteria that predict the success of an entrepreneur: initial insulation from competitors and degree of market acceptance of the product. Employing cluster analysis, they found three classes of unsuccessful entrepreneurs: (1) entrepreneurs who lack experience, staying power, a product prototype, and a clear market demand; (2) entrepreneurs who in spite of good credentials face early competition; and (3) entrepreneurs with exceptional staying power but who easily lose the market to competition because of lack of product protection.

Khan (1987) mailed questionnaires to 36 venture capital companies to validate the investment decision model. The answers showed that investees' desire for success and the nature of their products are most critical to venture capitalists in approving a deal. Additionally, the owners' creativity and integrity are the most significant predictors of the venture's success.

Fried and Hisrich (1994) revisited the existing evaluation criteria without statistical manipulation by re-categorizing the criteria into three sets of generic criteria based on three basic constructs: concept, management, and returns. Four components of the concept include potential for earnings growth, viability and novelty of the project, competitive advantage, and reasonable overall capital requirements. Several attributes

that venture capitalists want to see in managers are personal integrity, track record, realistic risk identification and risk dealing, strong work ethic, flexibility, thorough understanding of the business, general management experience, and leadership capabilities. Finally, the three components of returns that have been found include exit opportunity, potential for high rate of return, and potential for absolute returns.

Muzyka, Birley, and Leleux (1995) found that it is preferable to select an opportunity, which offers a good management team and reasonable financial aspects, as well as viable product and market characteristics. These preferences were confirmed even if such an opportunity could not meet the deal requirements. In this scenario, venture capitalists have to prioritize their preferences and sometimes even trade-offs between various criteria in the evaluation process.

Reviewing research conducted outside the U.S., it is crucial to note that studies by and large replicate existing criteria that have appeared in the American literature, seeking applicability and implications in their respective settings. Ray and Turpin (1991) validated the criteria of MacMillan and his colleagues (1985) within a Japanese context. They found that the entrepreneur's personality is the most important characteristic for Japanese venture capitalists. The most important evaluation criteria are entrepreneurs' familiarity with a target market, entrepreneurs' capability for sustained effort, entrepreneurs' evaluation and reaction to risk, market growth rate, liquid investment, and potential to create a new market.

Rah, Jung, and Lee (1994) applied the 1984 work of Tyebjee and Bruno and the 1985 MacMillan list to tailor evaluation criteria for Korean venture capitalists. Their classification of criteria is somewhat different from those of the Americans. In order of average mean, the important investment criteria are divided into six clusters: (1) managerial capabilities: credibility, concentration and enthusiasm, organizational management ability, insight and forecasting ability, past experience in related business, risk management ability, degree of technical knowledge, educational background and careers, past management record, and outsiders' view of management ability; (2) market attractiveness: market growth potential, market size, market acceptance of product, degree of sales distribution channel, market development and sales strategy, and degree of client procurement; (3) superiority of product and technology: degree of technical manpower, degree of core technology, technology development capability, superiority of product performance, price competitiveness, degree of product margin, and uniqueness of product; (4) financing ability: financing ability, informal acquaintances, and collateral status; (5) availability of raw materials: stable supply of raw materials, and price stability of raw materials; and (6) production capability: degree of equipment facilities, ease of labor procurement, and properness of facility layout.

By combining criteria suggested and used by Tyebjee and Bruno (1984), MacMillan (1985), Pandey (1995), and Chotigeat, Pandey, and Kim (1997) created a list of evaluation criteria and tested it within Taiwan, Thailand, and Sri Lanka contexts. Significance of criteria was ranked differently among the different countries. However, an entrepreneur's characteristics are among the most important criteria in all three countries, confirming a similar finding in the U.S., Japan, Singapore, and India (Chotigeat et al 1997, Pandey 1995).

Karsai and Wright (1998) examined the screening and valuation approaches used by venture capital firms in Hungary, Poland, and Slovakia and compared them to those of the United Kingdom. In screening issues, the most notable differences are the investee requirements for meeting financial ratio benchmarks. Market conditions have a greater influence in Hungary, Poland, and Slovakia than in the United Kingdom on the level of rate of return sought from investment projects. In addition, product market factors are more important in the three countries in assessing projects' risk level.

Manigart and Wright (1997) investigated the investment appraisal and valuation process of venture capitalists, including information gathering, assessment of risk and required return, and the choice of valuation method. The study was conducted in the United Kingdom, the Netherlands, Belgium, and France. Seven items were distinguished as possible indicators of the risk level of a project. The most important indicator of risk is the contribution by management in terms of their managerial skills, followed by the nature of the product market of the company, and the financial contribution by the management team. Much less important are the expected time horizon to the exit of the company, the expected time horizon to the redemption of preference shares, the expected participating dividend yield, and the nature of the capital market.

At the time of this writing in late 2002, Knight (1994) is the first and only global research on evaluation criteria. Comparing American, Canadian, Asia Pacific, and European venture capitalists, Knight (1994) replicated and validated the five categories of criteria suggested by MacMillan and his team (1985). Table 2.1 summarizes the findings. He also found additional evaluation criteria, adopted in Table 2.2, which are suggested by Canadian, European, and Asia Pacific venture capitalists.

**TABLE 2.1: Comparative Essential Criteria**

| Criteria | US Rank | Canadian Rank | Asian Pacific Rank | European Rank |
|---|---|---|---|---|
| Capable of sustained intense effort | 1 | 2 | 1 | 2 |
| Thorough familiarity with market | 2 | 1 | 2 | 3 |
| At least 10 times return in 5-10 years | 3 | 11 | 7 | 8 |
| Demonstrated leadership in the past | 4 | 5 | 6 | 4 |
| Evaluates and reacts well to risk | 5 | 3 | 3 | 1 |
| Significant market growth | 6 | 6 | 4 | 6 |
| Track record relevant to venture | 7 | 8 | 8 | 5 |
| Investment can be made liquid | 8 | 13 | 12 | 11 |
| Articulates venture well | 9 | 7 | 11 | 10 |
| Proprietary protection | 10 | 15 | 13 | 12 |
| Attends to detail | 11 | 9 | 10 | 13 |
| Demonstrated market acceptance | 12 | 10 | 9 | 9 |
| Will stimulate existing market | 13 | 14 | 14 | 14 |
| Prototype available | 14 | 4 | 5 | 7 |
| High Tech | 15 | 24 | 23 | 23 |

Adopted from Knight (1994)

**TABLE 2.2:**
**Additional Criteria Suggested by Canadian, European and Asia Pacific Venture Capitalists**

**Industrial Organization View**

- Characteristics of the product or service

*Export potential, competitive advantage, economically justifiable*

- Characteristics of market

*Known distribution system, sound business plan, strong financial management*

- Financial consideration

*Exit Route*

- Other criteria

*General business conditions, trend venture, capital activity*

**Resource-Based View**

1. The Entrepreneur's personality
   *Honesty and integrity, self-confidence, doer, team player*
2. The Entrepreneur's experience
   *Functional areas ability, technical understanding, willing to hire for weakness*
3. Financial consideration
   *Entrepreneur's commitment, strong financial management*

Adapted from Knight (1994)

Note that in the American literature, no attempt to create a new list of evaluation criteria after the exploratory stage exists. However, in 1999, Feeney and her colleagues used a qualitative approach to create different lists of criteria for the Canadian venture capital industry. They asked 194 investor respondents to answer two questions—shortcomings and essential factors of business opportunities—that eventually resulted in two lists: attributes of owners and attributes of businesses. Attributes of owners include management track record, realistic assessments of potential, integrity, and openness of the entrepreneurs. Meanwhile, attributes of a business opportunity include potential for high profit, a reasonable exit plan, security of investment, and level of involvement of investors. The important revelation is that the reasons for rejecting proposals are not simply the converse of reasons for investing.

**Advanced Research Stage**

A major finding from validation stage research is that a particular criterion possesses different levels of significance for different types of venture capitalists, and in different places in the world. Also, researchers disagree on which criteria are the best predictors of portfolio performance and venture success. They also disagree on how to identify the fitness between criteria and investor strategy.

Fried and Hisrich (1988) underscored this gap in knowledge at the end of their research review. They raised a concern that applying theory to venture capital research has run into problems because of four major reasons: (1) There are not enough capital markets for the investee's securities (also Brophy 1986, Kierulff 1986, Tyebjee & Bruno 1984, and Wetzel 1982). (2) Investment of venture capitalists involves high risk, raising a major doubt whether or not the expected value is the appropriate investment criteria (also Lopes 1983, 1981). (3) Sahlman and Stevenson (1985) demonstrated evidence in which venture capitalists are not totally rational, rather boundedly rational, making it difficult to operationalize the research variables. (4) Venture capitalists offer more than financial contribution, but most existing models are framed under a risk/return paradigm.

The aforementioned shortcomings call for a multi-dimensional study inclusive enough to accommodate all contingencies venture capitalists encounter, such as the irrational nature of decision making, uncertainty of risk and return in different life stages of a venture, and changeable interaction between investors and investees during the deal approval process.

To address this gap in understanding, researchers integrate investment decision models, evaluation criteria, and other multi-variables into a single study. The advancement of computer programming and statistical tools make possible studies that employ high-level multivariate statistical modeling, computerized simulation, and multi-dimensional analyses. The following section documents those efforts.

As early as 1985, Siskos and Zopounidis executed a multi-criteria decision support system, then a state-of-the-art computer program and multivariate regression modeling. They created an interactive assessment of the evaluation model, which simulated criteria together with the entire decision process suggested by Tyebjee and Bruno (1984) and Wells (1974). They eventually concluded that in evaluating a business deal, venture capitalists' decision model is dynamic and subject to case-by-case adjustment.

Stevenson, Muzyka and Timmons (1987) applied a Monte-Carlo simulation to create a realistic model that explains investment patterns of venture capital companies. In general, a Monte-Carlo model is a computer simulation with a built-in random process, allowing users to see the probability of different possible outcomes of an investment strategy (Wright 2002). It accommodates variables with both dynamic and continuously changing characteristics, fundamentally meeting the nature of venture capital investment contingencies. The outcome from the simulation shed light on conditions leading to higher rate of return on investment. The conditions include multi-staged investment objective evaluation, parlaying funds, persistence of returns from one round of investment to the next, and long-term holding of investment.

Zacharakis and Meyer (2000) suggested applying actuarial decision models to improve venture capital investment decisions. This is a prime example of advanced research in which researchers attempt to apply modeling techniques and theories outside the field of venture capital to the existing body of knowledge. As they put it,

> An actuarial model optimally combines decision cues (relevant information) to derive an answer. Thus actuarial models decompose decisions into component parts. Just as an insurance actuary statistically derives the payoff risk associated with different groups of people (i.e. age, gender, etc.), actuarial models can assess the probability of certain outcomes based upon information available to the decision.

Like other multi-dimensional models, the actuarial decision model aims at improving the efficiency of decision making. Zacharakis and Meyer (2000) posited that the actuarial models result in better decision screening, which increases the possibility of investment success over time and across different deals. They maintained that unlike human decision makers, who are subject to biases toward different information cues, actuarial models always weight information cues the same, reducing the risk of misinterpretation and the chance of ignoring important cues.

## Theoretical Framework

So far this paper has reviewed the research progression in the field of evaluation criteria. Undoubtedly, the evaluation criteria are very important in the evaluation process since venture capital companies seek optimal business deals, which ensure them lucrative return on their investment. In practice, they approve a proposal only if they foresee, from their evaluation process that it will perform well and have a high chance of survival and success. There has been a continuous attempt in the academic arena to help practitioners identify such company. It is found from research that only a company with competitive advantage will perform well and have a high chance of survival and success. Following this insight, competitive advantage theories help explain factors in an organization's superior performance (Ma 1999), and key factors for an organization's long-term success and survival (Coulter 1998). Besides, Bateman and Snell (1999) further point out that to survive and to win in competition, a company must obtain advantage over its competitor. As a consequence, South (Walley & Thwaites 1996) argued that the acquisition of competitive advantage is a fundamental objective or even philosophy of business. On the other hand, according to Cravens' study in 1988 (cited in Walley & Thwaites 1996) the loss of competitive advantage is the prelude to corporate demise and ultimate failure.

From the above discussion, it can be seen that competitive advantage has played an important role in determining performance of a company. So venture capital companies must learn how they could effectively evaluate a proposal in order to find out an organization with the required competitive advantage. Also, they need to know from the evaluation process, what are the investment evaluation criteria that would help them detect the required competitive advantage. In order to answer such questions, it is needed to understand important aspects and theories of competitive advantage.

The following section would explain certain views of competitive advantage. Then the investment evaluation criteria would be systematically extracted and amalgamated into a single model built from well-established theoretical frameworks according to the major views of competitive advantage. Let's first look at the existing views of competitive advantage and then employ them in model building.

### Major views of competitive advantage

It is found more than 5,000 references to competitive advantage in an on-line literature search on certain electronic databases. From the search, there are two competing views upon which competitive advantage theories build: industrial organization and resource-based views.

The industrial organization (I/O) view focuses on the structural forces within an industry, the competitive environment of firms, and how these influence competitive advantage (Coulter 1998). Hoskisson et al (1999) indicated that one of the more significant contributions to the development of strategic management came from industrial organization (I/O) economics, specifically the work of Michael Porter (1980, 1985). Additionally, Coulter (1998) even admitted that the best known proponent of the I/O approach to competitive advantage was Michael Porter and also concluded that Porter's 1980 and 1985 works provided a comprehensive description of how and why organizations develop competitive strategy and competitive advantage. These works' structure-conduct-performance framework and the notion of strategic groups, as well as providing a foundation for research on competitive dynamics, are flourishing currently (Hoskisson et al 1999).

The resource-based view (RBV), with roots from Edith Penrose's work in the late 1950s, became a dominant framework in the 1990s (Hoskisson et al 1999). Wernerfelt coined the term in 1984 (Wernerfelt 1984 cited in Fahy 2000). The main concept of this view is that resource selection and accumulation are a function of both within-firm decision-making and external strategic factors (Oliver 1997). In addition, Conner (Oliver 1997) indicates that within-firm, managerial choices are guided by an economic rationality and by motives of efficiency, effectiveness, and profitability.

**TABLE 3: Comparison of I/O and Resource-Based Views***

| | **I/O** | **Resource-Based Views** |
|---|---|---|
| **Competitive advantage** | Positioning in industry | Possessing unique organizational assets and capabilities |
| **Determinants of Profitability** | Characteristics of industry, Firm's position within industry | Type, amount, and nature of firm's resources |
| **Focus of analysis** | External | Internal |
| **Major concern** | Competition | Competencies-Resources |
| **Strategic choices** | Choosing attractive industry, appropriate position | Developing unique resources and capabilities |

Adopted from Coulter (1998)

Coulter (1998) offered a thorough comparison of industrial organization and resource-based views, as illustrated in Table 3. According to Hoskisson et al (1999), Porter's models and strategies not only made the concept of industry structure and the I/O view clearer by specifying various aspects of industry structure but also indicated how well a firm positioned and differentiated itself within an industry, thus indicating the firm's ability to make profits. However, Walley and Thwaites (1996) point out that Porter's framework is criticized on the grounds that it has little empirical justification: the generic strategies are poorly defined; the suggestion that companies should compete on only one strategy is wrong (in practice they use both); and there is an implied choice of strategy when in practice factors such as firm size dictate which strategy a firm must adopt. The assessment of RBV can begin with the fact that recently the popularity of the resource-based view has once again returned our focus inside the firm (Hoskisson et al 1999). Fahy (2000) has also stated that the RBV greatly enhances our understanding of the nature and determinants of competitive advantage.

## A Two-View Model for Evaluation Criteria

Up to this point, it is safe to conclude that neither I/O nor RBV is complete in itself. A combination of both views is required to entirely accommodate all possible key factors of competitive advantage that venture capitalists should review during their investment decision process. From the two views, Table 4 summarizes evaluation criteria found during the exploratory stage.

**TABLE 4:**
**Summary of Evaluation Criteria from Industrial Organization and Resource-Based Views during the Exploratory Research Stage**

| Evaluation Criteria | Wells (1974) | Poindexter (1976) | Tyebjee & Bruno (1984) | MacMillan et al (1985) |
|---|---|---|---|---|
| **Industrial Organization View** | | | | |
| Barriers to entry | | | X | |
| Competitive threat | | | | X |
| Growth potential | | | X | |
| Market acceptance | | | | X |
| Market growth | X | | X | X |
| Market size | X | | X | |
| Potential to create new market | | | | X |
| Product attributes | X | | X | X |
| Product differentiation | | | X | |
| Proprietary product | X | | | X |
| Prototype | | | | X |
| Technology | X | | | |
| **Resource-Based View** | | | | |
| Ability to evaluate risk | | | | X |
| Capable of sustained effort | | | | X |
| Cash-out method | X | | X | |

| Evaluation Criteria | Wells (1974) | Poindexter (1976) | Tyebjee & Bruno (1984) | MacMillan et al (1985) |
|---|---|---|---|---|
| Entrepreneur personality | | | | X |
| Expected risk | | X | | |
| Expected ROR | | X | X | |
| Financial provision for investors | | X | X | |
| Liquidity | | | | X |
| Management skills and experience | X | X | X | X |
| Management stake in the venture | | X | X | |
| Percentage of equity | | X | | |
| Personal motivation | X | | | |
| References made to entrepreneurs | X | | | |
| Size of investment | X | | X | |
| Teamwork | | | | X |
| Venture development stage | X | X | X | |

As mentioned earlier, after the exploratory stage, U.S. research makes no attempt to create a new list of evaluation criteria, but during the validation stage many cross-cultural studies add a sensible number of criteria to the list. Table 4 organizes all possible criteria from these two stages under the I/O and resource-based views.

Wells (1974) began the list creation with major aspects: entrepreneur, product, market, and financial characteristics. Poindexter (1976) only considered entrepreneur and financial characteristics but provided a seminal insight that the significance of criteria at a certain level depended on the development stage of the ventures. Tyebjee and Bruno (1984) add more items to Wells' (1974) list and established a more concise classification of the criteria. MacMillan and his colleagues (1985) added more items to the list and offered another classification of the criteria. Entering the validation stage, scholars play a mixed role in merely verifying the list and adding new items, which fit into different cultural contexts. Table 5 summarizes the additional items suggested during the validation stage. Let's delve into these additions.

**TABLE 5:**
**Evaluation Criteria Suggested by Rah, Jung and Lee (1994)**

**Industrial Organization View**

- Degree of client procurement
- Degree of core technology
- Degree of equipment facilities
- Degree of product margin
- Degree of sales distribution channel
- Degree of technical manpower
- Ease of labor procurement
- Market acceptance of product
- Market development and sales strategy
- Market growth potential

- Market size
- Price competitiveness of product
- Price stability of raw materials
- Properness of facility layout
- Stable supply of raw materials
- Superiority of product performance
- Technology development capability

**Resource-Based View**

- Collateral status
- Concentration and enthusiasm
- Credibility
- Degree of technical knowledge
- Educational background and careers
- Informal acquaintances
- Insight and forecasting ability
- Outsider's view of management ability

Ray and Turpin (1992) compared the criteria used by American and Japanese venture capitalists. They replicated the MacMillan team's 1985 work but did not add new items to the list. Chotigeat and his team in Taiwan, Thailand, and Sri Lanka followed suit.

Meanwhile, Rah and his colleagues created the list for Korean venture capitalists. Though they categorized their list of criteria in a pattern similar to that used by Tyebjee and Bruno (1984) and MacMillan et al (1985), the details are tailored for Korean entrepreneurs. Take for example characteristics such as availability of raw materials and distribution channels. Many items on their list are enhancements of previous research. For example, entrepreneurs' personality and capability were further detailed into insight and forecast ability, concentration and enthusiasm, educational background, and so forth.

Knight (1994) published a seminal study on analyzing international evaluation criteria by comparing American, Canadian, Asian, and European venture capitalists. He originally designed his survey after MacMillan's (1985) work. Thanks to the geographically extensive scope of his study, Knight (1994) found many other criteria that are significant outside American culture. The additional criteria, mentioned earlier, are illustrated in Table 2.2.

In 1999, Feeney and her colleagues developed a list for Canadian venture capitalists. Instead of building on the previously detailed American criteria, they asked venture capital companies two open-ended questions: what considerations go into rejected a proposal, and what considerations go into accepting a proposal? Their two types of attributes they derived fit nicely into I/O and RBV models. I/O criteria are equivalent to what they called "attributes of owners," including management track

record, realistic assessments of potential, integrity, and openness of the entrepreneurs. They named RBV criteria as "attributes of opportunity," which consist of potential for high profit, a reasonable exit plan, security of investment, and level of involvement of investors.

**TABLE 6:**
**Integrated Evaluation Criteria**

| **Industrial Organization View** | **Resource-Based View** |
|---|---|
| • Barriers to entry<br>• Competitive advantage<br>• Competitive threat<br>• Degree of client procurement<br>• Degree of core technology<br>• Degree of equipment facilities<br>• Degree of product margin<br>• Degree of sales distribution channel<br>• Degree of technical manpower<br>• Easiness of labor procurement<br>• Economically justifiable<br>• Exit route<br>• Export potential<br>• General business conditions<br>• Growth potential<br>• Known distribution system<br>• Market acceptance<br>• Market acceptance of product<br>• Market development and sales strategy<br>• Market growth<br>• Market growth potential<br>• Market size<br>• Potential to create new market<br>• Price competitiveness of product<br>• Price stability of raw materials<br>• Product attributes<br>• Product differentiation<br>• Properness of facility layout<br>• Proprietary product<br>• Prototype<br>• Sound business plan<br>• Stable supply of raw materials<br>• Strong financial management<br>• Superiority of product performance<br>• Technology<br>• Technology development capability<br>• Trend venture | • Ability to evaluate risk<br>• Capable of sustained effort<br>• Cash-out method<br>• Collateral status<br>• Concentration and enthusiasm<br>• Credibility<br>• Degree of technical knowledge<br>• Doer<br>• Educational background and career<br>• Entrepreneur's personality<br>• Entrepreneur's commitment<br>• Expected risk<br>• Expected ROR<br>• Financial provision for investors<br>• Functional areas ability<br>• Honesty and integrity<br>• Informal acquaintances<br>• Insight and forecasting ability<br>• Liquidity<br>• Management skills and experience<br>• Management stake in the venture<br>• Outsider's view of management ability<br>• Percentage of equity<br>• Personal motivation<br>• References made to entrepreneurs<br>• Self-confidence<br>• Size of investment<br>• Strong financial management<br>• Teamwork<br>• Venture development stage<br>• Willing to hire for weakness |

## Future Research

The major contribution of this paper is that all possible evaluation criteria from research literature published between 1974 and 2002 are integrated into a single list framed under two major views of competitive advantage theories. The most important finding is that not all criteria are equally significant. Significance varies depending on time, geographic location, and development stage of a venture. As a consequence, it is pivotally important for researchers to test criteria before making recommendations to entrepreneurs, venture capitalists, or public policy makers on the use of evaluation criteria. Basic questions become crucial: ask what, when, and why a particular criterion is important, as well as how it applies in a particular region at a particular time. The answers to such questions would help entrepreneurs develop more attractive and effective deals that win. Venture capitalists would become wiser and more thorough in evaluating proposals, without limiting themselves to standard academic concepts which may not keep pace with fast-evolving business models. Policy makers such as the government would be able to facilitate the development and prosperity of the venture capital industry as a whole by issuing rules and regulations that streamline the evaluation process.

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