

## **Bio-Technology International Strategic Alliances: The Managerial Perspectives of Malaysian Firms**

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**Abstract: Problem statement:** Biotechnology is becoming one of the major concerns among large emerging economies including Malaysia. International strategic alliances may be one way to integrate emerging economies in their development with developed economies. The use of various forms of co-operation between firms of emerging economies and firms of developed countries can accelerate the process of transfer and adaptation of advances already reached in developed countries, as well as the development of new products and processes. However, there are few empirical studies on international strategic alliances of biotechnology firms have been conducted in emerging countries' environment. In this study, the authors examine the views of Malaysian managing directors of prospective bio-tech international strategic alliances with European or US firms. **Approach:** Data examined in this study were collected using questionnaires filled in during executive face to face semi-structured interviews. Twenty-three firms associated with biotechnology were included. It represents approximately 20% of the estimated 120 firms operating in the biotechnology area in Malaysia. The authors also use a panel of specialists in order to classify independently two groups of firms: The most suitable and the least suitable to international strategic alliances. **Results:** Several differences concerning the perceived importance of prospective contributions were identified between the two groups of local firms. **Conclusion:** This study provides insights on the importance of contributions from a typical local (Malaysian) partner firm, as well as from a typical foreign (European or US) partner firm.

**Key words:** Managerial perceptions, international strategic alliances, high-technology, partner contributions, emerging markets

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### **INTRODUCTION**

Emerging economies are increasing their importance in the global economic environment. In a recent articles, (Kearney, 2004) indicated the increasing importance of emerging economies such as Brazil, China, India, Mexico and Malaysia in the international economic environment. Such economies are expected to be home to a number of the world's 500 largest enterprises in the next 20 years. Even more striking is their suggestion that during this period, the economic centre of gravity of the world will shift towards countries that are currently classified as developing countries. The trend is expected to gain momentum in coming years due to the fast relative growth of the economy of the developing versus developed countries and the strategies of firms trying to secure first-mover

advantages in emerging markets benefiting from economies of scale and locational advantages.

These developments are not limited to low-and medium-technology initiatives as is frequently assumed in the literature on international business, but include a number of areas of high-technology. Emerging economies, in particular in Asia and in countries in transition, are expected to show strong technology-driven growth (Oskooe, 2010; Simos, 2009). In a survey sponsored by Kearney, more than 50% of 200 senior multinational executives indicated technology and telecommunication sectors fuelling Asia's growth over the next four years (Kearney, 2004). Regional groupings of high technology enterprises are expected to attract a large number of these investors in emerging economies, as is the case of Malaysian Government Linked Companies in Malaysia (Ang, 2008).

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Biotechnology is one of the areas about which policy makers in these large emerging economies are particularly enthusiastic (Badawi, 2004; Nouri and Kamali, 2005; Adekoya and Adisa, 2010). Modern biotechnology, normally associated with genetic engineering, emerges at the end of this century as promoting an unparalleled technological revolution (Banta *et al.*, 1984). Although well advanced in developed countries, this biotechnological revolution has only started to reach emerging economies. International Strategic Alliances (ISA) may be one way to integrate emerging economies in its development. The use of various forms of co-operation between firms of emerging economies and firms of developed countries, including the ISA, can accelerate the process of transfer and adaptation of advances already reached in developed countries, as well as the development of new products and processes (Sazali *et al.*, 2009a; Mytelka, 1999). It is particularly important when considering that biotechnology could solve humanity's major problems clearly concentrated in developing countries (Hautea and Escaler, 2004; Quah and Arujanan, 2005).

Malaysia can be seen as representative of other large emerging economies (China, Mexico, India and Poland) relative to high technology, or biotechnology in particular. Because its legislation was only modified to allow patenting of genetic engineered microorganisms in 2005, Malaysia does not have a significant number of alliances in modern biotechnology (Badawi, 2004; Biotek, 2002). There has been a substantial increase in the inflow of foreign investments in this area since 2005, particularly from large companies such as Monsanto, Hoechst-Schering, Dow Chemical and Du Pont (Chee and Kian, 2009; Karimi and Yusop, 2009). Small-and medium-sized enterprises are also expected to benefit from these changes. The recognition of pharmaceutical patents (including biotechnological products) in Malaysia is expected to act as an incentive for the internal development of this technology or its adaptation to the local market (UNCTAD, 2008). The importance of this study derives also from the fact that there is a dearth of study in English about Malaysian business and very few international strategic alliances in Malaysia in the area of biotechnology

**The biotechnology sector in Malaysia:** Intermediary biotechnology in Malaysia is well advanced in universities, private and governmental research centers. In modern biotechnology, however, the Malaysian picture is modest (Raih *et al.*, 2003; Latifah *et al.*, 2006). Malaysia has not been strongly participating in

technological development in this field (Lai and Yap, 2004). Nonetheless, some genetically modified products are expected to reach the market very soon as Malaysia and other Asian countries adjust to changes in patent regulation that affect the biotechnology sector (Cunningham, 1999).

As one of the world's largest producer of palm oil and rubber (Hai, 2002), Malaysia has an enormous potential market for agricultural biotechnology products. Biotechnology has been identified as one of the five strategic technologies expected to accelerate Malaysia's transformation into a highly industrialized nation by 2020. The Malaysian government strongly believes that biotechnology will propel the country into the new frontier of economic growth and attract foreign investment amounting to US\$10 billion over the next 10 years (Hautea and Escaler, 2004; Abu Bakar *et al.*, 2005).

Malaysia aspires to be a biotechnology hub (Barboza, 2003) and this is clearly spelled out in the National Biotechnology Policy that was launched on the 28 April 2005. It is estimated that by 2020, this sector would create 280,000 jobs and contribute 5% to the country's Gross Domestic Product. Total investment under the National Biotechnology Policy is expected to be around US\$7.9 billion. The policy which is expected to give impetus to the biotechnology sector in Malaysia addresses vital aspects of biotechnology development such as the priority areas, legal, safety, financial and other issues. The policy spells out nine thrusts, which include transforming and enhancing the value creation of the agricultural sector through biotechnology. The other area of priority is healthcare and industrial biotechnology. A total of US\$800 million has been allocated for biotechnology in the Ninth Malaysia Plan. Out of this, an initial US\$100 million has been allocated to Malaysian Biotechnology Corporation (Biotech Corp) to initiate technology acquisition, commercialization, entrepreneur development, and for the development of intellectual property framework (Loh, 2009).

Presently, there are some biotechnology related industries in Malaysia, but most are using what can be classified as conventional biotechnology processes. Since Malaysia is largely an agricultural based country, it is not surprising that agricultural and food biotechnology received greater emphasis. New developments in industrial biotechnology in Malaysia encompass activities such as optimization and enhancement of new treatment systems through bio-augmentation or genetic engineering. There are also a number of companies with special focus in bioinformatics (Loh, 2009).

**International strategic alliances:** By examining the gap in technology between developed and emerging economies and consequent problems of the expansion of technological knowledge, there is a possible answer: Co-operation among firms, in general and, especially international strategic alliances and joint ventures. Alliances are suggested by Lorange and Roos (1993, p.9) as the most promising business strategy of the future. Dunning (1997) also acknowledges the increasing importance of international co-operations, in the form of joint ventures. Co-operation opportunities between small and large established firms can be found, according to Inkpen *et al.* (2004), especially in emerging industries. Kogut *et al.* (2002) also point out that these practices are frequently found in international business strategies of smaller companies. Such co-operative agreements may be used to enter emerging economies' markets as well as to transfer technological knowledge. In their research, Kaplan and Hurd (2002) support this view, emphasizing that multinational executives, local executives, as well as host country government officials agree that in most cases, a joint venture associating a multinational firm and a private local firm, is the best arrangement to establish foreign direct investment for both the multinational and the host country (Najib, 2006; Doz and Hamel, 1998).

The success rate of international strategic alliances in general is less than 40% and could be as low as 20% (Reuer and Zollo, 2000). In the specific area of this study, biotechnology alliances, success rates are estimated to be slightly higher. The importance of improving success rates of international strategic alliances cannot be underestimated as Parkhe (2003) points out, the need 'to improve the hit rate of strategic initiatives' is a major challenge for corporations. Although post-formation activities have been emphasized recently (Kuglin, 2002), pre-formation activities could have as much impact on alliance success. Our study emphasizes the latter point, indicating the importance of pre-alliance mechanisms that would increase the chances of choosing the right partner. In this context, Buckley and Casson (2009) and Yoon (2007) state that, co-operation success relates to characteristics of the management of the venture itself. It is assumed in this study, that those characteristics will be associated with certain characteristics of the partners' firms prior to the start of the alliance. In particular, co-operation success is expected to be linked to the views of executives of the partners' firms regarding prospective contributions to the joint venture.

**Partners' potential contributions:** Literature on international strategic alliance performance is abundant (Beamish, 1994). A few publications list potential contributions of partners of joint ventures or alliances: Stopford and Wells (1972); Beamish (1994) and more recently: Geringer (1991); Glaister and Buckley (1997); Sazali *et al.* (2009b); Parkhe (2003); Pan (2004) and Prahalad and Ramaswamy (2004).

A list of the 18 most relevant contributions from local economy partners was compiled based mainly on the three initial papers. Three other papers published in Malaysia supplemented the information (although did not suggest lists of contributions); Sim (2006), Jomo and Shyamala (2001) and Sulaiman *et al.* (1999). Contributions are commented on below:

**Capital:** This item may be a contribution from one or all partner firms of the joint venture. It is understood as capital originating in either partner's established business.

**Access to raw materials:** This can also be a contribution from any partner firm. It indicates the capability of the firm in overcoming problems in obtaining raw materials for production. These difficulties could be caused by factors such as governmental restrictions, geographic distances, tariffs, previous agreements with suppliers, and distribution systems.

**General knowledge of the economy, politics and customs:** Given the appropriate qualification, this may be a contribution either from the local partner or from the foreign partner. Hence, when focusing on the local partner, 'knowledge' refers to the local economy, politics and customs. As pointed out by Hitt *et al.* (2004) in their study of the institutional effects on strategic alliance partner selection process, it is an important contribution by the local partner. It could, however, be a contribution from the foreign partner, in which case 'knowledge' refers to the country where the foreign firm is based. It could prove valuable to the local partner if the joint venture plans to export.

**Knowledge of local financing:** This applies to the local partner. It concerns raising capital from third parties in the local market. It differs from the item 'capital'. The latter implies the use of the firm's own capital. Established firms would usually be expected to make this type of contribution to the venture. The former 'having knowledge of local financing', could be expected from a firm on good terms with banks, or development agencies.

**Links to important personalities on the local scene:** This could be expected from the local partner. It

includes not only personalities from government but also those connected to research centre and universities.

**Avoid political interventions:** This is another contribution usually expected from the local partner. The foreign partner would have the risk of political intervention (e.g., expropriation) reduced. Other intervention, such as price controls, or the establishment of governmental firms on the sector, would also present a lesser risk.

**Political advantages:** This can be used in relation to both local and foreign partners. The local partner could help as a 'links to important personalities'. With regard to the foreign partner this contribution is understood as permission from foreign governments for the use of certain technologies, special tariffs, and so forth.

**To meet governmental (legal) requirements for local ownership:** The local partner can help here. It concerns regulations or policies of the host country such as import substitution, or the commercialization of certain products. In the case of Malaysia, Lee (2004) and Mytelka (1999) point out that it is easier to receive permission to commercialize or produce pharmaceuticals products when the multinational (foreign firm) has an association with a local firm. Governmental requirements concerning biotechnological products are included here (Jusoh, 2006).

**Faster entry into the local market, considering the existing alternatives to the foreign partner:** It is an important contribution from the local partner and has been mentioned by other authors (Stopford and Wells, 1972; Beamish, 1994) more broadly. By comparison other existing entry modes in a foreign market (exporting, licensing and wholly owned subsidiary) the importance of this can be seen.

**Better access to the local market for goods produced by the joint venture than would have been possible with a wholly owned subsidiary:** It is a subset of the previous item. It makes the comparison between the joint venture and the establishment of a subsidiary more explicit. Local partner contributions such as channels of distribution and administrative infrastructure are also included here.

**Better access to the local market for goods produced abroad by the foreign partner:** This item is definitely a potential advantage for the foreign partner. Its importance will depend on factors such as established channels of distribution and business infrastructure on the part of the local partner.

**Better export opportunities for goods produced by the joint venture:** This could be seen as possible contribution from either partner. The firms can also be seen as 'spring boards' to regional markets (e.g., ASEAN or APEC). The local partner can also be essential for raising export incentives from the host government.

**Managing Director:** On the one hand, this can be seen as a potential contribution of the local partner. It is considered that the joint venture would benefit with an experienced executive used to local practices (Beamish, 1994). On the other hand, a foreign executive could contribute by bringing in up-to-date managerial practices to the venture.

**Marketing managers:** This is similar to the previous one but concentrating on the marketing position. Knowledge of cultural aspects could be essential for the development of a marketing strategy. In this case the choice of a local marketing manager would be more sensible.

**Managers or experts in production, R and D or other technical area:** This is usually seen as a contribution of the foreign partner because it is related to technology. It was pointed out by Currall and Inkpen (2008) as an important contribution of the local partner. Particularly when the venture involves technology transfer or product adaptation it seems reasonable that a qualified team on the local side would facilitate the process.

**Cheap labor:** This can be seen as a contribution from the host country. Holtbrugge (2004) points out, that local partners of a joint venture would be able to provide inexpensive labor more easily than a MNE operating with its own subsidiary.

**Technology:** Surprisingly, this contribution was ignored by Raved and Renford and also by Stopford and Wells. In contrast, Beamish (1994) and also Inkpen and Curall (2004), present it as one of the most important contributions of the foreign partner. The former author emphasizes that the successful transfer of equipment or technology does not guarantee the joint venture success. It is also mentioned that firms from developed countries establish ventures with local partners as a way to disseminate their technology to as many markets as possible.

**To bring complementary product line to the venture:** It could be potential future contribution of either partner. It was not examined however by any of

the studies mentioned. Stopford and Wells mention it as a suggestion from the executive interviewed. The study of Kogut *et al.* (2002) suggests it as an important contribution from the foreign partner.

## MATERIALS AND METHODS

Data examined in this study were collected using questionnaires filled in during executive face to face semi-structured interviews in 2008. Twenty-three firms associated with biotechnology were included as a result of the national scope of this association. It represents approximately 20% of the estimated 120 firms operating in the biotechnology area in Malaysia (MBIC, 2008). Malaysian Biotechnology Corporation was, at the time of the survey, the only national association of biotechnology firms and approximately 80% of associated firms were surveyed. A total of 18 Managing Directors (MDs) (connected with 18 firms) were interviewed. The firms were located in Kuala Lumpur and several cities in the State of Penang.

In parallel, a 'panel' of 15 specialists, or researchers connected to governmental agencies and university research centers, was used to classify the firms according to their suitability for international joint ventures<sup>2</sup> (Dacin *et al.*, 2002).

Future potential contributions from both partners (local and foreign) were listed and a Likert scale from '0' (minimum importance) to '5' (maximum importance) was allocated to each contribution. As the Malaysian environment has proved itself very unpredictable, the specialists were also used as a control group for any circumstantial bias that could occur on the assessment of the MDs. This check was necessary because the executives interviewed were part of the same association (Biotech Corporation) and their views could be influenced by their associates. In this case, the control group, that is the specialists, did not have any connection with Biotech Corporation.

## RESULTS

**Grouping of firms:** The 'panel' of 15 specialists evaluated the 18 firms whose MDs were interviewed. It can be observed that the curve presents three distinct regions: a steep slope comprising six firms with higher grades, a nearly flat part in the middle showing six firms with grades around 2.5 and a less accentuated slope for the six firms presenting the lowest grades. The six firms of the upper third were defined as the most suitable group and the remaining firms as the group least suitable to establish a strategy of joint ventures with foreign firms (firms not yet operating in Malaysia). As a measure of

the separation of the proposed groups, the distance between the average of grades within each group and the extreme grades is 50%.

**Views of potential contributions from the local partner:** MDs and specialists involved with biotechnology were asked to grade the importance of 18 potential contributions from a typical Malaysian partner firm to hypothetical strategic alliances with a foreign firm. The values allocated to each contribution, obtained from the questionnaires are shown in Table 1, five sub-groups of answer were considered in the analysis: The MDs as a whole, the MDs from the most suitable and from the least suitable firms, the specialists and the combined answer of MDs and specialists.

First, the subgroups as sets of ranked contributions were compared. The Spearman coefficient between the sub-group of MDs and the subgroup of specialists is high (0.88, significance 0.03%) indicating a high conformity between the ranking of these two groups of respondents. Consequently, the analysis can proceed by using the combination of the answers or the 'all' subgroup. This result indicates the absence of any bias in the perception of MDs when compared to specialists.

As for the comparison between the answers from MDs of the most suitable firms and those of the least suitable firms, the statistical analysis suggests a difference in views (Spearman's 0.64, Mann-Whitney test to rank 2%). This shows the need for a more careful analysis in order to determine the specific differences in positions of the potential contributions (Table 1). The relative ranks of potential future contributions from the local partner are shown in Table 2. The relative ranks for standard deviations are shown in Table 3.

Although the most important local partner potential contributions, such as 'general knowledge' and 'faster entry and access to market' are predicted in the literature, 'political intervention' was placed at a very low position (16th out of 18), contrary to existing literature on developing countries. The importance of the items 'Faster entry into the local market' considering other existing alternatives to the foreign partner' (as licensing, exporting, or wholly owned subsidiaries) and 'access to local markets vs. subsidiary' shows the importance of the market for the foreign investor. The latter results were also predicted in the literature and reflect the potential of the Malaysian market.

However, when comparing the group of Most Suitable (MS) firms with the Least Suitable (LS) more interesting results arise. The MS firms place 'low cost labour' as a contribution of the local partner in the first rank of importance. Szali *et al.* (2009b) recently pointed

Table 1: Importance of the local partner contributions

Contributions	All	Specialists	Managing director	Most suitable	Least suitable
Capital	1.68	1.74	1.60	1.33	2.00
Raw materials	2.79	2.68	2.93	2.00	2.83
General knowledge	4.09	3.95	4.27	3.83	4.08
Local financing	3.35	3.11	3.67	3.00	3.25
Local personalities	3.29	3.47	3.07	3.67	3.42
Political interventions	2.27	2.47	2.00	2.33	2.75
Political advantages	2.62	2.47	2.80	2.83	2.42
Governmental requirements	2.94	3.00	2.87	2.83	3.25
Speed of entry into local market	3.65	3.53	3.80	3.67	3.50
Access to local markets Vs. subsidiary	3.59	3.53	3.67	3.67	3.42
Local market for foreign partner's prod/s	3.35	3.42	3.27	3.00	3.58
Export opportunities	2.29	2.37	2.20	2.33	2.58
Managing director	2.91	3.05	2.73	2.33	3.25
Marketing director	3.18	3.37	2.93	3.50	3.25
Technical personnel	2.68	2.74	2.60	2.50	2.83
Low cost labor	2.44	2.84	1.93	3.83	2.50
Technology	1.44	1.53	1.33	0.50	2.17
Supplementary products	2.47	2.63	2.27	2.00	3.00

Table 2: Relative rank of the potential contributions from the local partner (1 = Highest deviation; 18 = Lowest importance)

Contributions	All	Specialists	Managing director	Most suitable	Least suitable
Capital	17	17	17	17	18
Raw materials	10	8	12	16	11
General knowledge	1	1	1	2	1
Local financing	4	3	7	7	6
Local personalities	6	6	4	4	5
Political interventions	16	15	14	12	13
Political advantages	12	9	15	10	15
Governmental requirements	8	11	8	8	7
Speed of entry into local market	2	2	3	3	3
Access to local markets Vs. subsidiary	3	4	2	5	4
Local market for foreign partner's prod/s	5	5	5	9	2
Export opportunities	15	13	16	13	14
Managing director	9	10	9	14	8
Marketing director	7	7	6	6	9
Technical personnel	11	12	10	11	12
Low cost labor	14	16	11	1	16
Technology	18	18	18	18	17
Supplementary products	13	14	13	15	10

Table 3: Relative ranks of the standard deviation of the local partner potential contributions (1 = Highest deviation; 18 = Lowest deviation)

Contributions	All	Specialists	Managing director	Most suitable	Least suitable
Capital	12	10	13	12	10
Raw materials	2	3	2	3	2
General knowledge	18	12	18	17	18
Local financing	10	16	10	13	7
Local personalities	15	6	17	14	17
Political interventions	5	4	6	9	8
Political advantages	4	1	12	16	6
Governmental requirements	9	9	11	7	11
Speed of entry into local market	17	13	16	16	12
Access to local markets Vs. subsidiary	13	11	14	6	13
Local market for foreign partner's prod/s	11	14	8	5	14
Export opportunities	3	7	3	1	3
Managing director	6	8	4	8	5
Marketing director	7	15	5	11	4
Technical personnel	8	2	15	10	16
Low cost labor	1	5	1	4	1
Technology	16	18	9	18	9
Supplementary products	14	17	7	2	15

Table 4: Importance of the foreign partner contributions

Contributions	All	Specialists	Managing director	Most suitable	Least suitable
Capital	3.71	4.07	3.42	3.00	3.58
Raw materials	2.44	2.07	2.74	2.50	3.08
General knowledge of foreign country	2.41	2.13	2.63	3.33	2.25
Political advantages from foreign country	2.21	2.13	2.26	2.33	2.42
Easier exports (JV products)	3.68	3.67	3.68	3.50	3.75
Easier exports (local partner's prod.)	3.41	3.33	3.47	3.50	3.67
Managing director	1.50	1.20	1.74	2.00	1.75
Marketing director	1.77	1.40	2.05	1.83	2.08
Technical personnel	3.88	3.73	4.00	4.00	4.00
Technology	4.65	4.60	4.68	4.83	4.58
Supplementary products	4.29	4.33	4.26	4.00	4.42

Table 5: Relative rank of the potential contributions from the foreign partner (1=Highest Importance; 18= Lowest Importance)

Contributions	All	Specialists	Managing director	Most suitable	Least suitable
Capital	4	3	6	7	6
Raw materials	7	9	7	8	7
General knowledge of foreign country	8	7	8	6	9
Political advantages from foreign country	9	8	9	9	8
Easier exports (JV products)	5	5	4	4	4
Easier exports (local partner's prod.)	6	6	5	5	5
Managing director	11	11	11	10	11
Marketing director	10	10	10	11	10
Technical personnel	3	4	3	2	3
Technology	1	1	1	1	1
Supplementary products	2	2	2	3	2

Table 6: relative ranks of the standard deviation of the foreign partner potential contributions (1 = Highest deviation; 18 = Lowest deviation)

Contributions	All	Specialists	Managing director	Most suitable	Least suitable
Capital	3	5	3	2	4
Raw materials	1	3	1	1	2
General knowledge of foreign country	2	1	2	7	1
Political advantages from foreign country	4	2	4	6	3
Easier exports (Joint Ventures products)	7	6	7	5	7
Easier exports (local partner's prod.)	8	7	8	8	8
Managing director	5	4	5	3	6
Marketing director	6	10	6	4	5
Technical personnel	9	8	9	9	9
Technology	10	9	11	11	10
Supplementary products	11	11	10	10	11

out this as an important contribution of the local partner in their study in China. Contrary to that study however, Malaysian MDs were comparing the salaries of highly qualified personnel in the biotechnology area in Malaysia with those salaries offered internationally or in developed countries. In contrast, the LS place it as one of the least important items, indirectly by implication confirming its importance in a successful venture.

Other local partner contributions seen differently were 'local market for foreign partner prod/s', MDs, 'Raw materials', 'supplementary products', all ranked as lower importance by the MS firms and 'political advantages' ranked higher by the MS firms. The most controversial items (items presenting the highest standards deviations) were 'low cost labor', 'raw materials' and 'export opportunities'.

**Views on the potential contributions from the foreign partner:** MDs and specialists were also

questioned on the importance of potential contributions from a typical foreign firm (a firm not yet operating in Malaysia) to establish a hypothetical joint venture with a typical Malaysian firm. The questionnaire listed 11 potential contributions found in the literature. The results are shown in Table 4. As previously, five subgroups of answers were considered in the analysis: The MDs as a whole, the MDs from the most suitable and from the least suitable firms, the Specialist and the combined answer of MDs and specialists.

The subgroups as sets of ranked potential contributions were compared. In a similar way to local contributions, the correlation coefficient between the subgroups of Specialist and the MDs (corr = 0.91; sign = 0.3%) is high suggesting similar views by these groups of respondents and the consequent absence of bias on the part of the MDs.

The correlation coefficient between 'most suitable' and 'least suitable' firms is higher (0.93 at 0.3% sign) than the contributions of the local partners. This suggests a more homogeneous view of the importance of foreign partner contributions when compared to the previous results for the local partner contributions (Table 4). The relative ranks of potential future contributions from the foreign partner are shown in Table 5. The relative ranks for the standard deviations are shown in Table 6.

As is to be expected, the contribution of the foreign partner seen as most important is technology. This conclusion is strongly confirmed by the equally highly-ranked contributions 'to bring supplementary product lines to the joint venture' and 'to bring managers or experts in productions, Rand D or other technical area' (know-how). The next item in importance was 'access to foreign market for goods produced by the joint venture'. Clearly, technology is seen as essential to the present stage of development of the commercial biotechnology industry in Malaysia. Access to foreign markets is placed in the second position if importance. Although MDs agree strongly within their group, their Specialists place 'capital' at a much higher rank of importance. The apparent financial crisis in the country at the time of the survey does not seem to influence the perceptions of executives.

One difference in perceived importance between the MS and the LS is 'general knowledge of a foreign country' the MS executives placing it as of higher importance. With regard to the standard deviation, the more controversial item was 'raw materials', 'general knowledge of a foreign country' presented the highest standard deviation of the subgroup of least suitable firms, differing from the most suitable group of firms for which it was placed in a medium position.

## DISCUSSION

This study points out the importance, according to the views of Malaysian MDs and Specialists connected to the biotechnology area, of expected future contributions from the partners in a joint venture with one or more European (or US) foreign firms, i.e., firms not yet operating in Malaysia.

The comparison of the views of MDs from the most suitable firms and from the least suitable firms has indicated differences regarding the local partner potential contributions. One of the most controversial items, which also presented a substantial contrast in ranking between these two groups of firms ranked this contribution as the most important. As most of the MDs were comparing the salaries of highly qualified

personnel and biotechnology is not labor intensive, it seems reasonable to assume that those salaries are perceived to be considerably lower in Malaysia (or for this matter in emerging economies) than those in developed countries. This contribution has not previously been identified in the literature concerning high-technology sectors. There are differences in perceptions also with regard to 'raw materials', 'political advantages' and MDs'.

The most relevant potential contribution from the local partner as pointed out by both MDs and specialists was 'general knowledge of the local economy, politics and customs'. The item 'fastest speed of entry into the local market, considering the existing alternatives to the foreign partner' has also been pointed out as important. It endorses the literature. Moreover, Glaister and Buckley (1997) and Hitt *et al.* (2004) in studying partner selection criteria within developed country firms, also indicated similar criteria affecting partner selection<sup>3</sup>. The result is in line with the literature which considers US multinational managers in the beginning of the 70 s (Stopford and Wells, 1972). This observation and related ideas<sup>4</sup>, implies that the line of thought of Malaysian executives in the year 2008 agree with those of US MNE executives of the 70 s. It could indicate paths for future research.

As to foreign partner potential contributions, the most prominent item was 'technology', followed by 'complementary line of products' and 'technical personnel', re-emphasizing the importance of the item technology. Holtbrugge (2004) points out the importance of co-operative agreements in technological joint developments, particularly of biotechnology firms, whereas Sim (2006) suggests its importance to firms in LDCs (or in emerging economies) in accessing technology.

On the development of strategies of international strategic alliances, the expectations listed and examined in this study may be of fundamental importance because they bring out important elements of negotiation. It is hoped that this initial study of potential future contributions of the partners of an international strategic alliances with an emerging market firm can encourage this type of enterprise in the area of biotechnology. The joint venture could become an important channel for emerging economies to obtain biotechnology:

- Traditional biotechnology with intermediary techniques utilizes advances knowledge of genetics and biology (but no genetic manipulation)

- Specialists are professionals connected to biotechnology but not to firms interviewed, were asked to allocate, according to their perception, scores to the capability of each firm in regards the potential contributions to a foreign partner firms. These scores weighted by the importance assigned to each contribution resulted in a grade to each firm
- Glaister and Buckley (1997) point out, as some of the most important partner selection criteria, the knowledge of the local market and of local culture which are connected to 'general knowledge of the local economy, politics and customs', as well as links with buyers and distribution channels which would lead (and thus are taken as associated) to a 'faster entry into the local market'
- Sim *et al.* (2006) pointed out a gap of approximately four decades while considering the size of large Malaysian and US companies (Malaysian largest companies in 2008 would have equivalent size to the largest US companies in 1970)

### CONCLUSION

The comparison of the views of MDs from the *most suitable* firms and from the *least suitable* firms has indicated differences regarding the local partner potential contributions. The most relevant potential contribution from the local partner as pointed out by both MDs and specialists was 'general knowledge of the local economy, politics, and customs'.

The item 'fastest speed of entry into the local market, considering the existing alternatives to the foreign partner' has also been pointed out as important. As to foreign partner potential contributions, the most prominent item was 'technology', followed by 'complementary line of products' and 'technical personnel', re-emphasizing the importance of the item technology.

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