

1597

UNIVERSIDADE NOVA DE LISBOA

Faculdade de Economia

271-1(1)

A PRATICAL WAY TO EVALUATE SYNERGY

Jorge Vasconcellos e Sá

Working Paper Nº90



UNIVERSIDADE NOVA DE LISBOA  
Faculdade de Economia  
Travessa Estevão Pinto  
1000 LISBOA

Junho, 1988

A PRACTICAL WAY TO EVALUATE SYNERGY

Jorge Vasconcellos  
Universidade Nova de Lisboa  
Rua Marquês da Fronteira, 20  
Lisbon, 1000 Portugal  
Telef:520127

## A PRACTICAL WAY TO EVALUATE SYNERGY

### ABSTRACT

There has been recently a renewed interest in the concept of synergy due to increasing levels of economic, technological and competitive complexity which are forcing organizations to achieve greater benefits from strategic planning.

There is however the need for a technique which will enable managers to evaluate on a case by case basis, the potential synergy of a new market entry. To present such a technique is the purpose of the paper.

## Introduction

In the year 494 B.C., protesting against their lack of economic and political rights, the plebeians of Rome massed together and marched out of the city. They went to a nearby hill and declared their intention to found a new city on that spot. The Roman patricians, who remained behind, soon began to wonder who would work in the fields and the workshops, and who would serve in the army. In an effort to persuade the plebeians to return to their former tasks, so the legend goes, they sent a certain Menenius Agrippa to negotiate. Agrippa approached the plebeian camp and spoke thus;

"In old days, when the various organs of the body used to speak to one another, the hands, the mouth and the teeth decided to revolt, claiming that they did all of the work of eating, but only the stomach received the benefit. So the hands refused to pick up anything, the mouth refused to open and the teeth refused to chew. By and by the body grew hungry, it weakened and withered - the whole body, including the hands, the mouth and the teeth."

In this way, the plebeians realized that even though only the stomach appeared to benefit from eating, in fact, the entire body working together, each organ performing its own role, produced a benefit which was shared by all. And so the plebeians saw that global welfare depends upon the cooperation of individual parts.

Today we speak of the concept of synergy (different parts working together toward a common end and producing an end result which is different from a simple sum of the contributions of the parts). The above fable of Agrippa illustrates that the concept is not necessarily a recent one. What is new, however, is the emphasis which is being placed on synergy in the strategy field. This emphasis is due to increasing levels of economic, technological and competitive complexity which are forcing organizations to seek and achieve greater benefit from strategic planning. It has been pointed out (1) that the need exists for a practical way to evaluate the synergistic potential of a diversification move. That is, there is a need for a technique which will enable managers to evaluate beforehand if entering a new market (through internal development or merger) will or will not imply synergy, and if so, to what extent. Presenting such a technique is the purpose of this paper.

## THE CONCEPT OF SYNERGY

The word "synergy" comes from the greek "synergia" (joint work which comes in turn from "synergein" (to work together). As such, within the organization field, synergy refers to a situation in which strategic business units or divisions of a diversified corporation have a performance which is different from the performance they would have if they were autonomous entities. One speaks of synergy if the return on investment of a division, that is

$$\frac{(P - C) \times Q}{I}$$

where

P = average price  
C = variable cost  
I = investment  
Q = sales volume

is different from what the return on investment would be if the division was an independent business.

Followingly, a technique to evaluate synergy is presented. The technique is a compromise between the complexity of the causes and effects of synergy and the need for a practical method for evaluating the synergistic potential of entry into a new market. The technique is based on the following five tenets:

1) In order to evaluate the synergistic implications of a given diversification move, one MUST TAKE INTO ACCOUNT:

A - THE ADVANTAGES of the diversification (e.g. transfer of image from one division to another) which can be:

A 1 - Pecuniary in nature; or

A 2 - Intangible, and therefore more difficult to evaluate.

B - THE COSTS that must be paid to harvest those advantages. For instance, if a sales force is shared among two or more divisions, the benefit in terms of lower cost must be weighed against the need for compromise among divisions, in terms of the utilization of the sales force.

C - THE DISADVANTAGES (negative synergy) which diversification can bring e.g. the negative impact of the image of a division manufacturing low price items

upon a new division dedicated to luxury goods).

2) There are eight main FACTORS which can imply positive synergy. They are: resource sharing, greater client's utility, the use of larger units of resources, lower risk (implying lower cost), greater power, input effects, transfer of money, and transfer of knowledge and of influence.

3) THE CONSEQUENCES of synergy can have a bearing on: charging higher prices, (and/or) having lower costs, (and/or) selling a greater volume, (and/or) needing a lower investment to operate the new division.

4) If synergy is present, its effects will be RECIPROCAL: they will have an impact on both the new division (created by the firm to handle the newly-entered market) and the old divisions.

5) When evaluating the synergistic potential of a certain diversification move, it is important to MAKE A CLEAR DISTINCTION BETWEEN PECUNIARY AND INTANGIBLE BENEFITS, and to give special attention to the former. This is a cautious attitude since the synergistic potential of entry into a new market is one thing, and the actual synergy realized is another. Between the potential and the actual synergy lies implementation, which is particularly difficult in the case of intangible benefits.

These five characteristics of synergy: existence of advantages, disadvantages and costs - eight main causes of positive synergy - four types of consequences (price, cost, sales volume and investment) - reciprocity (more than one division benefiting from synergy) - and the need to distinguish between pecuniary and intangible benefits - all have their place in the following technique for evaluating synergy.

## II TEN QUESTIONS FOR EVALUATING SYNERGY

Let's suppose that a corporation is considering entering into a new market and wants to evaluate the potential of synergy between this new market and the old markets the firm operates in.

For this purpose the corporation's management should first develop a BUSINESS PLAN specifying the investment (I) and cost (C) which will be incurred, the price (P) which can be charged for

the product and the expected sales quantity (Q), just as if the new division which will handle the new product were totally autonomous from the other parts of the corporation. That is, as if the new division were a SINGLE INDEPENDENT BUSINESS. Based on the estimates of price, cost, sales, and investment it is possible to compute the predicted return on investment.

Next, the corporation's management should answer the ten questions which follow and enter the answers in the empty cells in figure one (below).

The first eight questions in Figure one refer to the sources (causes) of positive synergy. The answers can be pecuniary (a dollar value) or intangible (in which case a verbal sentence should be given). Both pecuniary estimates and verbal answers should be written down in the cells belonging to the first eight columns of figure one.

The ninth column in figure one refers to the possible costs which will be incurred in order to benefit from the advantages mentioned in the first eight columns. These costs can be of two types, costs of compromise, and costs of coordination. Column nine should be used to enter the answer to this question.

The tenth column deals with eventual disadvantages implied by the diversification move and which may decrease the level of positive synergy.

One will next analyze each of these ten questions (columns in figure one) in some detail

"Insert Figure one about here"

I - I - I WHICH RESOURCES WILL BE SHARED?

Resources to be shared among the new and old division (s) can be of three main types:

A - Physical resources belonging to line departments such as plants, warehouses trucks, etc.

B - Physical resources belonging to staff departments such as market research, personnel, legal, accounting, security, etc., and

C - Intangible resources. Here it is useful to distinguish between

cl - image/brand name

c2 - distribution channel

c3 - property rights (patents, copyrights, and so on).

The question of which ( and to what extent ) resources of these various types will be shared, is easier to answer if one divides the resources into the three categories mentioned above and then proceeds in four steps.

First, management should draw a list of all resources (sales force, machinery, etc) which will be necessary to operate in the new market. Second, management should analyse the extent to which some of these resources can be shared between the new and old divisions.

General Electric, for instance, shares its advertising, and after sales service among several major appliance product lines. Procter & Gamble uses a common sales force, in both paper towels and disposable diapers. Head ski used both its image and distribution channels to diversify from ski equipment to ski wear and tennis racquets. Campbell Soup's acquisition of Peperidge Farm was at least partially motivated by the possibility of sharing image and distribution channels.

Third, the corporation should ask: "How much do I save due to each resource which is shared? Savings should be computed individually for each resource shared. For instance, if the sales force will be shared in total, the savings will be the wages plus the training and selection costs of a new sales force. If 30% of the operating time of an existing machine is idle and can therefore be allocated to the new product, the savings will be the difference between 30 % of the total costs of operating the machine (fuel, costs, depreciation, etc.) and the cost of buying and operating a new machine (which, since there are discontinuities in the production capacity of machinery, would have too great a production capacity and therefore become underutilized).

Fourth, and finally, all individual pecuniary savings should be added by type of resource shared (direct physical resources, indirect physical resources, and intangibles) and the monetary value placed in the blank cells of column one in figure one.

Savings in physical resources (direct or indirect) can usually lower costs or lower investment. Regarding intangible resources (image, distribution, and property rights), the transport of the goodwill/image of one division or another can be used to charge premium prices (P) or to obtain larger sales quantity (Q) if prices are kept at competitive levels. The



sharing of distribution channels will allow for a greater market penetration and therefore larger sales quantity (Q).

Sharing property rights such as patents, copyrights, etc., can imply advantages in terms of price, cost, sales, quantity or investment.

A patent, for instance, can involve the process of production (process innovation) and therefore be used to lower costs or the required level of investment; or the patent can involve a new product and therefore be useful to sell at premium prices or larger quantities at lower prices. Again, whatever the nature of the expected benefits they should be entered in the respective cells of figure one.

2. Will the CLIENT'S UTILITY increase due to the enlargement of the product line?

Sometimes for reasons of convenience or compatibility, the client prefers to buy from suppliers which offer a broad product line. In telecommunications, for instance, buyers often want system solutions and one-vendor accountability. Auditing firms have diversified into taxation, accounting, management consulting and personnel selection. Computer firms which initially offered only mainframes, now offer compatible minis and micros, software solutions, training and long distance communication networks. The concept of FM multiplex has led many appliance firms to offer radios, amplifiers, TVs, videos, loudspeakers, turntables, cassette players and cameras.

A broadened product line which serves the customer's needs, better, will imply the possibility of either charging premium prices or having a larger sales volume, or both. Consequently the predicted monetary benefits should be quantified and entered in the second column in figure one.

3. WILL THE AVERAGE COST OF SOME RESOURCES DECREASE DUE TO THE USE OF LARGER UNITS OF THESE RESOURCES?

The sharing of some resources such as warehouses, machinery among divisions may allow for the use of larger units of these same resources. These larger units may imply lower average costs per unit of sales. Two instances are relevant here. One concerns the law of two thirds. The other to mechanization.

The law of two thirds applies to buildings, warehouses, pipelines, etc and states that as their area doubles, their volumes increases threefold. Since cost is related to the area and the output to volume, a net benefit occurs as size increases.

In other words, the construction of a larger warehouse shared by two or more divisions, will cost less than building two smaller warehouses for the independent use of each of the divisions. That is the reason why McKesson, a major distributing organization, handles diverse lines such as liquor and pharmaceuticals through superwarehouses.

In mechanization, combining two divisions may justify the use of more sophisticated equipment and the mechanization of some tasks which were previously performed manually. Moreover the price of machinery increases less than proportionally to the augment of its capacity. Consequently, the cost of using the machinery per unit of product manufactured is lower.

Savings due to the law of two thirds will imply lower investment costs. Savings in the area of mechanization will imply either lower costs or lower investment. The estimated monetary savings should therefore be placed in the respective cells of column number three in figure one.

#### 4. WILL LOWER RISK IMPLY LOWER COSTS?

Diversification may bring a decrease in two different types of risk: lower critical contingencies (for instance, lower probability of bankruptcy) and lower variability (of profits or sales volume)

Although there is evidence that a lower threat of bankruptcy and lower variance in profitability imply lower costs of raising capital, in terms of interest and dividends to be paid (2) these types of savings are very difficult to evaluate.

It is better therefore to concentrate on assessing in monetary terms the savings which occur in inventory and in the personnel area due to lower variability of sales.

Savings in inventory occur because as the number and diversity of the organization's clients increase, the level of inventory of finished goods which must be held to avoid a stockout increases less than proportionally to sales. Turning to the operations research model that the organization uses to manage its inventory level, the calculation of the savings in inventory is straightforward.

Then, by diversifying into counter seasonal business (e.g. bicycles and ski equipment as the french entrepreneur Tapie did recently) or countercyclical business (e.g. industrial machinery, public works equipment) corporations will be able to transfer personnel from one division to another (provided that the

required qualifications are similar or easy to learn), rather than hiring and firing them as need be. This, will imply savings in selection and training, which should be entered in the cost cell of column no. four in figure one.

#### 5. WILL THE CORPORATION'S POWER INCREASE?

Diversification may increase the organization's power in different ways. Political power (lower probability of bankruptcy) was already considered in question four. Market power in terms of being able to charge higher prices was considered in the question relative to intangibles (image). Therefore, the concern here is solely with three other consequences of power: greater access to retailers; reciprocal purchase; and possibility of engaging in high risk and technological demanding R&D projects.

Matsushita is a good example of the benefits in terms of greater access to retailers that arise due to a broader product line. Indeed, the fundamental cause of Matsushita's advantage over Sony in Japan is primarily due to the fact that Matsushita was able to build a more extensive distribution system than Sony, mainly because it is a full line producer of consumer durables and Sony is not. In the U.S.A., Volkswagen and other European car companies have encountered difficulties in building a dealership because dealers prefer to represent full line car companies.

Diversification may also increase an organization's possibilities in the area of R&D. As an example, by sharing technological developments and applications among experts in laboratory glassware, fiber optics, cathode ray tubes, etc., Corning Glass Works has achieved breakthroughs which would have been inaccessible to a specialized firm. The merger of the two large Swiss chemical companies Ciba and Geigy was basically motivated by the wish to make their research expenditures more productive. Ciba's research strengths in pharmaceuticals and epoxy resins complemented Geigy's strengths in polymer additives and agricultural chemicals.

Finally, diversification may also increase a corporation's power in terms of reciprocal purchase; where one division buying from a given supplier induces that supplier to buy from another division of the same corporation.

The pecuniary evaluation of R&D benefits is very difficult, but they should nevertheless be mentioned in verbal terms in figure one in the event that their importance is expected to be significant. It is somewhat easier however to evaluate the pecuniary benefits of greater access to retailers and those benefits derived from the possibility of imposing reciprocal

purchase. Both will translate primarily to a larger sales volume and therefore, the estimated value should be entered in the sales cell of the fifth column (figure one).

#### 6. WHAT WILL BE THE BENEFITS IN TERMS OF INPUTS?

In a case where different business units buy from the same suppliers, there may be an improvement in input quality and service from vendors (in terms of responsiveness and inventory holding) and lower input costs. Lower input costs can occur because handling and transaction costs will be spread over larger quantities of inputs and because of quantity discounts offered by the seller.

The inputs can be components, fabricated materials, raw materials or money (equity raising). As an example of lower input costs, consider the costs of raising money (equity).

Every time a firm sells a new issue of equity to raise funds it must perform several activities, such as, determine the adequate price for the new shares, find buyers, prepare and fill legal documents, etc. Due to the specialized nature of these activities, firms tend to turn to underwriting firms for these services. Underwriters charge a percentage of the new money generated for their service. This percentage tends to decline significantly with the size of the stock sale. Consequently, a large diversified firm generally pays a much lower rate than an individual business would pay. The underwriting fee for a small independent business can be as high as 8 to 10%; whereas the percentage for diversified organizations is seldom superior to 3 or 4%.

Input benefits due to improved quality and service will enable the buying organization to obtain lower costs in their use and/or obtaining them in greater quantity. This will permit the buying organization to increase the production (and sales) of its own product. Although difficult to evaluate, an estimate of their likelihood and importance can nevertheless be obtained by looking at the input quality and service of competitors which have opted for the same market entry. Consequently, these benefits should be mentioned in verbal terms in column number 6 in figure one.

Benefits due to quantity discounts and lower average transaction and handling costs are easier to assess in monetary terms and their predicted value should be placed in the cost cell of column 6.

7. WILL FUNDS BE TRANSFERRED INTO THE NEW DIVISION IMPLYING SIGNIFICANT BENEFITS?

When large amounts of funds are transferred into a new business unit, certain benefits will be realized compared to a situation where the funds had to be sought from an outside source.

These benefits are:

A - lower interest if the market sees the corporation as a low risk investment for the reasons discussed in question four.

B - lower underwriting fees due to quantity discounts. This was discussed in question six.

C - higher availability of funds. Independent businesses must go outside to raise funds. Outside sources are generally less patient to wait the necessary time for the investment made in plant expansion, new product development, automation, and so on to pay their benefits in terms of higher market share.

Diversification helps overcome this problem, by placing businesses that both generate and use cash under a single corporate portfolio. Consequently, a diversified firm can finance its projects internally and avoid above-mentioned disadvantages, enjoying cost and/or market share benefits which should be evaluated in the costs cells of column 7.

II - 8. WHICH KNOWLEDGE AND INFLUENCE WILL BE TRANSFERRED TO THE NEW DIVISION?

Influence and knowledge can also be important sources of synergy. Frequently the new division will benefit from the influence of other parts of the corporation near stakeholders such as governments departments, regulatory agencies and local authorities.

Knowledge transfer can originate in any department: engineering, manufacturing, marketing, personnel, finance and accounting. The swiss watch industry, for instance, used the skill it has in handling very small and precision demanding components to manufacture precision instruments for airplanes Philip Morris applied product management advertising and brand positioning concepts and techniques learned in cigarettes to the beer business significantly enhancing the competitive position of the Miller brand.

In order to evaluate the synergistic benefit it is important that the knowledge to be transferred be defined in precise not broad terms. Broad concepts such as knowledge of dealing with advertising intensive industries, of low cost competition, etc are too vague to be useful. Since it is difficult to assess the monetary impact of knowledge and influence transfers, rather than assessing their value in monetary terms, they should only be mentioned, verbally in column number 8.

II - 9. WHICH COSTS WILL BE INCURRED IN ORDER TO REAP THE ADVANTAGES MENTIONED IN THE FIRST EIGHT COLUMNS OF FIGURE ONE?

Two types of Costs are relevant here. The cost due of compromise and the cost of coordination.

The cost of compromise

Sharing an activity requires, compromises, meaning that the activity will not be performed in an optimal way for either of the divisions involved. For instance, sharing the purchase of a fabricated material so that quantity discounts can be obtained may imply that the purchased material is not exactly what would fully satisfy the needs of one or more of the divisions. Sharing of sales force may mean that the salesmen will be less attentive and knowledgeable about each product than a specialized sales force would be, and so on.

Compromise can negatively affect the possibility of differentiating one's product and therefore the price which can be charged for it. It may also decrease the power of the product to penetrate the market and consequently decrease the sales volume. When the cost of compromise is significant, it should be verbally mentioned in the price and quantity cells of column number 9.

The cost of coordination

Resource sharing may require coordination in scheduling, establishing priorities and problem solving. Knowledge transfer among divisions requires setting up high level committees to review key decisions pertaining to individual businesses or to manage the transfer of personnel from successful businesses to new ones. Therefore, coordination involves costs in terms of personnel (the coordinators), time and eventually money, which should be verbally mentioned in the cost cell in column number 9.

## II - 10. WHICH NEGATIVE EFFECTS WILL DIVERSIFICATION BRING?

Diversification can bring negative effects, thereby decreasing the level of synergy. Three main sources of negative effects should be considered: image; culture, and management knowledge and experience.

In column one, image was considered as a potential source of positive synergy. Image can, however, have a negative impact as well. Consider the case where a pharmaceutical firm diversifies under the same brand name into the frozen food business, or, a manufacturer of luxury cars launches a subcompact downgrading its image and thereby effecting the sales of the luxury cars division.(3) If there is a negative impact of the image of part of a corporation on another division that may decrease either the price the latter can charge for its products or its sales volume or both. In such a case an estimate should be made in the cells in column ten of figure one.

Culture can be another source of internal inconsistency as is shown by the resistance of several pharmaceutical companies in diversifying into the cosmetics business despite recognized benefits in terms of shared distribution channels, greater possibilities in the area of R&D favorable input effects, and transfer of money and knowledge. Also, several oil companies developed sophisticated diversification plans that failed because they were not compatible with the firm's oil business culture. The difficulties experienced by AT&T in its efforts during the seventies to change from a service/production/internally oriented company to a marketing/externally focused one, is still another illustration of the power of culture and how it can be difficult to change.

The knowledge and experience of an old division or headquarters can also do more harm than good to a new division. That is the case when the knowledge acquired in other areas is not useful in the new business, but corporate management ignores that and consequently imposes its will upon the new division's management.

An example of failure to recognize the intrinsic differences between two markets is EMI'S unsuccessful venture into the CT scanner business. The company, which started losing money in mid 1979, was afterwards taken over by Thorn Electric Industries and divested the business in 1980.

Internal inconsistencies in terms of knowledge and culture can be solved by granting autonomy as IBM did with its personal computer business in which it set up a distinct and

nearly stand alone organization. Naturally, granting autonomy to a new division, reduces the possibility of benefiting from the sources of synergy mentioned in columns one to eight of figure one. A decision on granting autonomy to a new division, requires that knowledge and cultural inconsistencies between the new and old divisions be mentioned in column number 10 of figure one. These inconsistencies can negatively affect the price cost sales volume and investment of the new division.

### III - AN OVERALL ESTIMATE OF SYNERGY.

Let's suppose that a firm which sells a high value added product made of wood to a certain type of client, is thinking of launching another product (made mostly of plastic) to be sold to the same type of client. That is, both products incorporate wood and plastic but one is made predominantly of wood, the other, of plastic. A considerable part of the sales of both products will be exported to country Y. Finally one hypothesizes that most synergies will occur in the marketing area and that the margin of the wood product is higher than that of the plastic product.

Figure two presents the answers to the ten questions presented in the previous section in pecuniary terms, or written out when a pecuniary estimate is difficult to obtain. For instance the cost cell under the label 'resource sharing' indicates that entry into the new market will save two percent in direct physical resources and one percent in indirect physical resources and none in property rights. The law of 2/3 (column III) will allow for a saving in investment of two percent, and so on. As figure two shows, typical answers in columns one to seven can frequently be estimated in pecuniary terms. The pecuniary impact of transfer of knowledge (column 8), is very difficult to assess and so the answers will be written out. Columns 9 and 10 contain also written out answers and no quantitative estimates.

The important point to note is that the information in figure two will be a mixture of written words and monetary values. Whenever possible a monetary value should be entered. However, when the benefits are intangible and hard to calculate, rather than assigning a dollar value to them, they should be written out.

By doing this, the synergistic estimate in monetary terms of entry into a new market will always be in the cautious (under value) side. This is a realistic policy since the synergistic potential of a new market and the real synergy obtained are rarely the same. Between potential and real synergy lie the organizational changes required to obtain synergy, namely: structural changes such as, centralization of departments to be



shared among divisions, using high-levels committees to review key decisions affecting individual business units (and therefore enabling several business units to benefit from the committees know-how and experience), transfer of personnel from successful business units to new ones - and so on. For example, each of Philip Morris businesses is supervised by a board of directors consisting of the heads of Philip Morris' other businesses as well as top corporate executives, thereby enabling these experienced marketers to offer their perspectives to the most important decisions of each business.

Implementing the synergistic potential of entry into a new market requires that corporate management pay sufficient attention and exercise sufficient authority to make sure that potential synergies are realized by SBU managers whose natural inclination is to row their own boat and to avoid dependance on other parts of the organization (5).

It is better, consequently to be on the safe side when evaluating synergy, which means putting a dollar value only on the most direct benefits, mentioning all intangible and uncertain benefits only in written terms (see table two).

In order to synthetizing the information contained in Figure two (and therefore make it easier to use in the decision regarding new market entry), we will treat separately the pecuniary estimates and the written estimates. The pecuniary estimates will lead to the computation of an expected ROI and expected competitive advantage. The written comments will be summarized in an account called. "Expected Intangible Effects" (see figure three).

### III. 1 - Estimate of ROI and comparative advantage

In order to compute the expected ROI of the diversified corporation one should proceed in the following way.

All price, cost, quantity and investment benefits should be added. That is one should add up all cells belonging to the same line.

The row sums present in the right side of figure two should then be used to add the price, cost quantity and investment estimates contained in the business plan, which was done initially (page 2 and 4) under the presumption that the new market would be handled by as independent business firm, (and not a division of a diversified corporation).

For instance, let's suppose that in market X the expected

average price, variable cost, sales volume and investment level of the division if it was a single business, as described in the business plan would be:

P = 10 dollars/ unit  
 C = 8 dollars/ unit  
 Q = 1 million units  
 I = 10 million dollars

implying an expected ROI of

$$\text{ROI} = \frac{(10-8) \times 1.000000}{10.000000} = 20\%$$

Based on the information supplied in figure two, the diversified corporation is expected (compared to a single business firm which operates in the same market) to be able to charge for a comparable product a 10% higher price, to benefit from 5% lower cost, and to have 10% more sales and to save 3% in investment. In such case the expected ROI of the diversified corporation would be

$$\frac{(11,0-7,6) \times 1100000}{9.700\ 000} = 38,5\%$$

Consequently, the expected COMPARATIVE ADVANTAGE of the diversified corporation over the specialized business would be

$$\frac{38,5\% - 20\%}{20\%} \times 100$$

$$= \frac{18,5}{20} \times 100 = 92,5\%$$

That is, due to synergy the expected ROI of the division belonging to the diversified corporation would be roughly 93% superior to the ROI of the division if it was a specialized independent business.

### III- 2. Expected Intangible Effects

The written answers contained in figure two remain to be analyzed. We should proceed in the following way:

First - recognize that figure two contains three distinct categories of written statements: advantages of new market entry (columns one to eight), costs of reaping those advantages (column nine) and disadvantages of entry (column 10).

Second - place all intangible answers of figure two in the T account presented in figure three. The left hand side contains the positive effects of entry into the new market (advantages); and the right hand side contains the negative effects of entry (the costs and the disadvantages).

Third - rank the importance of these various written statements, by placing an asterisk next to them (one - for lowest importance; three for the highest importance).

By using the T account one can obtain a balanced perspective of both positive and negative intangible effects of entry into a new market.

#### Reciprocity

Finally, one should remember that synergy is reciprocal. That is, entry into a new market can bring benefits not only for the new division but also for the other parts of the organization (for the old divisions).

Therefore, these effects on the old divisions should also be evaluated. One can proceed much in the same way as was done for the new division and divide the analysis into three stages:

First, consider all old divisions as a single entity.

Second, compute the pecuniary and intangible effects (advantages, costs and disadvantages) in figure one but now from the perspective of the old divisions.

Three, synthesize the pecuniary effects in terms of expected ROI and the intangible effects in terms of the T account of expected intangibles.

#### III - 4. The decision to entry

The decision to enter into the new market under

consideration can now be made by weighing the two ROI estimates (for the new division and the rest of the corporation) and the two T accounts for intangible effects as is shown in figure four. It is the simultaneous analysis of the monetary values included in cells no. 1 and 3 and the T accounts in cells 2 and 4 in figure four which will indicate the advisability of entry.

#### IV CONCLUSION

This article has presented a technique for evaluating the synergistic potential of entry into a new market. With the technique presented in this article a decision on new market entry can be made using the information supplied by the expected ROI, expected comparative advantage and the T account for intangible effects.

It should be recalled that this article's method allows only for the assessment of the level of potential synergy of a new market entry. Translating that synergistic potential into reality requires structural changes in the organization, adaptation of its systems and the exercise of power by corporate headquarters. It is therefore safer to be on the cautions side, when evaluating synergy. Therefore only the most assessable and most certain benefits should be expressed in terms of a dollar value. All benefits which are uncertain and hard to evaluate should be written out in phrases. Then, when opting for mentioning a potential benefit in written terms, it should be done specifically and precisely and not in broad terms.

Finally, the method presented in this article is a compromise between the complexity of the causes and effects of synergy and the need for a simple technique to evaluate it. As such, the method reflects only the most important synergistic sources and their most probable impact. That the synergistic phenomenon is not exhausted by figure one is the price to pay for the simplicity of the method. It is that simplicity, however, which increases the utility of the method.

#### REFERENCES:

- (1) See for instance M.E. Porter From Competitive Advantage to Corporate Strategy, Harvard Business Review, May-June, 1987, and H.Singh H C.A. Montgomery: Corporate Acquisition Strategies and Economic Performance, in Strategic Management-Journal, vol. 8, n.4, pp, 377-382, 1987.

- (2) There is considerable empirical evidence on this matter, mostly collected by industrial economists such as William G. Shepherd: *The Economics of Industrial Organization* (Prentice-Hall, New Jersey, 1984) and F.M. Scherer: *Industrial Market Structure and Economic Performance* (Rand McNally, Chicago, 1985). Both survey several empirical works supporting the contention that capital costs are lower for less risky organizations.
- (3) As a matter of fact, that is the reason advanced by P. Schutz, former head of Porsche corporation not to launch a Porsche subcompact, although market research indicated that there was a demand for such a product. See P. Schutz's and J. Cooks interview in *Harvard Business Review*, March-April, 1986.
- (4) For other examples and a more thorough exploration of the theme, see for instance, Howard Schwartz and Stanley M. Davis, "Matching Corporate Culture and Business Strategy in Organizational Dynamics", Summer, 1981, pp, 14-30.
- (5) A recent example is III's management failure to persuade the different national units to cooperate with each other in building standard digital switch. On this matter, see Christopher A. Bartlett and Sumatra Ghoshal IN "Managing across Borders: New Strategic Requirements", (Sloan Management Review, Summer, 1987).

FIGURE ONE

SOURCES OF SYNERGY  VARIABLES OF IMPACT	CAUSES OF POSITIVE SYNERGY								
	I RESOURCES SHARING					II	III		IV
	Direct physical resources	Indirect physical resources	Intangible resources			GREATER CLIENT'S UTILITY	LOWER AVERAGE COST DUE TO LARGE UNITS		LOWER RISK IMPLIES LOWER COST
			Image	Distribution channels	Property rights		Law 2/3	Mechaniza- tion	
PRICE	Blackened	Blackened		Blackened			Blackened	Blackened	Blackened
COST			Blackened	Blackened		Blackened	Blackened		
QUANTITY (SALES VOLUME)	Blackened	Blackened					Blackened	Blackened	Blackened
INVESTMENT			Blackened	Blackened		Blackened			Blackened

NOTE: Cells in blank indicate the most common impact of the sources of synergy. A few exceptions may exist in which case the impact values should be entered in the blackened

(1) " - " means non applicable

FIGURE ONE (CONTINUED)

CAUSES OF POSITIVE SINERGY (CONTINUED)					IX		X			SUM OF PECUNARY EFFECT		
V GREATER POWER			VI INPUT EFFECTS	VII TRANSFER OF MONEY	VIII TRANSFER OF KNOWLEDGE AND INFLUENCE		COST OF SYNERGY		CAUSES OF NEGATIVE SYNERGY			
Access to channels	R&D	Reciprocal purchase			Influence	Knowledge	Compromise	Coordination	Image	Knowledge influence	Culture	
██████████		██████████	██████████	██████████				██████████				
██████████		██████████		██████████			██████████		██████████	██████████		
								██████████				
██████████		██████████	██████████	██████████			██████████	██████████	██████████			

NOTE: Cells in blank indicate the most common impact of the sources of synergy. A few exceptions may exist in which case the impact values should be entered in the blackened

(1) " - " means non applicable

FIGURE TWO

SOURCES OF SYNERGY	CAUSES OF POSITIVE SYNERGY								
	I RESOURCES SHARING					II	III		IV
	Direct physical resources	Indirect physical resources	Intangible resources			GREATER CLIENT'S UTILITY	LOWER AVERAGE COST DUE TO LARGER UNITS		LOWER RISK IMPLIES LOWER COST
			Image	Distribution channels	Property rights		Law 2/3	Mechaniza- tion	
VARIABLES OF IMPACT									
PRICE			+6%		+2%	+2%			
COST	-3%	-1%			-(1)			-1%	-
QUANTITY (SALES VOLUME)			+2%	+2%	--	+3%			
INVESTMENT	-1%	-(1)			-		-2%	-	

NOTE: Cells in blank indicate the most common impact of the sources of synergy. A few exceptions may exist in which case the impact values should be entered in the blackenned cells.

(1) "-" means non applicable



FIGURE TWO ( CONTINUED)

CAUSES OF POSITIVE SYNERGY (CONTINUED)						IX		X			SUM OF PECUN. ARY EFFECT	
V GREATER POWER			VI INPUT EFFECTS	VII TRANSFER OF MONEY	VIII TRANSFER OF KNOWLEDGE AND INFLUENCE		COST OF SYNERGY		CAUSES OF NEGATIVE SYNERGY			
Access to channels	R&D	Reciprocal purchase			Influence	Knowledge	Compromise	Coordination	Image	Knowledge influence	Culture	
	-				-	C	-		-	-	-	+10
	-		-1% A		-	-		F		G	-	-5
+1%	-	+2%	-	-	B	D	E		-	-	H	+1
	-				-	-				-	-	-3

A - Good responsiveness of suppliers of wood and plastics components to the special requirements needed for the new product given they long term relation with the old division.

B - Same importer in country x  
C - Knowledge of client's psychology  
- Same country culture  
D - Same distribution channels

E - The plastic components of the new product x will meet only 80% of the ideal specifications  
F - Need to coordinate the activity of the common sales force  
- Further stress on the

handles already a large volume of products  
G - Same manufacturing department will handle products with different margins and made of predominantly

H - Volume, cultu versus qualit culture

FIGURE THREE

EXPECTED INTANGIBLE EFFECTS

<u>Positive effects</u>	<u>Negative effects</u>
<p>* A - Good responsiveness of suppliers of wood and plastics to the special requirements needed for the new product (given the long term relationship they maintain with the old division)</p> <p>** B - Same importer in country x</p> <p>***C<sub>1</sub> - Knowledge of client's psychology</p> <p>**C<sub>2</sub> - Same country culture</p> <p>***D - Same distribution channels</p>	<p>- <u>Compromise</u></p> <p>***E - The plastic components of the new product will meet only 80% of the ideal specifications</p> <p>- <u>Coordination</u></p> <p>* F<sub>1</sub> - Need to coordinate the activity of the common sales force</p> <p>***F<sub>2</sub> - Further stress on the warehouse function which handles already a large volume of products</p> <p>- <u>Disadvantages</u></p> <p>* G - Same manufacturing department will handle products with different margins and made of predominantly distinct materials</p> <p>* H - Volume culture versus quality culture</p>

NOTE:

- \* lowest predicted importance
- \*\* average predicted importance
- \*\*\* highest predicted importance

FIGURE FOUR

OVERALL EVALUATION OF POTENTIAL SYNERGY

DECISION TO ENTER INTO A NEW MARKET		PART OF THE CORPORATION										
		New Division		All the rest								
EXPECTED EFFECTS	COMPETITIVE ADVANTAGE	1	X%	3	Y%							
	INTANGIBLE EFFECTS	2	<table border="1"> <thead> <tr> <th>Positive</th> <th>Negative</th> </tr> </thead> <tbody> <tr> <td>- Same importer in country y - etc. (see figure three)</td> <td>- Need to coordinate the activity of the common sales force - etc. (see figure three)</td> </tr> </tbody> </table>	Positive	Negative	- Same importer in country y - etc. (see figure three)	- Need to coordinate the activity of the common sales force - etc. (see figure three)	4	<table border="1"> <thead> <tr> <th>Positive</th> <th>Negative</th> </tr> </thead> <tbody> <tr> <td>- Larger product line facilitating the penetration in the distribution channels - etc.</td> <td>- Risk of degrading the quality image of the old item due to the new item - etc.</td> </tr> </tbody> </table>	Positive	Negative	- Larger product line facilitating the penetration in the distribution channels - etc.
Positive	Negative											
- Same importer in country y - etc. (see figure three)	- Need to coordinate the activity of the common sales force - etc. (see figure three)											
Positive	Negative											
- Larger product line facilitating the penetration in the distribution channels - etc.	- Risk of degrading the quality image of the old item due to the new item - etc.											

ÚLTIMOS WORKING PAPERS PUBLICADOS

- nº 80 - ROE, Rafael: "Learning and Capacity Expansion IN A New Market Under Uncertainty". (Fevereiro, 1988).
- nº 81 - PEREIRA, Alfredo Marvão: "Survey of Dynamic Computational General Equilibrium Models For Tax Policy Evaluation". (Outubro, 1987).
- nº 82 - SA, Jorge Vasconcelos e: "Everything IS Important: But Some Things Are More Important Than Others". (Maio, 1988).
- nº 83 - BÁRCIA, Paulo, GASPAR, Vitor e PEREIRA, Pedro T.: "Consumer Theory With NonConvex Consumption Sets". (Maio, 1988).
- nº 84 - CABRAL, Luís Martins Barata: "Política de Preços do Sector das Telecomunicações: Uma Análise de Equilíbrio Geral". (Junho de 1988; Revisto em Maio de 1988).
- nº 85 - PEREIRA, Alfredo Marvão: "DAGEN- A Dynamic Applied General Equilibrium Model For Tax Policy Evaluation". (Abril, 1988).
- nº 86 - D'OREY, Vasco: "On Trade in a Two Country World". (Junho, 1988).
- nº 87 - PEREIRA, Alfredo Marvão: "Corporate Tax Integration in the United States: A Dynamic General Equilibrium Analysis". (Abril, 1988).
- nº 88 - SANTOS, João Nunes dos: "Causalidade Entre Moeda e Rendimento na Economia Portuguesa: 1958-1984". (Junho, 1988).
- nº 89 - GASPAR, Vitor: "Money Measures of Welfare Change Under Quantity Constrainints". (Maio, 1988).
- nº 90 - SÁ, Jorge Vasconcellos e: "A Pratical Way to Evaluate Synergy". (Junho, 1988).

Qualquer informação sobre os Working Papers já publicados será prestada pelo Secretariado de Apoio aos Docentes, podendo os mesmos ser adquiridos na Secção de Vendas da Faculdade de Economia, UNL, na Travessa Estevão Pinto, Campolide - 1000 LISBOA.