

RETURN to an Order of the Honourable the  
House of Commons dated 30th July 1975 for

**Strategy alternatives  
for the  
British motorcycle Industry**

**A Report prepared for the Secretary of State for Industry  
by  
The Boston Consulting Group Limited**

---

*Ordered by The House of Commons to be printed  
30th July 1975*

---

LONDON  
HER MAJESTY'S STATIONERY OFFICE



RETURN to an Order of the Honourable the  
House of Commons dated 30th July 1975 for

**Strategy alternatives  
for the  
British motorcycle Industry**

**A Report prepared for the Secretary of State for Industry  
by  
The Boston Consulting Group Limited**

---

*Ordered by The House of Commons to be printed  
30th July 1975*

---

LONDON  
HER MAJESTY'S STATIONERY OFFICE

ISBN 0 10 025325 3

## **Foreword**

The Boston Consulting Group Limited were appointed by the Secretary of State for Industry on 10 March to undertake a commercial appraisal of the strategy alternatives for the British motor cycle industry and the following text comprises their report, edited to remove confidential material, which is indicated by square brackets [ ], The Appendices to this Report listed on page 121 contain substantial material of this nature and have accordingly been omitted.



22 July 1975

The Rt. Hon. Eric Varley, MP.,  
Secretary of State for Industry

Sir,

We were commissioned by your predecessor in March 1975 to examine and report upon the current state and future prospects of the British motorcycle industry. The major objective of the work was to identify and evaluate commercially the strategy alternatives open to the industry as a whole. We now submit our report.

In the course of our work we and our supporting staffs have had many meetings with representatives from within the industry. At Norton Villiers Triumph and Meriden, we have had numerous discussions with representatives of management and staff at all levels, and also with representatives of the workforces. We have also sought the views of representative companies within the parts supply industry.

We should like to record our appreciation for the assistance we have received from all those we have contacted in this way during the assignment. Our requests for information always met with a very courteous and full response, particularly at NVT and Meriden, despite coming at a difficult time for the industry. This was vital for the timely completion of our work.

In addition to representatives of companies directly concerned with motorcycle and parts manufacture in Britain, we have also consulted a wide range of industry experts both in this country and in a variety of world markets. This has included, for example, representatives of motorcycle dealers and distributors, market research organisations, industry and dealer associations, the motorcycle press and, of course, motorcycle manufacturers and parts suppliers in other countries. We were most gratified by the helpful responses we received in these many diverse contacts, and would like to thank all those who cooperated with the study in this way.

Respectfully submitted

The Boston Consulting Group Limited

James van B Dresser, Managing Director

Michael C Goold, Manager

Barry D Hedley, Manager





## Contents of Summary

	<i>Page</i>
INTRODUCTION	ix
KEY FACTORS AFFECTING COMMERCIAL PERFORMANCE	x
Market Share Loss and Profitability	x
Profitability and Relative Costs	x
Key Factors Influencing Relative Costs	xi
STRATEGY ALTERNATIVES FOR THE BRITISH MOTORCYCLE INDUSTRY	xiv
Context	xiv
Strategy Objectives	xvi
Identification of Feasible Alternatives	xvi
EVALUATION OF STRATEGY ALTERNATIVES	xviii
The Low Volume, High Premium, Strategy	xix
The High Volume, Low Premium, Strategy	xix
The Medium Volume, Low Premium, Strategy	xx
Interim Losses	xxi
Major Risks	
CONCLUSIONS	xxiii
CONTENTS OF MAIN TEXT	1



## SUMMARY

### Introduction

In March 1975 The Boston Consulting Group was retained by the Department of Industry to identify and evaluate the strategy alternatives open to the British motorcycle industry. The Boston Consulting Group was not asked to recommend a specific strategy for the industry, for the final decisions will involve non-commercial considerations outside the scope of the study. The terms of reference for the study were restricted to the examination of the commercial viability of the alternatives considered.

The background to this work is well known. Sales volumes of British motorcycles, which remained static during the 1960's, have declined during the 1970's. At the same time, the major world markets for the types of motorcycles produced by the British industry have grown rapidly. Other competitors, and in particular the Japanese, have increased their sales commensurately. The motorcycle output of companies like Honda, Yamaha, Suzuki and Kawasaki is now many times that of the British industry. For example, the sales of Honda, the largest competitor, were of the order of two million units in 1974/5. Sales of the British industry in the corresponding period were approximately twenty thousand units.

The commercial performance of the British motorcycle industry has also declined markedly in recent years. BSA/Triumph, the largest British manufacturer, was modestly profitable in motorcycles during the 1960's. In the 1970's, profitability has vanished and the British motorcycle industry is making losses at a rate which threatens its future viability. A total of approximately £20 million (before interest) has been lost in motorcycles by this country's manufacturers—BSA/Triumph and Norton—during the 1970's. Over the same period the major Japanese manufacturers have shown stable and satisfactory levels of profitability.

It is therefore clear that the British motorcycle industry has lost share of world markets very dramatically, and that it has been far less profitable than its major competitors. These are obvious and familiar facts, but the reasons that lie behind them are complex. The first concern of The Boston Consulting Group Study was therefore to develop an understanding of the fundamental factors responsible for the decline of the British industry. This involved analysing the nature of the relationship between the industry's loss of market share and its commercial performance.

The results of this part of the study form the subject of the first two chapters of the report submitted to the Department of Industry. This analysis provided the basis on which the most commercially attractive strategies now open to the British motorcycle industry were identified.

Each of these major strategies was evaluated in depth with respect to product specification, production methods and costs, marketing implications, investment requirements and likely returns. The effects of each alternative on employment and the United Kingdom balance of payments were also identified. These findings are detailed in the third chapter of the report. A subsequent chapter

deals with the risks and problems of implementation associated with each strategy.

A summary of the major findings and conclusions of the report follows. This summary provides a concise outline of the findings of the study for those in Government who must take decisions affecting the future of the British motorcycle industry.

## **Key factors affecting commercial performance**

### **Market Share Loss and Profitability**

The loss of market share by the British motorcycle industry over the last fifteen years resulted from a concern for short term profitability. During the 1960's, in any model in which the industry was confronted with Japanese competition, the British manufacturers found it difficult to make profits at a competitive price. Their response was essentially to withdraw from the smaller bikes in which the Japanese were competing so effectively. This led to a situation in which by the late 1960's the British industry was predominantly active only in large bikes where the Japanese were not yet represented.

The reason for the decline in commercial performance of the British industry in the 1970's is that during this time the Japanese have finally entered this large bike segment of the market. As in every other segment where the British had previously faced serious Japanese competition, this caused profitability to decline. Withdrawal then would have meant ceasing to produce motorcycles altogether, so the British industry persevered; but losses mounted.

In the past, losses in a segment had produced the response of British withdrawal; now, response in the superbike segment took the form of a failure to introduce new models. In 1969, four of the eight models from 450-749 cc available in the United States were British, and the British industry held a 49 per cent share of this market segment. By 1973, only two of the ten available models were British, and the British market share had fallen to 9 per cent. A similar pattern holds for the 750 cc class. The new, attractive and competitively priced models which the Japanese have introduced in the bigger size classes have gained all the spectacular market growth in the segment. While British volume remained at roughly 30,000 units, the Japanese volume in the large bikes ( $\geq 450$  cc) in the USA increased from 27,000 to 218,000 between 1969 and 1973. This cemented the poor market and commercial position of the British.

Any commercially viable long term strategy for the British motorcycle industry must obviously arrest the decline in market performance. More importantly, however, it must recognise fully the nature of the relationship between market position and profitability. In a fundamental long term sense, it is in fact the loss of share by the British industry which has caused the low profitability. In the past, it may well have appeared to those in the industry that the reverse was true.

### **Profitability and Relative Costs**

In size classes where they competed, the Japanese have essentially dictated price levels over the last fifteen years. This has been true in superbikes since the

Japanese established a strong position in this segment in the late 1960's. The Japanese manufacturers are profitable and the British manufacturers have, if anything, tended to price at a premium relative to the Japanese. The conclusion is inescapable. The profit pressure experienced by British manufacturers does not result from price realisations that are lower than for competitors, but from a cost position which is fundamentally uncompetitive with that of the Japanese. A primary task of this study was to understand what determines the cost position of a competitor in the motorcycle business and to explain the specific sources of the cost superiority enjoyed by the Japanese relative to the British manufacturers.

### **Key Factors Influencing Relative Costs**

The major variables which determine cost performance in the production and selling of motorcycles distil down essentially to two: technology and scale. The rate of technological learning tends to be related over time to accumulated production experience as the company develops and applies lower cost methods in the course of conducting its business. The competitor with the highest annual model volumes can benefit from methods which embody up-to-date technology and which rely on scale effects for their cost superiority. Sustained technological advances require a major, continuing commitment to ensure technological leadership and to guarantee that its advances remain proprietary. Only a high volume producer can justify this effort. For instance, Honda ensure the secrecy of their developments by maintaining a 1,400-man subsidiary which manufactures machine tools for Honda incorporating their technological advances. Low volume manufacturers like the British industry must use low productivity, general purpose equipment which they obtain from outside machinery suppliers, thereby foregoing the opportunity to develop proprietary technology.

Thus annual production volume, both overall and at the individual model level, emerges as the key factor determining relative cost position between competitors. In recent years, the British industry has experienced decreasing production volumes relative to the Japanese as British volume has stagnated in the face of sustained volume growth by its Japanese competitors. This divergence has led directly to the deterioration of the British industry's cost position relative to the Japanese. The disastrous commercial performance of the British manufacturers in this decade is the final result of their failure to respond effectively to the strategic implications of the economic relationship between volume and costs in the motorcycle business.

As the viability of proposed strategy alternatives will depend upon their success in developing competitive costs, a major focus of the study was on understanding the practical means by which the Japanese develop their superior costs and the nature of the current disadvantage of the British relative to the Japanese in each cost area.

The costs and value added of the British motorcycle industry divide into three major elements of roughly equal magnitude and importance:

1. Selling and Distribution
2. Production (factory value added)
3. Purchased materials and components.

The precise ways in which volume and accumulated production experience impact on cost effectiveness are different in each case.

*Selling and Distribution.* Unit costs in motorcycle selling and distribution within a given market decline as a function of increased overall sales volume, are further improved if sales per model are high, and are improved yet again if the average volume per dealer is high. The dominant Japanese producers could derive improved profitability from the reduced unit costs which result from their superior scale and volume at the overall, per model and per dealer sales levels. However, they have not chosen to do so. Instead, in the United States market the Japanese have chosen to deliver increased marketing value, raising their absolute expenditures to a level commensurate with their high sales volumes, thus providing a superior marketing service at the same unit cost as smaller competitors like the British industry. For example, each of the major contenders spends about 2 per cent of sales on advertising. For Honda, this rate supported an expenditure of \$8,100,000 in 1972 while the British industry's advertising outlay was \$1,300,000. The Japanese have also established larger distributors offering a better service to dealers, and larger dealers offering better sales and repair services to retail customers. Thus, while spending no more than an equal proportion of retail price on selling and distribution operations, the Japanese have established a superior market effectiveness, the major effect of which is to consolidate and protect against erosion the dominant market shares they have achieved.

*Production.* The factory value added consists of engine part machining, cycle part manufacture and, of rather less importance, assembly of engines and finished bikes. Unit costs in these operations are a function of accumulated production experience, current volume and scale, and growth. Accumulated production experience over time leads to technological and organisational innovations to reduce costs in the design and manufacture of the product. Current volume and scale determine: the ability to use high volume, capital intensive methods to increase productivity; the extent to which the most up-to-date technology can be applied in practice; and the degree to which production facilities can be specialised and focused. Growth facilitates the application of modern technology. Modern developments in production technology normally focus on raising productivity by increasing the capital and reducing the labour content in the manufacturing process. Only the growing competitor can introduce the most modern equipment without having to justify labour redundancies and "scrap and build" programmes.

The British industry's performance along each of these dimensions has been disappointing. Mergers, acquisitions, factory closures, redundancy programmes and, most recently, the Meriden dispute have limited the opportunity for the industry to reduce real costs smoothly over time. Low and stagnant production volumes have meant that the British manufacturers have had neither the volume nor the growth to justify the introduction of new technology and modern, high volume equipment. As a result, available data suggest that real costs have risen historically in the British industry while the Japanese competitors have achieved steady cost reductions over time.

British factories contain mostly old, general purpose, fairly labour intensive

equipment which is not capable of low cost, high volume production and is not ideal for producing parts to the close tolerances required for a reliable final product. At Wolverhampton, for instance, as many as 60 per cent of the machine tools may be more than twenty years old. Overall, net fixed investment per man is approximately £1,300, compared to £5,000 for Honda.

Japanese manufacturing policy is based on the concept that high volumes per model provide the potential for high productivity. This potential is realised in practice by using capital intensive and highly automated techniques. The Japanese now have large factories specialised by model, component and/or function. Their focus on volume-based cost reduction results in extensive use being made of advanced techniques such as: automated high pressure die casting of large engine components; forging and sintering to reduce machining and material waste; rotary index and in-line transfer machines, largely made in-house; and conveyorised assembly lines.

There are also differences between the British and Japanese approaches to management of the motorcycle design function. In the Japanese motorcycle company, design effectively provides a service to production and marketing. Designs are subject to careful cost and commercial evaluations and must be suitable for low cost, high volume production. This contrasts markedly with the historical situation in the British industry where the focus has been on pure design engineering considerations rather than on designing products which were intrinsically low cost to produce. One result is that none of the existing British model designs is suitable for manufacture using modern production techniques.

An additional advantage which the Japanese companies obtain from their high overall volumes is very large R & D facilities at low costs. While Honda, Yamaha and Suzuki each employ between 800 and 1,300 R & D employees, all of them have fewer R & D employees as a proportion of sales than the British industry which employs only about 100 in R & D.

*Purchased Materials and Components.* Unit costs here depend upon the cost competitiveness of the motorcycle manufacturer's suppliers and also on the prices and service which the motorcycle producer's buying power can command from the suppliers.

Because the British manufacturers purchase in small volumes, their suppliers cannot themselves use the lowest cost methods which require high volumes. Furthermore, relative to the large car companies, the British motorcycle industry is a minor customer of major auto industry suppliers. The natural results of this situation are poor service compared with that enjoyed by the larger customers, a reluctance by the suppliers to invest in modern methods on behalf of the motorcycle manufacturers and long new product lead times. The large volumes of the Japanese motorcycle producers, aided in the case of Honda and Suzuki by joint purchasing for both cars and motorcycles, have led to a precisely opposite situation.

*Summary.* The motorcycle industry is exhibiting the classic effects of differences in growth, volume and investment on the relative cost effectiveness of the competitors. The result of high and growing Japanese production volumes relative to the British has been the development by the Japanese of superior productivity.

The full extent of the present disparity in productivity is shown by a comparison of value added per employee. In 1975, an upper figure for the level of value added per man in the British motorcycle factories is £5,000. In fact, because the industry is presently sustaining losses at the factory level which amount to roughly one-sixth of factory value less raw materials, a more realistic figure might be £4,200 per man. During the six-month period ending February 1975, Honda achieved a value added figure at the total company level of almost £18,000 per man per year. As one would expect, given their lower volumes, the smaller Japanese producers achieve lower levels of value added per man than Honda. Honda's advantage is of the order of four to five times; in the case of Yamaha and Suzuki, the advantage drops to a factor of two to three times.

The cost advantage of the Japanese is securely based on this higher productivity. It does not arise from lower labour costs: Japanese labour costs have exceeded those in the British factories for a number of years and have consistently risen more rapidly on trend. The overall result of the Japanese strategy is that the productivity improvements resulting from their growth and scale have been sufficient both to allow rapidly advancing rates of pay for their employees, and to bring down the real costs and prices of their products in the market place.

It can therefore be seen that the Japanese emphasis on market share objectives has led in the longer term not only to high output volumes, but also to improved productivity, lower costs and higher profitability. And conversely, the loss of share by the British has been a vital factor in bringing about the low productivity and lack of profitability that has come to characterise the industry. As low share competitors, the British inevitably now operate under substantial economic disadvantages relative to the Japanese.

The commercial future of the British motorcycle industry depends on finding ways of offsetting these formidable disadvantages. The final major task of the study was to identify and evaluate strategy alternatives by which this might be achieved.

## **Strategy alternatives for the British motorcycle industry**

### **Context**

The economic analysis sheds a new strategic perspective on the performance of the British motorcycle industry over the last decade. The success of the Japanese manufacturers originated with the growth of their domestic market during the 1950's. As recently as 1960, only 4 per cent of Japanese motorcycle production was exported. By this time, however, the Japanese had developed huge production volumes in small motorcycles in their domestic market, and volume-related cost reductions had followed. This resulted in a highly competitive cost position which the Japanese used as a springboard for penetration of world markets with small motorcycles in the early 1960's.

Meanwhile, the primary focus of the British industry was on maintaining short term profitability. The British found it impossible to match the low Japanese price levels on small bikes profitably in the short term. They therefore responded to the Japanese challenge by withdrawing from the smaller bike segments which were being contested.



This was the fundamental strategic error. Long term commercial success in fact depended on achieving sales volumes at least equal to those of the Japanese and employing equally sophisticated low cost production methods. The British industry, however, limited its vision to the costs achievable with existing low volume equipment and methods, concluded that profitability was impossible, and dropped out of the segments where they were facing superior competition. The alternative would have been to push for volume during the high growth development phase of the industry. This would have required penetrating, as did the Japanese, any markets necessary to achieve the required volumes for cost competitiveness. Short term profitability would obviously have suffered, but this approach would have secured a sound long term future. It is therefore clear that the result of the British industry's historic focus on high short term profitability has been low profits and now losses in the long term. The long term result of the Japanese industry's historic focus on market share and volume, often at the expense of short term profitability, has been the precise opposite: high and secure profitability.

The net result of this strategy over time was that the Japanese progressively developed volumes and experience in ever larger displacement classes of motorcycles. The British continued to withdraw and over time shut down production of their 175, 250, 350, 500 and, most recently, 650 cc models. The British industry has now retreated finally to the superbike ( $\geq 750$  cc) segment of the market. The Japanese now dominate the world in virtually all displacement classes and, in marked contrast to the situation fifteen years ago, were exporting 72 per cent of their total production volume by 1973. To retaliate against the Japanese on a broad front had become virtually impossible by the end of the 1960's. BSA did make a limited attempt to reverse their previous strategy in 1971 but this quickly collapsed.

Since the higher displacement segments have grown rapidly, the "segment retreat" enabled the British industry to maintain its output at approximately 80,000 units per annum throughout the 1960's, even though participating in narrower and narrower segments of the market. This, together with the fact that at any point in time the Japanese were not yet strong in the segments to which the British were retreating, enabled the British manufacturers to sustain their profitability as well as keep their factories busy throughout the 1960's.

In the 1970's, however, the situation has changed. A policy of continued "segment retreat" seems unlikely to be viable in the future for a number of reasons. First, there are no longer any new, larger displacement segments to which the British can make a further withdrawal. The reason for this is that the market appears to have reached a limit with respect to the sizes to which motorcycle engines can go without the bikes becoming totally unmanageable on the road. The existing superbike segment is effectively the final refuge of the British motorcycle industry.

Secondly, it seems likely that growth within the superbike segment will moderate in future to levels much lower than those of the last few years. The USA now represents over 70 per cent of the world market for these machines, and is close to saturation. Demand in other countries, in particular in Europe, will continue to grow rapidly. The total world demand for big bikes will, however

grow at less than 10 per cent per annum in the period to 1980. This contrasts with rates in excess of 40 per cent per annum in the last seven years. What is more, since the British industry is really only established in the UK and the US, most of the growth will be in countries where Britain is now poorly represented.

The lower future growth means that it will not be possible for the British industry to develop the volumes necessary for cost competitiveness simply by holding existing shares in the superbike segment. It will be necessary instead to win market share from the established competition. This will not be easy. The leading Japanese manufacturers have now developed high market shares, with individual model volumes of up to 80,000 units per annum in the superbike segment. Their commitment to market share targets means that they will not allow their position of market leadership to be eroded without a severe battle. In this battle they would be able to employ the full strength of their selling and distribution system, which is based on their high sales volumes throughout the range of motorcycles. Indeed it is common knowledge within the industry that all the leading Japanese competitors intend to launch new models in the superbike class in the next few years, so that their commitment to what has now become the largest single segment in the industry seems unlikely to diminish.

#### **Strategy Objectives**

The British industry is therefore confronted, even within the superbike segment, by potent competitors who have a superior cost position. Any commercially viable future strategy for the British motorcycle industry must seek to redress the balance relative to the Japanese in terms of factory costs and selling and distribution effectiveness. This implies two basic objectives:

1. The development of model volumes in the segments of the market for which each model is intended which are comparable with those of the leading producers, as only by this means can cost-competitive production methods be adopted.
2. Targeting market segments where the first objective can be met and which are of sufficient size and growth potential to constitute a worthwhile long term opportunity.

Because of the formidable position of dominance which the Japanese have now built up in all broad segments of the market, including superbikes, and because of their willingness in general to defend their market share tenaciously, it seems certain that these objectives will not be achieved by any direct confrontation with the Japanese in any of their areas of strength. It is much more likely that the successful strategy will be based on an indirect approach which seeks to avoid the main product and market strengths of the Japanese. This should be based on products with a different image and appeal than those offered for essentially the same market by the Japanese. The appeal of the products should, however, be sufficient to enable the critical target of achieving comparable model volumes to be met.

#### **Identification of Feasible Alternatives**

*Small Motorcycles.* On the basis of the volume objective it is possible to elimin-

ate small bike production as a possible strategy. Small bikes are the historical heartland of the Japanese. Their strengths in automated high volume production and high throughput selling and distribution systems are most highly developed and have their greatest impact in this size category. The worldwide volumes in these products are so large that volumes sufficient to achieve competitive costs could not be attained even if the entire United Kingdom market could be captured. These conclusions have been confirmed by a detailed feasibility study.

The situation in mopeds (motorcycles of not more than 50 cc which can be propelled by the use of pedals) is similar, although here the dominant competitors are not the Japanese but two French producers who have achieved productivity levels comparable to the Japanese in small motorcycles.

In this context, certain alternatives have also been examined which involve the possibility of establishing associations with overseas manufacturers including the Japanese. These include possibilities for the manufacture or assembly of small motorcycles. While some of these alternatives are interesting and should be pursued over time through establishing improved contacts with the overseas companies, none appeared to afford an immediately useful strategy for the British motorcycle industry.

*Large Motorcycles.* It is in large motorcycles that the British manufacturers would be at the least disadvantage in attempting to regain profitability. It is in large bikes, and particularly superbikes, that Japanese model volumes are lowest. The Honda CB 750, for example, is the leading superbike and it is probably made in volumes of the order of 80-90,000 per annum; the new 1000 cc Goldwing is reported to be tooled for a capacity of 60,000 per annum. The large bike models of the smaller Japanese companies sell in the range of 20-30,000 units per annum. It is not long since the British industry produced over 30,000 superbikes a year (in three separate models); the industry's present market reputation and image is consistent only with superbike manufacture; and a selling and distribution network for British superbikes exists in the United States which is the largest market for these products. It seems not unrealistic to suppose that a strategy could be devised enabling the industry to develop a model volume of 70,000 superbikes a year. This is the minimum volume required to set up manufacturing methods comparable to those currently employed in superbikes by Honda. If the British industry set up suitably advanced manufacturing methods for this volume, it might then be able to compete on the basis of comparable costs with the industry leaders.

*Product Positioning.* Precisely because they are intended to develop maximum volumes, Japanese products, and in particular Honda's, tend to be designed with a broad and fairly neutral appeal. This suggests that an indirect approach based on developing a less bland product and image would probably offer the greatest potential for the British industry to develop the desired volume. This would in turn argue for future strategies for the British to be built on an extension of their reputation for superbike models with superior performance and handling, with high quality finish and with distinctive styling. New British models should represent advances along these dimensions rather than attempting any radical changes of image. At the same time, new models must eliminate certain current weaknesses of British bikes. In particular, the reputation for unreliability must

be eradicated by producing models which outperform their competition in durability and reliability and by advertising and warranty policies that dramatise these changes.

*Price-Volume Alternatives.* Based on the study of price-volume sensitivities in the United States market, two broad price strategies emerge for the British industry: if going for volume, a price no greater than 10-15 per cent higher than the Japanese can be contemplated; if less interested in volume, a price premium of the order of 30-40 per cent is the maximum practicable with a noticeably superior product before sales will dwindle to vanishing point.

The exact sales volume achieved at either price level will obviously depend to some extent on the intrinsic appeal of the products manufactured, but it is possible to develop estimates on the basis of market analysis and the past sales performance of comparable British and Japanese products.

The conclusion from these analyses was that, even at only a moderate premium (10-15 per cent), a single model could not be sold in sufficient volumes to justify the 70,000 unit production capacity necessary to support the advanced manufacturing methods required to move towards cost competitiveness with the Japanese. At the high premium (30-40 per cent), the volumes which could be expected from a single model were judged to be insufficient to support even a 15-20,000 unit volume. It was judged that this production volume was the minimum practicable for factory operation even using existing low volume equipment and methods.

*Model "Families".* As a strategy involving a single model could not be expected to develop volumes at the 70,000 unit level the possibility was investigated of producing a "family" of motorcycles which could together achieve the required volumes while possessing sufficient commonality to retain most of the production cost advantages of high volume methods. This requires designing a "family" which uses common transfer equipment for the main machining processes on the engine. In assembly, several models can share the same production line without significant loss of efficiency provided the appropriate parts control and administrative back-up are provided.

From a marketing standpoint, such a "family" approach is attractive because the wider range leads to higher overall volumes in each market across which to spread the costs of a superior selling and distribution system. The "family" approach is also desirable because it allows motorcyclists who trade up from displacement class to displacement class to continue with the same manufacturer.

### **Evaluation of strategy alternatives**

Three possible strategies involving "families" of motorcycles were identified and evaluated in depth:

1. A low volume, high premium, specialist strategy (15-20,000 units in total; two models).

2. A high volume, low premium, strategy (70,000 units in total; three models).
3. A medium volume, low premium, strategy (40,000 units in total; two models).

#### **The Low Volume, High Premium, Strategy**

*Description.* This alternative is the low volume, high premium specialist approach involving volumes of 15–20,000 at a price premium relative to the Japanese of 30–40 per cent. Total sales volume of £17 million (all figures are in 1975 prices) would be obtained by producing a two-model “family” (750 cc, 1000 cc) using traditional, highly labour intensive production methods.

*Investment.* The production methods employed would be those used by the British industry at present: general purpose machinery and manual transfer. A limited investment of approximately £4 million would be required under this alternative to eliminate bottlenecks, to tool for the new models and to ensure the required quality in these premium products.

*Employment.* The estimated manpower requirement is 1600 total factory employees, a reduction of about 50 per cent of the current employment on motorcycles. Approximately 700 jobs in the parts industry would also be supported. Only one factory would be needed for motorcycle production, implying the closure of at least one existing facility. Under all three alternatives, it is assumed that employment for 1000 people could be supported by the current subcontract, industrial engine and parts businesses. Under this alternative these activities could be consolidated into a single factory with the motorcycle manufacture, if space allowed. Otherwise, they could be accommodated in a second factory.

*Commercial Performance.* Estimated operating profits are positive but low. They are also highly sensitive to price and volume realisation. All operating profit is eliminated by either a very small softening in price or a modest short-fall in volume. After financing charges on working capital, the pre-tax return on assets is extremely low.

*Balance of Payments.* This alternative would make a contribution to the UK balance of payments of £13 million annually.

#### **The High Volume, Low Premium, Strategy**

*Description.* This alternative is the high volume, low premium, approach in which volumes of about 70,000 units are sold at a price premium of 10–15 per cent. Modern capital intensive production methods are used to produce a three-model family (500, 750, 1000 cc), all designed to utilise the same transfer machinery. Total sales volume would exceed £54 million.

*Investment.* The volumes produced under this alternative make possible capital intensive production methods broadly comparable to those currently employed by the Japanese in superbikes. The investment required is, therefore, high: £28 million for new plant alone. Approximately one half of this would need to be in

machine tools of foreign manufacture since the sophisticated equipment required could probably not be purchased in the UK. Additional working capital of £9 million would be required.

*Employment.* Estimated total factory employment on motorcycles alone would be almost 3000, approximately equal to the current level. This alternative should also support approximately 1700 jobs in the parts supply industry. The ideal configuration under this high volume strategy would be one motorcycle factory and one factory engaged in the subcontract, industrial engines and parts work. If desired, motorcycle production could be split into two parts, with the engine on one site (700 workers) and the cycle parts and final assembly on the other (2250 employees).

*Commercial Performance.* Estimated operating profits under this alternative are more attractive than those in the low volume alternative, and they are also less sensitive to price and volume realisation. However, after financing charges on working capital, the pre-tax return on assets is still only modest.

*Balance of Payments.* The contribution under this alternative would be £41 million annually.

#### **The Medium Volume, Low Premium, Strategy**

*Description.* This alternative is the medium volume approach in which about 40,000 units of a two-model family (750, 1000 cc) are sold at a price premium of 10–15 per cent. Total sales volume would exceed £35 million.

*Investment.* A central advantage of this alternative is that it makes possible the quality and reliability improvements that can be achieved with modern methods and equipment. However, because these modern methods would be used, the new plant investment would be over £20 million, of which half would again be for foreign machine tools. Another £3.5 million would be required for additional working capital.

*Employment.* The estimated factory manpower requirement would be 2100. This would involve approximately a one-third reduction of the current motorcycle work force. Associated employment in the parts supply industry would be about 1000. As volumes would be lower than in the high volume alternative, it is particularly desirable under this alternative to consolidate all motorcycle production at a single factory. A less commercially desirable alternative would again involve engine production at one factory (500 employees) and cycle parts and final assembly at another (1600).

*Commercial Performance.* Not surprisingly, returns fall between the estimated profitabilities for the low and high volume alternatives although they are much closer to the projected performance under the high volume approach.

*Balance of Payments.* This alternative would make a contribution of about £26 million.

### **Interim Losses**

The strategy alternatives which have been identified are long term in nature. They rely on the introduction of new models and production equipment, and an absolute minimum of two years would be required to bring the new models into production. The most realistic assessment would in fact be that introduction of the models to the market would occur in the 1979 selling season, with full momentum only being gained in 1980.

Meanwhile, the industry is continuing to incur heavy losses, in terms both of profits and cash. For the period from July 1973 to March 1975 (20 months), NVT lost £5.7 million. Furthermore, the cash deficit has greatly exceeded the accounting loss. The main reason for this is that roughly twice as many motor-cycles have been manufactured as have been sold in the last year. A very large sum has therefore been invested in stocks.

[Detailed analysis of NVT's present position deleted for reasons of commercial security.]

If it is decided to implement one of the three long range strategy alternatives that have been identified [reference to previous para deleted for reasons of commercial security], the industry would continue to incur accounting and cash deficits at approximately the present rate until the losses are replaced with profit flow from the new models. The total interim cash requirements can be moderated by short time working at NVT over the next financial year, to reduce the existing excessive stocks. Meriden should also gear its production volume carefully to match sales requirements. In addition, certain consolidations of factory activities are appropriate under the various strategies. These have already been outlined in the earlier discussion of each strategy, and these too will help reduce the short term losses. Under any of the strategy alternatives considered, however, it must be accepted that approximately three interim years of heavy deficits will need to be financed in addition to the investment required for implementing the strategy itself.

The full financial implications of each strategy alternative, including both the interim financing requirements and the long term investment and likely returns, are outlined in a table at the conclusion of this summary.

### **Major Risks**

The commercial evaluation of the strategies must include an assessment of risk, as well as an appraisal of the likely financial implications, of each alternative. The risks fall into a number of major areas: design, production, parts supply and marketing.

*Design Risks.* Unfortunately, none of the existing engine designs under development within the industry can be regarded without reservation as the appropriate foundation for a new model range. The most promising development, prototypes of which are due for completion later this month, would fit the suggested product positioning very well. There is, however, a risk that this development may not be sufficiently reliable in service since the design is both complex and technically novel. This risk can only be resolved by full field testing. A further issue with this design is that it may be unsuitable for use as the basis

of a three-model "family", although it could possibly be used as the basis for the two-model "families" (750 and 1000 cc) employed in the low volume and medium volume alternatives.

If field trials show that this engine development is unsuitable, or a strategy alternative is selected for which it cannot be used as the basis for the "family", then the industry has no model on which to build a long range strategy. There would then be a serious risk that the industry would find it impossible to develop suitable new designs and carry them through into production for 1979. It would certainly be unable to do this unless very clear objectives for the R & D function were set and better systems of project coordination and control introduced.

There is a final design risk. The British industry will probably be able to design a model which would have the necessary qualities to command the low premiums required under the high and medium volume alternatives. Under the low volume alternative, however, very high premiums are required and there must be some doubt as to whether the British can produce a design which will be so evidently superior that it can overcome in particular the past British reputation for poor reliability.

*Production Risks.* The high and medium volume alternatives require the use of sophisticated production methods new to the industry. There is unquestionably some risk that, given its lack of experience, the industry will be unable to implement within an acceptable time frame the necessary complex programme of factory design, equipment specification and installation.

In the production area there is also the serious risk that the new plans might be found unacceptable by the workforce, particularly since all the alternatives involve radically new methods and/or consolidation of factory activities. The only way in which this risk can be minimised is by the frank interchange of information and an acceptance of the critical need for improved cost competitiveness for survival.

*Parts Supply Risks.* An assumption underlying the financial evaluation of all the alternatives is that the parts supply industry will be able to produce the necessary components at competitive prices. Under the high and medium volume strategies, this will require suppliers to invest and introduce new methods comparable to those being advocated for the motorcycle manufacturing process itself. If this support is not forthcoming, the viability of the strategies will be jeopardised. To a certain extent, the motorcycle industry might be able to minimise the effect of this by overseas sourcing of components. This would be unfortunate, however, for it would have an adverse effect on both employment and the balance of payments.

*Market Risks.* It must be conceded that, as in the case of any market estimates, the assumptions used in developing the financial evaluations may not turn out as expected. In particular, it should be noted that the projections for continental Europe assume considerably increased market penetration. This will only be achieved if marketing staff and distributor and dealer coverage in Europe are strengthened significantly.



A point of some uncertainty in the marketing area concerns future price levels. The financial evaluations are based on the assumption that the prices of Japanese superbikes will in future tend to remain constant when measured in real pounds or dollars (i.e. net of inflation). The reason for this is that it is anticipated that the future Japanese productivity increases in superbikes will take place at roughly the same rate as productivity increases in Japanese export industries as a whole. As a result, the productivity gains in superbikes should be exactly offset by appreciation in the real value of the yen against the pound and the dollar.

This is in fact merely an extension of observed superbike price behaviour in the last six years. There are a number of factors which could tend to cause real dollar prices of superbikes to rise in the coming years, but there also exist at least an offsetting number, particularly the risk of increased price competition in response to a high volume British penetration strategy tending to produce the opposite effect.

## Conclusions

The strategy alternatives that have been considered represent the most attractive options now available to the British motorcycle industry. All the alternatives offer some prospect of profitability once a new generation of models can be produced. None of them, however, offers an easy and clear route to commercial success.

To choose the low volume, high premium, strategy would in effect be to continue the policy of "segment retreat" which has characterised the industry's strategy for many years. The investment requirements of this alternative are relatively low, and interim losses under this alternative are least. The concentration within a yet more specialised segment which is necessary to avoid direct competition with the Japanese under this strategy would inevitably involve further shrinkage of the industry. It would also be necessary to accept that productivity levels would never match those of the Japanese competitors. In addition, there is a risk that the new models produced by the industry would fail to gain market recognition as being sufficiently superior to command the high premiums on which this strategy is based. Furthermore, it would probably be difficult over the longer term to hold real costs under control following this strategy, since the methods used are intrinsically labour intensive. It is therefore likely that the industry would ultimately find itself faced again with severe profit pressure.

The advantage of the high volume, low premium, alternative is that it is based on an attempt to achieve productivity levels and sales volumes that are genuinely competitive with the Japanese in the superbike segment. If this can be achieved, this alternative offers the industry the highest levels of employment, and the most substantial and secure commercial future. On the other hand, this strategy involves higher interim losses and investment, and a variety of major implementation risks.

The main attraction of the medium volume, low premium, strategy is that it involves a somewhat lower level of risk than the high volume strategy. This strategy still requires heavy investment, both in plant and equipment and in

funding interim losses. It also offers the prospect of rather less good returns, lower productivity improvements and fewer jobs than the high volume alternative. This strategy could be regarded as a basis from which to build later towards the high volume alternative.

All the strategy options now open to the British motorcycle industry involve major uncertainty. The reasons for this lie in the deterioration of the industry's competitive position over the last fifteen years. The massive cost and market superiority now enjoyed by the leading Japanese competitors will be particularly hard to challenge now that the period of rapid growth and development of the motorcycle industry is over.

The possible courses of action now open to the industry are few. The low volume alternative offers the industry a future on a reduced scale, with low profits and limited prospects. The high and medium volume alternatives recognise that long term commercial viability depends on retrieving the industry's relative competitive cost position, and represent the most commercially feasible means of doing so. The gap to be made up is now so wide, however, that both these alternatives involve very considerable expenditure and risk.

The financial implications of all three alternatives are summarised in the table on the facing page. It is most unlikely that private capital to fund the necessary investment would be forthcoming given these prospects. At 1975 values, the high volume alternative leads to a cumulative cash flow deficit of at least £51 million in 1979; it does not recover to a zero cumulative flow (undiscounted) until the late 1980's, even if the major risks can be overcome. The medium volume alternative has a smaller cumulative deficit of £38 million, but does not achieve a zero cumulative cash flow position until the early 1990's. The low volume alternative has a cumulative deficit of only £15 million, but this would not be recovered for more than twenty-five years.

### Comparative Summary of the Strategy Alternatives

	<i>Low Volume</i> 750, 1000	<i>High Volume</i> 500, 750, 1000	<i>Medium Volume</i> 750, 1000
Models (cc)			
Average Price Premium (%)	*	*	*
Sales (Units)	16,700	67,000	40,500
Sales (£000)	17,411	54,450	35,633
New Cash Requirements (£million)			
— Interim	11	14	14
— New plant	4	28	20.5
— Additional working capital	—	9	3.5
— Total	<u>15</u>	<u>51</u>	<u>38</u>
Employment (Factory)	1576	2981	2090
Productivity (Motorcycles per man year)	10.6	22.5	19.4
Long Term Operating Results			
— Pre-Tax Profits (£000)	989	6590	3423
— Return on Sales (%)	5.7	12.1	9.6
— Return on Net Assets (%)	7.5	13.4	9.5
Sensitivity			
— ROS % after 10% Price Cut	(4.3)	2.3	(0.4)
— ROS % after 20% Volume Cut	0.3	5.3	5.0
Estimated Returns After Finance Charges			
— Pre-Tax Profit (£000)	379	4790	2183
— Return on Sales (%)	2.2	8.8	6.1
— Return on Net Assets (%)	2.9	9.8	6.1
Contribution to UK Balance of Payments (£million p.a.)	13	41	26

\* Figures deleted for reasons of commercial security

Note: This Table should be read in conjunction with the notes below.

#### *Notes*

1. All financial values are stated at 1975 cost and price levels.
2. Investment to finance interim losses is sufficient to cover 1975/6, 1976/7 and 1977/8 financial years. The estimates assume short time working, together with consolidation of production appropriate to the long term strategy, and reduction of stocks from their present levels.
3. Industrial engines, subcontract and spares, together with group staff, may account for up to 1000 more employees under each of these alternatives. Further employment is created in the parts supply industry. This would amount to about one half of the total in the motorcycle industry itself.
4. The net assets figures used for calculating return on investment include existing fixed assets and working capital in addition to the new capital required for each strategy.
5. Finance charges are estimated at 10% of working capital.
6. In the case of the high and medium volume alternatives, at least 50% of the investment in new plant would need to be imported, thus reducing the overall contribution to the UK balance of payments in the early years.
7. The complexity of the product, and the percentage of bought-in components assumed here, are broadly comparable to current Trident production at Small Heath. The productivity at Small Heath in early 1975 was 8.1 motorcycles per man year. These productivity figures are based on a 40-hour week.



<b>CONTENTS OF MAIN TEXT</b>	<i>Page</i>
<b>THE MARKET FOR BRITISH MOTORCYCLES</b>	<b>5</b>
INTRODUCTION	5
<b>MARKET GROWTH RATES</b>	<b>5</b>
The United States and Canada	7
Europe	12
Rest of the World	13
<b>MARKET SHARE POSITIONS</b>	<b>14</b>
General Determinants of Market Share	14
<b>COMPETITION</b>	<b>18</b>
Honda Motor Company	18
Yamaha	20
Kawasaki	21
Suzuki	22
The Japanese Marketing Philosophy	22
Harley-Davidson	25
BMW	25
Moto-Guzzi, Benelli and Ducati	26
Other Competitors	27
<b>BRITISH MARKET SHARE POSITION</b>	<b>27</b>
Product Range and Prices	27
Selling and Distribution Systems	30
<b>THE SITUATION IN 1975</b>	<b>33</b>
<b>THE BRITISH MARKETING PHILOSOPHY</b>	<b>34</b>
<b>THE ECONOMICS OF THE MOTORCYCLE BUSINESS</b>	<b>35</b>
INTRODUCTION	35
The Importance of Relative Costs	35
<b>COST EFFECTIVENESS RELATIVE TO COMPETITORS:     THE EXPERIENCE CURVE EFFECT</b>	<b>37</b>
Introduction	37
Application to the Motorcycle Industry	39
Competitive Strategy Implications	43
Past British Strategy and Commercial Performance	43
<b>FACTORS INFLUENCING EXPERIENCE CURVE     PERFORMANCE</b>	<b>47</b>
Introduction	47
Selling and Distribution	47
Production	48
Purchased Materials and Components	52

	<i>Page</i>
<b>THE BRITISH MOTORCYCLE INDUSTRY: PRESENT COST EFFECTIVENESS RELATIVE TO COMPETITION</b>	52
Introduction	52
The British Industry	56
The Japanese Industry	59
<b>SUMMARY</b>	64
<b>STRATEGY ALTERNATIVES FOR THE BRITISH MOTORCYCLE INDUSTRY</b>	66
<b>INTRODUCTION</b>	66
Overall Strategy Objectives	66
<b>PRODUCT AND VOLUME SEGMENTS FOR THE     BRITISH MOTORCYCLE INDUSTRY</b>	67
Small Motorcycles	67
Large Motorcycles	68
<b>“SINGLE MODEL” SUPERBIKE STRATEGIES</b>	69
Introduction	69
Product Positioning	69
The Price–Volume Relationship	71
The Price–Volume Alternatives for the British Industry	73
<b>STRATEGIES INVOLVING A “FAMILY” OF MOTORCYCLES</b>	75
Production Considerations	75
Marketing Considerations	75
The Strategy Alternatives	76
<b>APPROACH USED IN EVALUATING THE ALTERNATIVES</b>	77
Introduction	77
Productivity, Inflation and Exchange Rates	78
Evaluation Method	79
The Specification of the Product	82
<b>STRATEGY EVALUATIONS</b>	82
The Low Volume, High Premium, Strategy	83
The High Volume, Low Premium, Strategy	85
The Medium Volume Strategy	87
The Non-Motorcycle Businesses	89
<b>COMPARATIVE SUMMARY</b>	90
<b>STRATEGY IMPLEMENTATION AND RISKS</b>	92
<b>INTRODUCTION</b>	92
<b>THE SHORT TERM TRANSITION PERIOD</b>	92
The Existing Models	92
Short Term Financial Projections	93

	<i>Page</i>
<b>IMPLEMENTATION OF THE STRATEGY ALTERNATIVES</b>	93
Introduction	93
The Marketing Targets	93
Choice of New Models	96
Research and Development	100
Organising Production	101
The Selling and Distribution System	104
Organisational Considerations	108
<b>THE STRATEGIC RISKS: A SUMMARY</b>	110
Design Risks	110
Production Risks	111
Parts Supply Risks	111
Market Risks	112
Summary	114
<b>POSSIBLE STRATEGIES INVOLVING ASSOCIATIONS WITH OVERSEAS COMPANIES</b>	115
<b>INTRODUCTION</b>	115
<b>UK MARKETING, OVERSEAS MANUFACTURING</b>	115
Specific Alternatives	116
Summary	117
<b>UK MANUFACTURING, OVERSEAS COMPANY MARKETING</b>	117
Manufacturing on Behalf of a Japanese Company	117
Use of Foreign Marketing Organisations	118
<b>A PRODUCT RATIONALISATION JOINT VENTURE APPROACH</b>	119
Summary	120
<b>OTHER OPTIONS</b>	120
Joint Product Development Schemes	120
<b>SUMMARY</b>	120
<b>LIST OF APPENDICES</b>	121





# THE MARKET FOR BRITISH MOTORCYCLES

## Introduction

Total world sales of British motorcycles have been on a basically declining trend since the 1950's. Exhibit 1 shows the output of the industry in terms of total units produced since 1960. This trend of static or declining sales may be contrasted with the performance of other manufacturers, notably the Japanese. Exhibit 2 shows Japanese production and British production plotted on the same graph for the years 1960-1974. It is evident that while British production has stagnated, the Japanese have moved rapidly ahead and now have a volume of output which dwarfs the UK Industry.

These output figures for the British industry are the result of poor British sales performance in world markets. This can be analysed along two fundamental dimensions:

- What have been the size and growth rate of the markets in which British manufacturers have participated?
- What have been the market share trends of the British in these markets?

Table 1 sets out the basic facts relevant to British sales performance along these dimensions:

TABLE 1  
British market performance: 1968-74

	Market Size		Market Growth 1968-1974 % p.a.	British Market Shares	
	1968 (000 units)	1974 (000 units)		1968 %	1974 %
North America	458	1066	15	11	1
UK	38	91	16	34	3
Europe	100	290	19	2	<1

Source: Various—see Appendices 1, 2, 3, 4.

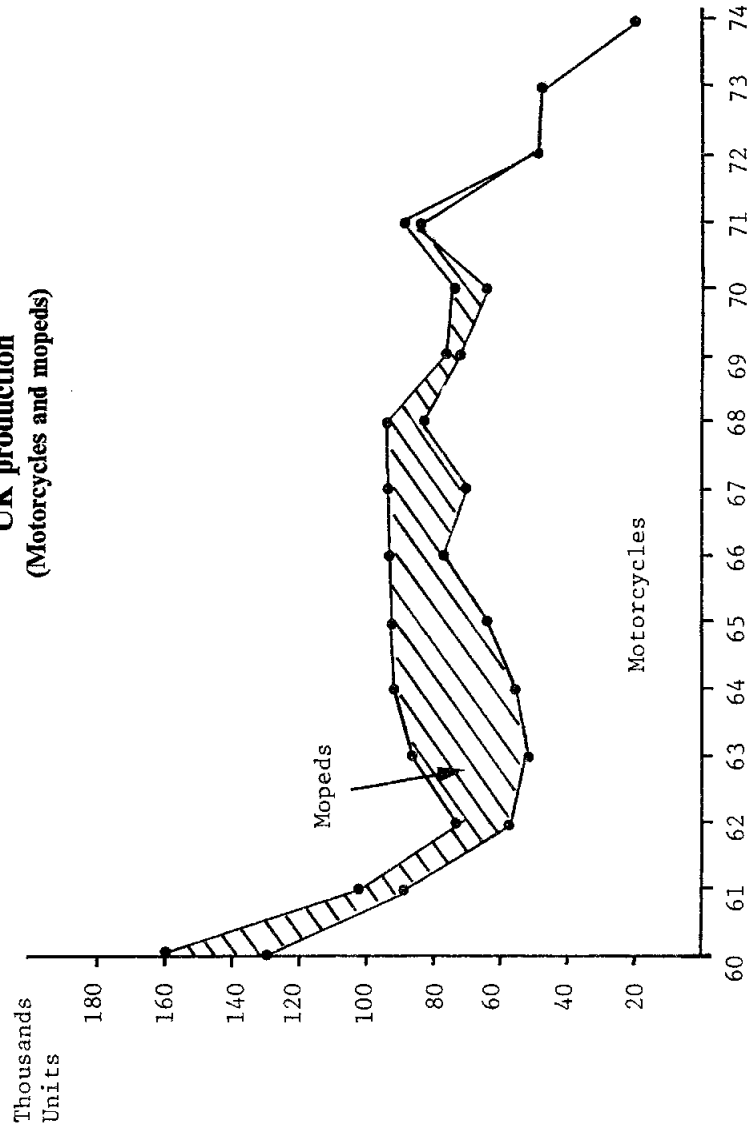
It is evident that the major markets for British products have grown extremely rapidly, but that British manufacturers have suffered a catastrophic loss of market share, and that this pattern of rapid market growth and heavy loss of share is what lies behind the static sales performance of the British industry.

In order to formulate alternative future strategies for the British motorcycle industry, we need to identify the reasons for these rapid rates of market growth and to form a view on whether they will continue. We also need to understand the decline in British market shares, as a guide to what is necessary to reverse them.

## Market growth rates

Appendices 1-4 include detailed discussions of the past development and growth of the motorcycle markets in North America, the UK, and Europe,

**EXHIBIT 1**  
**UK production**  
**(Motorcycles and mopeds)**



Source: Motorcycle and Cycle Trader

and Appendix 5 sets out fully the methodology which we have used in forecasting future demand in each world market. Appendices 6 and 7 document and support our specific forecasts for each of the major markets which we have studied. This section will summarise our findings on the whole question of market growth, past and future. We shall structure the discussion around each of the major world markets.

### The United States and Canada

*Past Growth Performance.* North America has led the world in the development of what may be described as secondary uses of motorcycles. The primary use of the motorcycle has been as a basic means of transportation, at speeds which are comparable to those of an automobile, but at costs which are substantially lower. For lower income consumers a motorcycle therefore becomes a feasible and a desirable vehicle to own, at a time when a car still remains beyond their budget. As incomes rise, however, consumers tend to replace their motorcycles with cars, since for basic transportation the automobile offers levels of convenience and comfort that the motorcycle cannot match. Consequently motorcycle usage falls, and during the 1950's was at very low levels in the USA with only about 0.3 per cent of the population owning a motorcycle. Since the late 1960's, Americans have "discovered" the motorcycle, and ownership had risen to 2.4 per cent of the US population by 1974. This rapid growth of motorcycle usage has been based upon riders who have chosen a motorcycle not because they could not afford a car, but because they *preferred* a motorcycle, either instead of a car or, more frequently, as well as a car. For this kind of purchaser, motorcycles provide a source of enjoyment and a leisure activity, rather than a basic means of transport, and we shall describe these uses of motorcycles as secondary.

The general growth in usage of motorcycles associated with the development of these secondary uses has led to a rapid increase in sales levels throughout the last 15 years in both the USA and Canada. In 1960 less than eighty thousand units were sold in the USA whereas in 1974 the total was over a million units, a growth rate of around 20 per cent p.a. compound in units sold. Through this period riders have become more sophisticated, and while the sales boom in the early 60's was mainly in the lightweight, low displacement, street machines, the market had evolved by the 1970's to include substantial sales of larger street machines, competition bikes and on/off road combination motorcycles.

The growth of the larger street machines, which dates from about 1968, has been of particular interest for British manufacturers since it is in this market segment that British machines compete. Table 2 shows US sales levels in 1968 and 1974, annual average compound growth rates, and the total volume increments for large street machines.

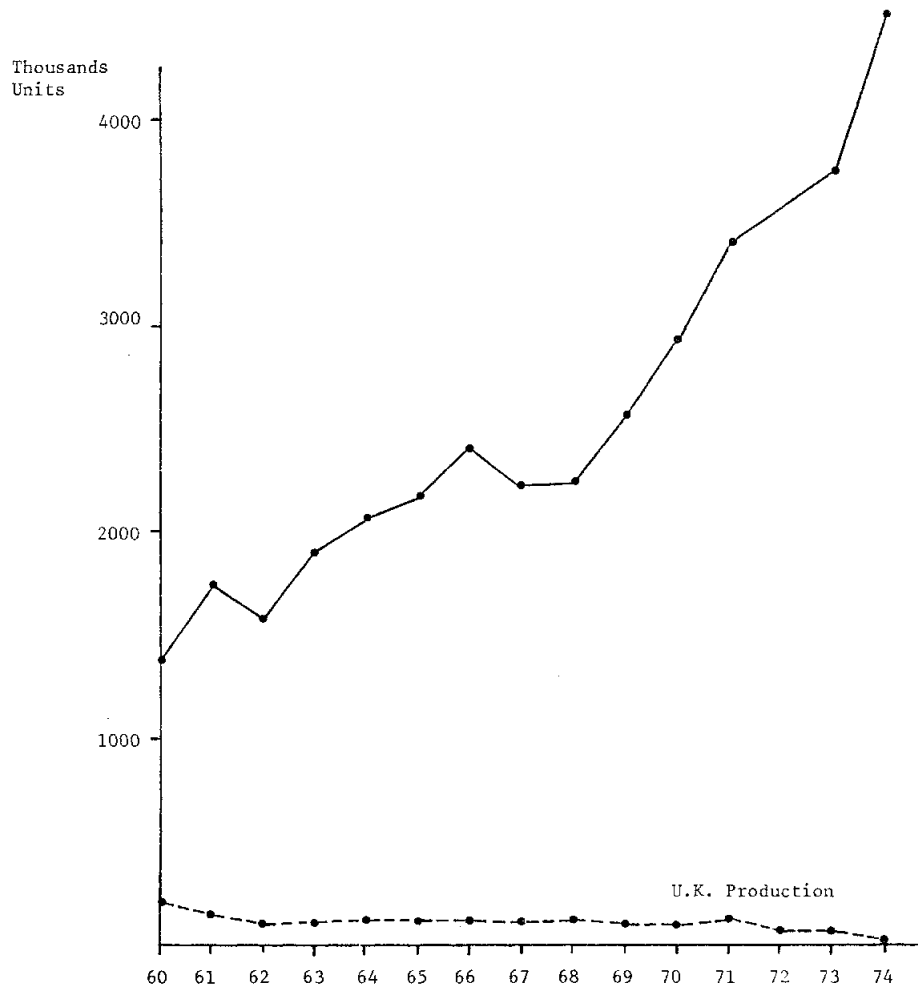
TABLE 2  
Sales of big bikes in the USA

	1968 Sales (000 units)	1974 Sales (000 units)	1968-1974 Growth (% p.a.)	1968-1974 Volume Increment (000 units)
450-749 cc	57	139	16	82
≥ 750 cc	17	168	47	151

Source: R. L. Polk.

**Japanese production  
(Motorcycles and mopeds)**

EXHIBIT 2



Source: Japan Automobile Industry Association

These are extremely rapid rates of growth, well in excess of those achieved by the total market, which grew at 15 per cent p.a. in overall units during the same period. The reasons for this unusual growth were as follows:

1. Motorcycle riders typically "trade up" over time. They enter the market on small machines, and progress over time to larger machines. The size of the total market is limited by the tendency of older riders to drop out of the market altogether, while the size and rate of growth of the market for each displacement class is determined by entries to the class, by trade-ups to larger displacement machines and by those who drop out of the market altogether from this class. A constant market size for a displacement class implies that entries to the class are being balanced by trade-ups into it and dropouts from it. These are market dynamics which are well documented in market research surveys of the industry. It follows that growth of bigger bikes is fuelled by growth in smaller bikes a few years earlier, and that it is possible to relate the growth of each cc class over time to the previous growth of lower cc classes. There was a period of very rapid growth for motorcycles of less than 450 cc beginning in the mid-60's and ending in 1971, and it is this wave of purchasers which is now moving on to bigger machines.
2. Before 1970 there were few machines on the market in these displacement classes, other than the British, but now many more big bikes have become available, and are being actively marketed by all the major competitors.
3. There has been a tendency for riders who want a big bike to look for larger and larger displacements over time. This is partly a function of the reduction of the power-to-displacement relationship due to anti-pollution legislation, but also reflects market preferences—as influenced by manufacturers' publicity. Over time demand has increased for the >750 cc class relative to the 750 cc class, and for the 750 cc class itself relative to the 450–749 cc class.

*Future Growth Prospects.* Prospects for future growth of the total market depend mainly upon increased usage of motorcycles since the total US population will be growing only very slowly. Increased usage follows from increasing levels of affluence, and as disposable income rises, we can expect usage of motorcycles to rise too. However, the rate of growth of total ownership has been decelerating since 1967. We are gradually approaching saturation of demand, and growth in ownership is unlikely to take off again unless new uses for motorcycles which expand their appeal can be found. It was the rise in popularity of competition and off-road bikes and of superbikes, all effectively new uses for motorcycles, that revived a flagging growth in total ownership in the mid-late 1960's. No genuinely new uses for motorcycles, however, are envisaged by industry experts, and so growth will have to depend on increased penetration for present uses. The energy crisis which appeared briefly to offer the opportunity to expand the market now appears to have had little impact on the underlying demand for the types of use of motorcycles that characterise the North American market.

Extrapolating past trends of ownership in the light of future forecasts of income levels and car usage, we can expect between 2 $\frac{3}{4}$  and 3 per cent. of the U.S. population to own a motorcycle in 1980.

Even if we assume the upper limit, that motorcycle ownership will rise to 3 per cent of the population by 1980, the implied growth rate for motorcycle sales is only 3 per cent p.a. compound between 1974 and 1980. This rate of sales growth is in fact similar to that which has been achieved for the total market between 1971 and 1974, and is consistent with a market where the rate of growth in ownership is gradually falling. Our projected rate of total market growth is very consistent with the estimates we obtained from manufacturers and industry experts in close touch with the market.

The period of very rapid total sales growth up to 1971 was one in which the growth of ownership was itself very fast. As growth in ownership has begun to slow, growth in sales, which depends increasingly on replacements of, rather than additions to, the national stock of motorcycles, has been adversely affected to a greater extent. It is only because the replacement demand for the ever increasing national stock of motorcycles increases steadily through 1980 that the reduction in demand from fewer additions to the motorcycling population does not cause overall sales to fall.

Against this background of slower growth in total sales, we would expect some limited further increase of bigger bikes as a proportion of total demand. Although a wide range of big bikes is now on the market, a rash of new models of 750 cc and above is forecast for the next three or four years which will add even further to the exposure given to superbikes (750 cc and above), and will support the trend for big bike riders to look for ever higher displacements. Trade-up from smaller cc machines will, however, provide much more limited growth than in the last five years. Exhibit 3 shows the growth of the total market broken down into individual displacement classes. It can be seen that the growth of the cc classes less than 450 cc has been flat since 1971; there is therefore only limited growth to be expected from trade-ups in the pipeline.

Our specific forecasts of demand for the U.S. market are set out in Table 3. It should be noted that in any market the growth rate for motorcycles will be affected by cyclical macroeconomic factors, so that growth will oscillate about the forecast trend. In 1975, for example, the market in the US is very depressed, and will fall well below 1974 levels. Growth in 1976 and/or 1977 will be corresponding more rapid as demand moves back to trend levels. However, for purposes of long term strategic planning it is on the underlying trend growth rates that we should focus.

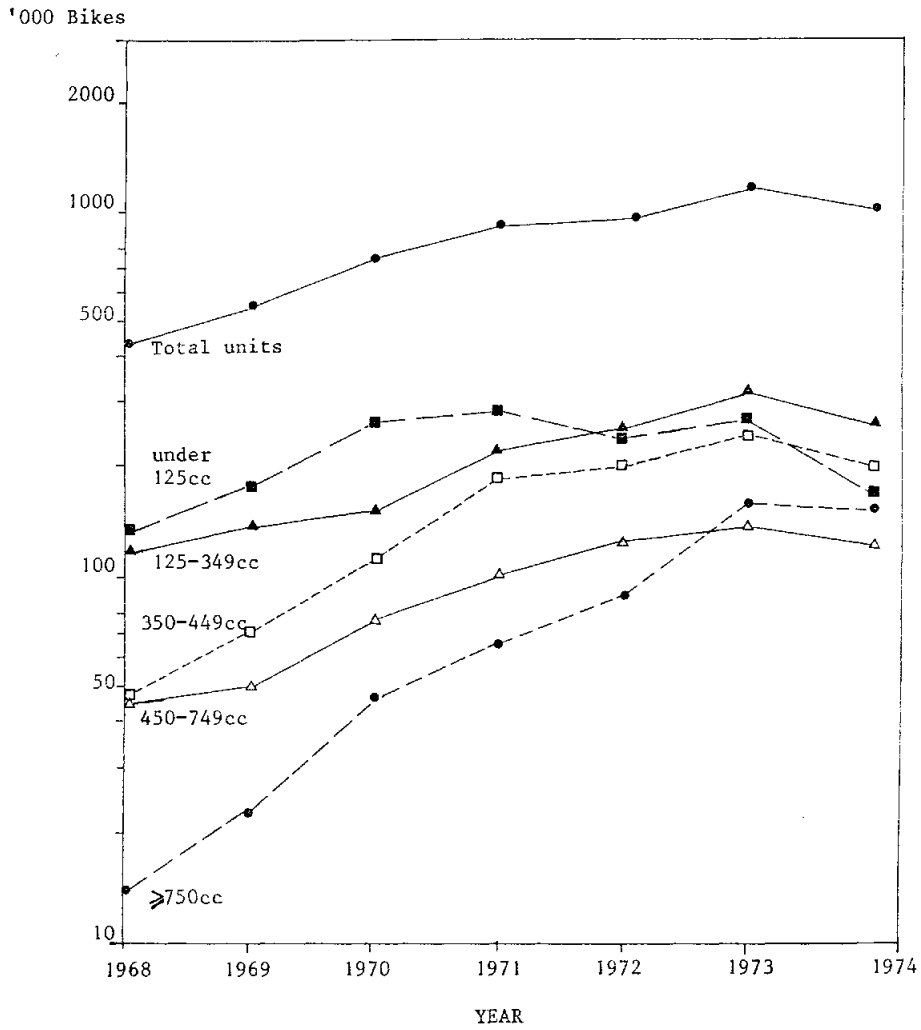
TABLE 3  
Sales of motorcycles in the USA

	1974 Sales (000 units)	1980 Sales (000 units)	1974-1980 Growth (% p.a.)	1974-1980 Volume Increment (000 units)
Total Market	1011	1205	3	194
450-749 cc	139	169	3	30
750 cc	91	133	7	42
>750 cc	77	108	6	31

Source: R. L. Polk, BCG Forecasts

**The US motorcycle market 1968-1974**  
**Growth in total units and by cc size class**

EXHIBIT 3



Source: R.L. Polk

*Canada.* The Canadian market is similar in nature to that of the USA, but its development is perhaps two to three years behind the United States. Our forecasts of demand in Canada have been based on similar reasoning to that for the USA and are set out in Table 4.

TABLE 4  
Sales of motorcycles in Canada

	1974 Sales (000 units)	1980 Sales (000 units)	1974-1980 Growth (% p.a.)	1974-1980 Volume Increment (000 units)
Total Market	55	81	7	26
450-749 cc	8(e)	11	6	3
750 cc	5(e)	9	10	4
>750 cc	4(e)	7	10	3

(e) = estimate

Source: R. L. Polk, Cycle Canada, BCG Forecasts.

## Europe

*Past Growth Performance.* European markets for motorcycles tend to be less developed than in North America. In most cases the 1960's were a period of declining demand for motorcycles, as primary transportation uses fell in the face of increasing reliance on the automobile, but before secondary uses had taken off. Growth in the last few years has, however, been quite rapid as secondary uses have now begun to more than offset the continuing decline of the motorcycle as basic transport.

The level to which usage of motorcycles had fallen by the late 60's was very different in each country. The proportion of the population owning a motorcycle in each of the major European countries in 1969 is shown below:

	% of population
Italy	2.3
UK	1.2
France	0.6
West Germany	0.4

It can be seen that the UK and particularly Italy maintained a high level of usage, while France and Germany had fallen much farther. This indicates that the use of motorcycles for basic transport remained higher in Italy and the UK than in Germany and France.

The dynamics of market growth in Europe since the late 60's have therefore involved a complex combination of riders entering the market for secondary uses (as in the US), other riders moving from primary to secondary uses, and yet other primary use riders dropping out of the market entirely. The net result of these changes has, however, been a substantial rate of growth of overall sales, and the beginning of a growth in actual usage. Table 5 shows these growth rates in the major European countries:



TABLE 5  
Market growth in Europe 1969-1973

	% p.a. Growth in Total Sales	% p.a. Growth in Total Ownership
UK	25	(3)
France	32	3
West Germany	45	4
Italy	22	5

Source: Various—see Appendices 3, 4, 7

*Future Growth Prospects.* We believe that substantial further growth in the remainder of the 1970's is now to be expected. We have used the United States as an indicator of the way in which demand for secondary uses of motorcycles may develop, and have forecasted further demand in the European countries in the light of past growth in the USA. We have taken into account differences in levels of per capita income, car usage, population density, weather—all of which we have found to be relevant in determining levels of motorcycle usage—as well as special local factors such as legislation and insurance rates. Based on these analyses we anticipate further decline in primary transportation uses, but that this will be more than offset by growth in secondary uses. This growth in use will result in rapid rates of growth in sales.

The fastest rates of overall market growth will occur in those markets (West Germany and France) where there are the lowest residual levels of basic transport uses. But even in countries such as the UK where overall growth is lower due to the influence of declining primary transport uses, the shifting structure of demand associated with the move to secondary uses will allow rapid rates of growth for big motorcycles, whose uses are principally secondary.

Our forecasts of market growth, for the UK and for Continental Europe, are shown in Tables 6 and 7.

TABLE 6  
Sales of motorcycles in the UK

	1974 Sales (000 units)	1980 Sales (000 units)	1974-1980 Growth (% p.a.)	1974-1980 Volume Increment (000 units)
Total Market	91	110	3	19
450-749 cc	3	8	18	5
750 cc	2	7	23	5
> 750 cc	2	5	17	3

Source: Society of Motor Manufacturers & Traders, BCG Forecasts

TABLE 7  
Sales of motorcycles in Continental Europe

	1974 Sales (000 units)	1980 Sales (000 units)	1974-1980 Growth (% p.a.)	1974-1980 Volume Increment (000 units)
Total Market	290	510	10	220
450-749 cc	28	60	14	32
750 cc	25	55	14	30
> 750 cc	14	40	19	26

Source: Various—see Appendices 4, 7

### Rest of the World

We have devoted little attention to other parts of the world, since, with the exception of some of the old Commonwealth countries, these are markets where

British models do not now sell in any volume, and which are unlikely to develop into good markets for the British industry for the foreseeable future. The countries of Asia, Central and Southern America and Africa are generally less developed economically than North America and Europe, and are far from showing any significant demand for secondary uses of motorcycles. The less developed countries (LDC's) are only just beginning to buy motorised transport at all, and demand will centre on the small size motorcycle for this purpose. In fact, small motorcycles may well grow—often from a low base—at rapid rates in the LDC's, so that MITI forecasts overall annual rates of growth in total units sold between 1973 and 1980 as below:

Southeast Asia	11%
Central & South America	18%
Middle East	20%
Africa	12%

But demand for larger motorcycles will remain at very low levels. Our forecasts later in this report of possible future British sales outside of North America and Europe are based more on reasonable extrapolation of present sales trends in the limited markets now served than on a general analysis of likely market growth and shares in the rest of the world.

### Market share positions

Appendices 1–4 include full descriptions of the shifts in market share that have taken place since 1968 in the motorcycle markets of North America, the UK and Europe. A more complete documentation of the basis for our comments in this chapter on the general determinants of market share, on the competitors in the motorcycle market, and on the performance and current position of the British industry will therefore be found in these Appendices.

#### General determinants of market share

Loss of market share has been a continuing problem in British market performance. In this section we shall discuss the influence of product, price and selling and distribution systems in an attempt to understand the reasons that lie behind the different market share positions and trends for the major manufacturers in world markets. Our focus throughout will be on strengths and weaknesses *relative to competition*. British products, prices and selling and distribution systems can only be assessed as good or poor as they compare to competitive offerings. To have an excellent product which is however not quite so good as the products offered by your competitors will do nothing for your market share. Any discussion of the determinants of market share must become a discussion of competition for, at base, it is competition that determines market share.

*Products.* Market share in each cc class is clearly a function of sales of particular models, and the sales potential of each model will depend upon its attractiveness relative to competition. It is hard to be precise about the features that are necessary for a product to sell well since other considerations such as price and selling and distribution systems which we will discuss below vitiate any direct comparisons between models and since the appeal of the features built

into particular models is in any case largely subjective. However it can be observed that it is new models that typically register substantial sales advances. In fact the life cycle of a successful model normally involves 2–3 years of rapid sales growth after which sales level out leading to an eventual decline or phasing out of the model. The Honda CB 750 is a good example of this. It was launched and extremely well received in the early 70's, but has now begun to decline in sales in Europe, and has ceased growing in North America.

This life cycle is easily explained. In its early years a new model will be attractive both because it is new, and hence appealing to the fashion element of the market, and because it will incorporate the most up-to-date technology and design concepts available to its manufacturer. In later years it can be kept alive through modifications—and the Honda 750 has just received a facelift—but over time it becomes increasingly hard to up-date a model in ways which make it truly comparable with the newer models introduced by competitors.

The pace of new model introduction in a cc class is largely determined by the growth rate of the class with rapid rates of growth associated with numerous new model introductions. The superbike class, which has grown at 47 per cent p.a. in the US since 1968, has attracted many new entrants, and most of the major manufacturers are planning new models in this class during the next few years. In a fast growth market, the growth is therefore taken up by new models which are being introduced with high frequency, while in a slow growth market fewer new models appear. Older models tend to maintain or slightly reduce their volumes in both cases, but in terms of market share, they are losing at a much more rapid rate in fast than slow growth situations.

*Price.* Just as it is hard to separate out and assess the effect of the various product features on market share, so it is difficult to isolate the relationship between price and market share.

Price tends to be broadly related to displacement, although the different models at each displacement level will not retail at precisely the same price. The sense of the market is that retail price differences of up to 10 per cent between models have little effect on sales, but that at around the 10 per cent premium (or discount) level sales volumes do begin to show a reaction, which of course increases as the premium increases. Price differences, however, will only influence relative sales between models whose features are comparable: a model with outstanding features can command a premium—as BMW does—and a model with poor features, such as the Yamaha 750, will not sell well even at a substantial price reduction on other models in the cc class.

There are, in fact, few examples of a price cut leading to significant volume increments. The Japanese competitors' practice is to introduce new models at highly competitive prices, and to tend to reduce prices in constant money terms thereafter. This means that there is seldom sufficient margin for a manufacturer to cut price on an established model to a meaningful extent, unless he is prepared to accept losses in doing so. (The occasions on which this does occur are most frequently to reduce stocks of unsuccessful models, which in any case rarely sell well even after a price cut.)

Models which were introduced and held at low prices include the Honda 750, Yamaha 650 and 500, and Kawasaki 900, all of which quickly developed good

volumes. But again, it is impossible to be sure whether these volumes depended on the price advantage or on the new and attractive features offered by the model.

*Selling and Distribution Systems.* We have so far discussed market share as a function of the product features and prices of particular models. Market share across all cc classes is also influenced by what we shall call the selling and distribution system (s and d system). Within the s and d system we include all the activities of the marketing companies (or importers) in each national market:

- Sales representation at the dealer level
- Physical distribution of parts and machines
- Warranty and service support
- Dealer support
- Advertising and promotion
- Market planning and control.

We also include the effects of the dealer network established by the marketing companies:

- Numbers and quality of dealers
- Floorspace devoted to the manufacturers' products
- Sales support by dealers.

The s and d system supports sales of the manufacturer across the whole model range, and its quality affects market shares in each cc class where the manufacturer is represented. Exhibit 4 compares the s and d systems of the four full line Japanese manufacturers in the USA, and shows that high market shares both overall *and* in each cc class go with high levels of expenditure on s and d and with extensive dealer networks.

The interaction between product-related variables and s and d related variables is complex. The better the product range in terms of comprehensiveness, features and price, and the more sophisticated the s and d system of the sales company, the easier it will be to attract good dealers. This is because good products, which are well supported at the marketing company level, lead to good retail sales. Equally, good dealers themselves improve retail sales, and active competition between dealers can lead to retail discounting which acts as a volume-boosting price cut to the public. The manufacturers' products and s and d system therefore influence sales both directly, at retail, and proximately, through their effect on the dealer network.

In particular cc categories, each manufacturer's position is substantially influenced by its specific product offerings. For example, Kawasaki are strong in the 750 cc and over class due to the Z-1, and Yamaha have been weak due to its poor 750 cc model. Outstanding products obtain market shares that are unusually high for a manufacturer, and weak products lead to atypically low market shares. For products of average attraction, however, market shares seem to move towards some equilibrium level. For each manufacturer this level in the USA appears to be:

Honda	40-50%
Yamaha	15-25%
Kawasaki	10-15%
Suzuki	9-12%

## The selling and distribution systems of Japanese companies in the USA

	Estimated Total S & D Expenditure by Sales Company 1974 (\$m)	Advertising Expenditure 1972 (\$m)	Dealers 1974		1974 % Share of Total Market (units)	Lowest % Share of any cc Class	Highest % Share of any cc Class
			Numbers	Units Sold per Dealer			
Honda	90-100	8.1	1974	220	43	34	61
Yamaha	40-45	4.2	1515	135	20	4	34
Kawasaki	30-35	2.2	1018	127	13	9	19
Suzuki	25-30	3.0	1103	98	11	5	16

Sources: R. L. Polk, Motorcycle Dealer News, Ziff-Davis Market Research Dept., BCG Estimates.

The implication is that there is considerable inertia in the market shares of each competitor. A company with a strong s and d system, such as Honda, will tend—given comparable products—to get a higher market share than its competitors, and a company with a weak s and d system will tend to get a lower market share than its competitors. Long term and sustained changes in relative market share require corresponding changes in the relative strength of s and d systems, and the maintenance of advantages in the s and d system constitutes some security against market share erosion for the market leaders.

In the USA the fact that dealers are typically exclusive adds to the influence of the s and d system. In an exclusive dealership the dealer has a strong interest in selling his manufacturer's model in each cc range whatever its attraction to the rider, while in shared dealerships good products can be allocated more showroom space, consistent with their sales potential. Individual models can thus be pushed or held back according to the dealer's perception of their merits. For each manufacturer an exclusive dealership system will lead to more market share stability and a shared dealership system will lead to more volatility. This explains why market shares in Europe, where dealerships have usually been shared, are more volatile than in the USA.

## Competition

The common theme which has run through our discussion of the various influences on market share has been the essential dependence of each company's market position on its strength *relative to competition*. An understanding of the capabilities and intentions of the major world competitors is therefore important in assessing the market prospects and situation of the British industry, and we will now provide a brief description of the British industry's leading opponents in world markets.

### **Honda motor company**

Honda are the world's largest producer of motorcycles (1974 output of 2.1 million units), and hold leading market positions in nearly every market where they compete.

The company's market success has been built upon a range of products that have met the requirements of the vast majority of riders, and at prices which they could afford. It is often said that Honda created the market—in the United States and elsewhere—for what we have called secondary uses of motorcycles, through their extensive advertising and promotion activities; and it is true that Honda presented the attractions of motorcycling as a "fun" activity in a new way, and with a level of media support not previously attempted by motorcycle manufacturers. However, the success of this campaign depended in the last resort on the fact that the lightweight machines that were then the company's primary product *were* fun and easy to ride, did not give the mechanical problems that had traditionally been associated with motorcycles, and were cheap to purchase. In the same way, Honda's successful move into superbikes in 1969 received heavy advertising support, but was made possible by a product, the CB 750, which was technically ahead of its competitors, and offered features which were at that time unique. Honda's basic strength in product design stems from an extremely heavy commitment to R & D that insures that its products

can be produced to meet the needs of any segment of the market, and that these products remain in the forefront of technical development.

Honda's pricing policy aims to introduce new products at prices which are below those of comparable competitive models, and which are designed to develop substantial sales volumes. In the infrequent instances where Honda have found themselves selling a model at a price disadvantage which threatened to impact on their sales volumes, they have been prepared to introduce special price cuts to insure that their competitors did not gain on them. An example of this behaviour was a \$200 special discount maintained throughout a season on a 250 cc off-road bike in order to match—and in fact undercut—Yamaha's model in this range.

The effectiveness of Honda's s and d system matches the company's position of market leadership. We have already touched upon the extent of their advertising budget, and their marketing support network is as thorough in all other areas. And in new markets where Honda are developing an s and d system the company is prepared to sustain losses in the marketing channel for as long as is necessary to establish the kind of system they require. In the UK, for instance, their market development programme from 1963–1970 led to a lack of profitability through these years, but also saw them through to a position of market leadership, backed by a thoroughly competent and efficient s and d system.

Despite these strengths, Honda have in fact lost share of world markets in the last four or five years. There are three reasons for this:

1. Honda pioneered Japanese entry to bigger bikes in the late 60's, and were able to operate free from effective competition by other Japanese manufacturers for two or three years. More recently Yamaha, Suzuki and Kawasaki have introduced bigger bikes in competition with Honda, and this entry of new competition has inevitably reduced Honda's share of the market.
2. Honda have always been committed to 4-stroke engine technology, while the other Japanese were primarily 2-stroke. 4-stroke engines are generally preferable for street machines, but for competition and off-road uses 2-strokes are better. Honda were without a moto-cross bike of any type until the 1973 season. Since this market had grown to substantial proportions other competitors, notably Yamaha, developed volumes not matched by Honda. What is interesting is that, once Honda had seen this market segment to be a significant opportunity where they lacked a suitable product, they very quickly developed their Elsinore range of 2-stroke moto-cross bikes which are now very well regarded in the industry and which are quickly regaining share for Honda in this area.
3. Having developed world leadership in motorcycles, Honda turned much of its attention in the years from 1969–1974 to expanding its overseas activities in the motor car industry. This push has been expensive for Honda both in terms of money and time, and there are signs that the motorcycle side of the business has been somewhat neglected. However the indications now are that a new policy to recoup any ground that had been lost is in force. Honda's latest product developments and capacity additions seem to point in this direction.

This year Honda have introduced a new 1000 cc motorcycle, the Goldwing,

which has received enthusiastic market acceptance so far, and is, technologically, the first of a new generation of motorcycles. With this product, Honda clearly intend to participate in the growing market for "super-superbikes" (>750 cc). They have also introduced a modified version of the CB 750, the Supersport. The Supersport has much improved performance and handling characteristics (now regarded as weaknesses of the CB 750), and will help to fend off challenges to Honda's leading share of the 750 cc market.

Specific intentions for other new products in the next few years remain, as always with Honda, shrouded in secrecy. However, the level of R & D activity in motorcycles is said to be back at its highest levels, and it may be assumed that Honda intends to do whatever is necessary to continue their policy of retaining market leadership in all major product classes.

Honda's most important markets are at home in Japan and in North America. In the last five years, in common with the other Japanese producers, they have increased their efforts in European markets. Local producers and, in some cases, protective trade barriers have caused their penetration here to be slightly less than in the USA, but they have nevertheless built up well-entrenched positions in most European countries.

Table 8 shows Honda's market share, overall and in big bikes, in five major European countries, as against the USA.

TABLE 8  
Honda Market Shares (%) 1974

	<i>Total Market</i>	<i>Superbikes</i>
USA	43	36
UK	54	4
France	37	27
Germany	39	22
Italy	17	17
Holland	41	32

Sources: Various—see Appendices 1, 3, 4

There is some evidence that Honda's next phase of market development may focus on the less developed countries, where primary demand for their light-weight machines is beginning to emerge. We have seen that MITI forecast faster growth in Central and South America, Africa and Southeast Asia than in the developed world, and Honda is setting up subsidiaries in many of the lesser developed countries.

There is no doubt that Honda are the single most formidable force in the market for motorcycles and should be regarded as the leading competitor that the British industry faces. Any future strategy must be designed to take into account Honda's likely competitive response.

The other Japanese competitors pursue broadly similar marketing strategies to Honda. They are smaller than Honda and tend to be to that extent less powerful, although in particular areas they each have their special advantages. We shall concentrate here upon the distinctive characteristics of these companies rather than attempting a fuller description of them.

### **Yamaha**

Yamaha have grown more rapidly than Honda since 1962 and occupy second position in world production of motorcycles. Their particular strength



has been in off-road machines, and they have supported their sporting image with numerous racing successes.

They have a similar volume orientation to Honda, which is illustrated by the fact that they have added capacity three times in their low cc machines, despite the fact that we understand that they lose \$20 on each one they sell in Japan. They evidently regard the preservation of their market share in this class as sufficiently important in its impact on their overall position to justify this decision.

Yamaha have been the last of the Japanese to enter the bigger bike field. They now have machines of 500 cc and 650 cc (the latter a close copy of British products) which sell well and which have taken volume from British models. A 750 cc machine introduced in 1972 was less successful and has now been withdrawn. Yamaha's future plans include boring out their 650 to 750 to give a very price-competitive model of this displacement, and the introduction of a three-cylinder, four-stroke shaft driven motorcycle of high displacement—maybe 1000 cc—to compete in the heavyweight touring market. This is due out in 1976 and is intended as a premium machine in terms of features. Its major competition will presumably be the Goldwing, the Harley-Davidson machines, and other new Japanese models, but it will probably be sufficiently sporty to have some impact on British sales as well.

#### **Kawasaki**

Kawasaki were the last of the big four Japanese to enter the motorcycle industry in a serious way and are now fighting for third place with Suzuki. Motorcycles in fact form only a small part of the total group and the decision to enter this business area in the early 60's appears to have been a classic diversification move. Kawasaki had been for many years in heavy industrial products, and they decided they should begin to participate in a market closer to the final consumer. Since they already had an industrial engine business in the group, the move into motorcycles seemed a logical way of achieving their objective. However, the intensely competitive nature of the business in Japan during the 60's led to poor results and there were, we were told, "heated discussions" on whether Kawasaki should remain in the business towards the end of the 60's. The outcome of these discussions was a decision that to remain in the business at all required that Kawasaki should increase its share of world markets, and shortly thereafter Kawasaki's US subsidiary was established. Since then Kawasaki have grown rapidly, but—reportedly—they have only in the last year begun to be profitable. Kawasaki products stress speed and performance—their products are rated in market research studies as more closely similar to British motorcycles than those of any other Japanese manufacturers—but have not all achieved all-round success. Their two-stroke three-cylinder machines (500 and 750 cc) are fast, but only their more recent four-stroke 900 cc Z-1 model combines performance with handling, styling and other features. The Z-1 is very well regarded in the industry, and represents the eventual success of Kawasaki's R & D department in putting together a motorcycle with real "class".

The Kawasaki story is an interesting illustration of the difficulty of breaking into and gaining market share in the world motorcycle industry. It is only because Kawasaki have been prepared to undergo a long period of losses, to

redesign and refine their products in a constant attempt to improve their appeal, and to focus on *long term* market share and profitability goals, that they have achieved their present position. They remain small relative to Honda but are now becoming a real threat to the market leaders. They have been the fastest growing of the Japanese companies, and with their strong corporate backing, without which they could never have financed their many years of losses, they are now formidable competition.

Kawasaki's future plans call for the Z-1 to be uprated to 1000 cc, and for a new 750 cc model to be launched at a very low price—\$1800 is being mentioned in the trade. This 750 will be a counterbalanced twin, and will presumably have Kawasaki-type performance. As such it will be a real threat to British models of this displacement. Kawasaki have also launched a very cheap 400 cc machine this year and have opened assembly facilities in Lincoln, Nebraska, for the US market. This plant is currently producing the 400 cc machine and there are plans to extend soon into production of the Z-1.

Kawasaki have stated that they see Europe as the main future growth market for superbikes, and have been making determined efforts to establish themselves in European markets where they have been rather weak in the past. Their market development programme tends to concentrate on establishing a relatively small number of exclusive dealerships, rather than a wider coverage in the more typically European shared dealership situations. In this way Kawasaki expect to found their s and d support on fewer, more loyal dealers who will therefore receive better backing from Kawasaki than would have been possible with a more thinly spread effort. This policy is beginning now to show some signs of success.

### **Suzuki**

Suzuki have been gaining share of world markets since 1972 and have expanded their production a great deal during this time [reference to Suzuki financial position deleted]. To maintain volume in the depressed US market they have had to offer a rebate scheme of \$50 off each 380 cc, \$75 off each 550 cc, and \$100 off each 750 cc. Their latest model, into which considerable development effort has been put, is the Rotary RE-5, a model which has not so far been well received by the market.

Suzuki, like Yamaha, has tended to be stronger in off-road than on-road machines, has concentrated even more exclusively on two-stroke machines, and has also done well in competition racing. But their image is less clearly defined as sporting, since the performance of their production machines has not been particularly good. In fact their appeal has stressed comfort and solid design more than speed. Recently their policy in on-road machines seems to have been to produce machines whose displacements (380, 550 cc) were marginally higher than those of competitors in the same general class. These models have had some success, but have not won significant volumes away from the market leaders. All-in-all they have represented the least direct challenge to British manufacturers amongst the Japanese competition.

The next development for Suzuki is said to be a 1000 cc four-stroke three-cylinder water cooled machines. Our information on this is limited, and given their current difficulties it may be some time before this product actually

appears, but its appeal sounds broadly similar to the proposed Yamaha machine described above.

### **The Japanese marketing philosophy**

The market approach of these Japanese companies has certain common features which, taken together, may be described as a "marketing philosophy". The fundamental feature of this philosophy is the emphasis it places on market share and sales volume. Objectives set in these terms are regarded as critical, and defended at all costs.

The whole thrust of the marketing programme in each country where the Japanese operate is towards maintaining or improving market share position. In our discussion of each company we have seen some of the ways in which this goal is pursued. It is worth adding, as an example of how pervasive this objective is throughout the Japanese organisations, that in an interview with a Honda personnel director, we were told that the first question a prospective Honda dealer is asked is the level of his market share in his local area. "I don't know why, but this company places an awful lot of emphasis on market share" was the comment. In our analysis of the economics of the motorcycle business in the next chapter, we shall return to the reasons why market shares are critical for commercial success in the industry.

We were also told by representatives of Japanese sales companies that their primary objectives are set in terms of sales volume rather than short term profitability. Annual sales targets—based on market share penetration assumptions and market growth prospects—are set, and the main task of the sales company is to achieve these targets. The essence of this strategy is to grow sales volume at least as fast or faster than any of your competitors.

A number of more specific policies follow from this general philosophy, and our descriptions of each of the Japanese competitors provide ample examples of these policies:

1. Products are up-dated or redesigned whenever a market threat or opportunity is perceived.
2. Prices are set at levels designed to achieve market share targets, and will be cut if necessary.
3. Effective marketing systems are set up in all markets where serious competition is intended, regardless of short term cost.
4. Plans and objectives look to long term pay-off.

The results of these policies for the Japanese competitors have, of course, been spectacularly successful. Over the last fifteen years, the rates of growth of the four major Japanese companies have been as shown in Table 9.

TABLE 9  
Growth of Japanese Production

	<i>Production in 1959</i> (000 units)	<i>Production in 1974</i> (000 units)	<i>Average Annual Growth Rate</i> (% p.a.)
Honda	285	2133	14
Yamaha	64	1165	21
Kawasaki	10	355	27
Suzuki	96	840	16

Source: Japan Automobile Industry Association

Starting from the base of a large home market for lightweight machines, the Japanese companies have identified the growth markets of the world, in terms both of product segments and national market segments. They have then developed the models and marketing networks necessary to gain share of these markets. This has involved gradual extension of their product ranges to cover all types and sizes of motorcycles. Exhibit 5 shows their progress in bigger motorcycles, a progress that has involved the introduction of twelve new models of 450 cc and above since 1968.

These new models have shown substantial advances in product design and technology, and have led to the development of high volumes throughout the range of motorcycles by the Japanese. Exhibit 6 shows their gains of market share in the US with the new big bike models.

At the same time a level of support for Japanese machines in terms of R & D, advertising and promotion, parts distribution, service facilities and dealer networks has been developed that is only possible where costs can be spread across the highest volumes. Exhibit 4 has given a sense of the weight of these s and d systems, as well as indicating their value in cementing market share positions.

#### EXHIBIT 5

**Changes in Japanese product range: 1968-1975**  
*Numbers of Models*

	> 750 cc		750 cc		450-749 cc	
	1968	1975	1968	1975	1968	1975
Honda	—	1	—	1	1	2
Yamaha	—	—	—	—	—	2
Kawasaki	—	1	—	1	1	1
Suzuki	—	—	—	1	1	3
<b>Total</b>	—	2	—	3	3	8

#### EXHIBIT 6

**Japanese market shares: USA 1968 and 1974**

	> 750 cc		750 cc		450-749 cc	
	1968	1974	1968	1974	1968	1974
	%	%	%	%	%	%
Honda	—	—	—	67	23	53
Yamaha	—	—	—	6	—	25
Kawasaki	—	27	—	7	2	9
Suzuki	—	—	—	9	3	10
<b>Total</b>	—	27	—	89	28	97

Source: R. L. Polk.

Japanese producers have consequently come to dominate the world motorcycle industry, and Exhibit 7 summarises the degree to which they have now penetrated the major markets of the world.

We should not leave the topic of competition without providing a brief description of the other major world competitors. The Japanese challenge over the last fifteen years has in fact led to the elimination of many of the smaller and more marginal competitors. In this respect the British experience parallels that of several other countries. However, in the larger displacement machines in

EXHIBIT 7

Percent market shares of total units sold: 1974

	USA	Canada	UK	France	Germany	Italy*
Honda	43	41	54	37	39	17
Yamaha	20	18	19	19	20	1
Kawasaki	13	17	5	5	5	8
Suzuki	11	12	13	13	6	4
Total	87	88	74	74	70	30

\* Japanese competitors are not allowed to import machines of less than 380 cc.

Sources: Various—see Appendices 1-4.

particular there do remain some other significant competitors, often with bases in their own national home markets.

**Harley-Davidson**

Before the Second World War there were many producers of motorcycles in America. But a declining and small market in the 40's and 50's, and tough Japanese competition in the 60's, proved as hard to survive for most American companies as it did for the British, and now Harley-Davidson is the only remaining indigenous producer. Harley in fact produce only their heavyweight motorcycles—the 1000 and 1200 cc models—in the US, relying upon their Italian subsidiary, Aermacchi, for smaller machines to fill out their range.

Harley's market appeal in the USA—their sales outside North America are very limited—rests on a combination of three factors:

1. Nationalism: as the only US producer they enjoy a type of customer loyalty shared by none of their other competitors, not to mention an edge in police and army contracts.
2. Product image: [deleted], the general public [deleted] believe they have product advantages, for which it is worth paying premium prices.
3. Dealer network: it is commonly accepted that Harley dealers are amongst the best in the country and this in itself strengthens their sales position.

For these reasons Harley's market share has held up quite well since 1971, and constraints upon their sales levels have more often been a result of production capacity than market demand. However, Harley have recently nearly doubled their production capacity and will now be in a position of much freer supply. Within the next two years they intend to introduce a new 880 cc model which will eventually replace the 1000 cc Sportster. They are also working on a new model in the 1200 cc range. These new developments are expected to retain the Harley V-engine configuration, but may well move to four-cylinders.

Harley are at present involved in US International Trade Commission hearings against the Japanese manufacturers. They contend that tariffs should be maintained at present levels or raised to protect employment in the US industry. It is unclear what the outcome of these hearings will be, but Kawasaki's move to assembly in the US—and the possibility that other Japanese producers may follow suit—must be seen in part as an attempt to meet criticisms that motorcycles now contribute very little to US employment.

**BMW**

BMW produce a range of motorcycles from 600 cc to 900 cc. They are based in

Germany, a part of the same Group which manufactures automobiles, and hold a high share of the German market for big bikes. Their total production is only 25,000 machines, but they have an image of very high quality and are able to charge premium prices—in the US the BMW R 90-6 (900 cc) sells for 28 per cent (\$690) more than the Kawasaki 900. Despite these high prices, BMW's 900 cc machines have been well received and have gained share in the USA and in Europe. A special version of the R 90-6, with a fairing and certain other minor sporting features, is also selling very well at \$500 more than the regular version. Their smaller machines have done less well, and over time they have withdrawn their 350 and 500 cc models.

The BMW range are all variants on the same basic engine and frame design, a design which is not new but which incorporates features that led *Motorcyclist Magazine* in July 1973 to rate the BMW 750 as the best superbike on the market. BMW expect to launch a 1000 cc uprating of the R 90 shortly.

The market segment being targeted by BMW clearly requires a product that is seen as superior. BMW have such a product and it sells well; in fact their plans call for an expansion of production to 45,000 units in 1980. This is a classic example of a premium price, specialist appeal marketing strategy which evades the high volume competitors and allows profitable operations on a limited scale.

#### **Moto-Guzzi, Benelli and Ducati**

Since 1972 Moto-Guzzi and Benelli, Italian manufacturers, have both been part of the de Tomaso Group. Both companies manufacture a relatively full line of motorcycles and mopeds, and together they cover all parts of the market. Their combined production is around 40,000 motorcycles, and 80,000 mopeds, about half of which are for the home market.

It should be noted that the Italian market is highly protected from Japanese competition. Motorcycles of less than 380 cc may not be imported by the Japanese, and there are import duties and deposits to be paid on those above 380 cc. In consequence Honda is reported recently to have opened a factory in Italy.

Guzzi-Benelli brought out a new model range in 1974, which was based upon successful Japanese designs. With these new products, a strong dealer network and the protection from Japanese competition mentioned above, their share of the Italian market has held up quite well. But they are not a strong force in markets outside Italy.

Ducati is an Italian manufacturer whose product image has in the past been similar to the British: elegant styling, good handling and high performance. However, their sales have fallen drastically during the 70's, and their production was down to 10,000 units in 1974. The Italian Government now owns the company, which has been unprofitable for some time, and has invested in new production facilities and a new model range. There were rumours that part of this capacity was to be devoted to the production of machines for Honda, but eventually these plans did not materialise.

Although Ducati have lost share of Italian markets, the home market remains their base, and their representation in foreign markets is limited.

### **Other competitors**

*Eastern Europeans and Russians.* In the last few years, the Communist countries have been producing bikes for Western markets with styling, finish and performance which are not up to the normal standards of the market, but which are extremely cheap. These products have found some market acceptance, but their appeal is really for basic transportation, rather than secondary uses. Consequently they are unlikely to obtain more than a small share of the market in the countries of most interest to British manufacturers.

*National producers.* In several countries, there are local producers who are mainly active on the home market. Their export activities are either limited to certain specialised products, which do not compete with British bikes, or are of very limited scope.

## **British market share position**

### **Product range and prices**

To the extent that an objective assessment of the overall features and product appeal of different motorcycles is possible, it would appear that British motorcycles have now become generally less attractive than competitive models of similar displacement. They have nevertheless been priced at levels equal to (and in 1975 substantially above) their competition, and the result has been continuing losses of market position.

In terms of product appeal, British motorcycles retain an image of a premium quality finish, elegant styling, superior handling and high performance. But the lead that British producers used to have in these areas over their Japanese competitors is narrowing. The general "look" of Japanese machines has improved, as have their handling characteristics, and performance ratings of top speed and acceleration now show machines such as the Kawasaki Z-1 surpassing British models by a comfortable margin.

While British advantages have been eroded, traditional British defects have remained, in the eyes of the market, largely unremedied. Reliability in particular is seen as a key weakness of British machines, a fault which is emphasised by a reputation for grudging acceptance of warranty claims and poor availability of spare parts. It is claimed by NVT that reliability has in fact improved, but it would appear that the market has not yet accepted this to be so. Persistence of oil leaks, a fundamental design weakness, lends visible support to the claims of continued unreliability.

The fact that British models no longer retain their edge over competition is hardly surprising, given that, while no genuinely new British motorcycle has appeared since the Trident in 1968, we have seen that Japanese competitors have launched a total of twelve new models of 450 cc and over. These new models, embodying the latest thinking on product design, have built up a far greater challenge to British models than previously existed. Where the British were acknowledged to be strong, competitors have attempted, with substantial success, to emulate British virtues. In other areas they have introduced features—electric starters, four-cylinder engines, disc brakes, five-speed transmissions—which the British lacked; and the Japanese have capitalised on and confirmed their general reputation for ease of operation and maintenance. Furthermore, it has been Japanese policy to bring their new models to the market at prices

no higher—and often substantially lower—than their British counterparts.

In response to this competitive challenge, British models have gradually been up-dated in features, and up-rated in displacement. Although the Bonneville still lacks an electric starter and, with its old two-cylinder engine design, vibrates badly, the Norton Commando and the Triumph Trident are smoother and have added electric starters and disc brakes in an attempt to match the features offered by Japanese models. But, for the public, these remain basically “old models with modifications” rather than something “new and attractive”. Increasing the displacement of these machines (the Bonneville from 650 to 750, the Norton from 750 to 850, the Trident—prospectively—from 750 to 900) has had much the same effect. For these reasons, existing British models cannot expect to sell in any volume if they are priced above newer competitive models of similar displacement, and the Bonneville, with its lack of modern features, needs to be priced 10 per cent or more below a competitive model such as the Honda 750. It is noticeable that the only year since 1968 when Triumph did not lose market share in the US was 1973, when the Bonneville 750 was priced at 12 per cent below the Honda 750. Otherwise British models have tended to be priced at or slightly above competition, except this year when by common consent British prices have been set at levels that are far too high.

The up-rating of the Bonneville and the Commando has been part of a general withdrawal by British manufacturers from the lower cc models. Since the early 60's, lack of profitability has been cited as the reason for withdrawing from 175, 250, 350, 500 and 650 cc motorcycles. The only segment of the market in which British products now compete is the superbike ( $\geq 750$  cc) range where volumes, even for the Japanese, are relatively low and where prices and margins are highest. The British position therefore rests only on big bikes and has led to the development of no real reputation or following that would be relevant for smaller machines or off-road machines. The effect of new models and new competition at the same time as British product withdrawals is summarised, for the US market, in Exhibit 8.

Market shares have clearly fallen drastically, but overall sales volumes of British bikes have remained relatively constant. It is therefore sometimes argued

#### EXHIBIT 8

##### Big bike product ranges and market shares: 1969 and 1973

	450-749 cc Class		750 cc Class		>750 cc Class	
	British*	Others†	British*	Others†	British*	Others†
<i>1969</i>						
No. of models	4	4	3	2	—	2
Sales (000 units)	25	23	4	4	—	12
Market Share	49%	45%	49%	48%	—	100%
<i>1973</i>						
No. of models	2	8	3	5	—	3
Sales (000 units)	12	125	21	83	—	46
Market Share	9%	90%	19%	76%	—	95%

\* BSA, Norton, Triumph

† Harley-Davidson, Honda, Kawasaki, Suzuki, Yamaha

Source: Various



that there is a distinct market segment for British bikes and that buyers of British bikes will tolerate no other product. Market research in fact shows that only 28 per cent of owners of Triumph motorcycles repurchase another Triumph, the remainder dividing their purchases amongst other marques fairly much in proportion to their market shares. It is also noticeable that the shortage of Triumph Twins in 1974 and 1975 has had little impact on Norton's market share. There is, of course, some loyalty to British marques, in the sense that, for example, Triumph's market share amongst previous Triumph owners who are now making new purchases is higher than amongst non-previous Triumph owners. But Triumph does not enjoy substantially more loyalty of this kind than its Japanese counterparts. The idea that certain buyers will tolerate nothing but a British bike is plainly false for the great majority of those who in the past have purchased British bikes.

There is, however, a small core of highly loyal buyers. This is shown—in particular for Triumph—by the events of the last two years. The Bonneville has been out of production since late 1973, and spare parts have been very scarce for two years. The Trident ceased production at the same time, and was not fully reintroduced for nearly a year. Both the Trident and the Commando, in their 1975 electric start models, are priced nearly \$400 above the new Kawasaki 900 cc Z-1 in the USA. Repeated newspaper articles question the future viability of the British industry. Yet, despite all this, some sales are still being made. Clearly these developments in the last two years have damaged the reputation and desirability of British products a great deal, and sales levels have fallen correspondingly, but it is perhaps surprising that they have not fallen even further. Repurchase intentions in 1974 show Norton slightly down on its previous share, with Triumph at a similar level. There is residual support for the British bikes, but the present models at their present prices will lead only to a specialised, low volume market position.

It is also sometimes argued that the reason for British share loss was really the lack of available product; production and distribution difficulties have been blamed for failing to get products into the showrooms of dealers in sufficient quantity and at the right time to capitalise on the underlying demand. Now it has for many years been the policy of BSA/Triumph to "sell out" of their products; that is, to restrain capacity increases despite the growth in the market and produce an insufficient quantity of machines to satisfy demand. In the short term this tends to insure the maintenance of prices and margins, a measure of exclusivity for the product, and a relatively easy match between production scheduling and market sales. The same policy has been pursued by Harley-Davidson.

While this policy may have constrained sales in Triumph's hey-day in the mid-sixties, we have found relatively little evidence that lack of availability—for this or any other reason—was a major problem in the 70's. A comparison of Triumph's monthly stock levels in the US distribution system with sales from the distribution company to dealers shows that overall stock shortages were not a particular problem. For specific models in specific months—and the Bonneville 750 in early 1973 is an example—there were stock shortages, but it was only BSA that had a major problem across the whole range, when it completely missed the 1971 selling season. How far the availability problems of

particular models influenced their overall sales it is hard to say, but it must be remembered that all manufacturers tend to run short of their most popular models; even Honda cannot supply the full demand for the Goldwing at present. We therefore believe that availability was neither a particularly pervasive nor a particularly severe problem for Triumph during the 1970's, and that loss of market share can be attributed to only a limited extent to this cause.

A final point concerns the 1971/2 re-styling of the BSA/Triumph bikes. A "new look" was introduced which clearly failed to find favour with the market and these were poor years. But the evidence of both late 1972 and 1973, when the motorcycles had regained their "traditionally British" look, would suggest that even without this problem, British models would have been on a sharply declining market share trend.

In product terms, the British loss of share can, therefore, be attributed to the following main causes:

1. Entry of several new competitors with a variety of new and up-to-date models to the cc classes where the British compete
2. Failure of the British to introduce any new models since the Trident in 1968
3. Withdrawal of British models of 500 cc and 650 cc displacement, and concentration on a more limited segment of the market (750 cc and above).

The overall effect of these factors in the market place has been grave, and is shown clearly in Exhibit 9 which plots market share trends for BSA, Norton and Triumph since 1968 in the USA.

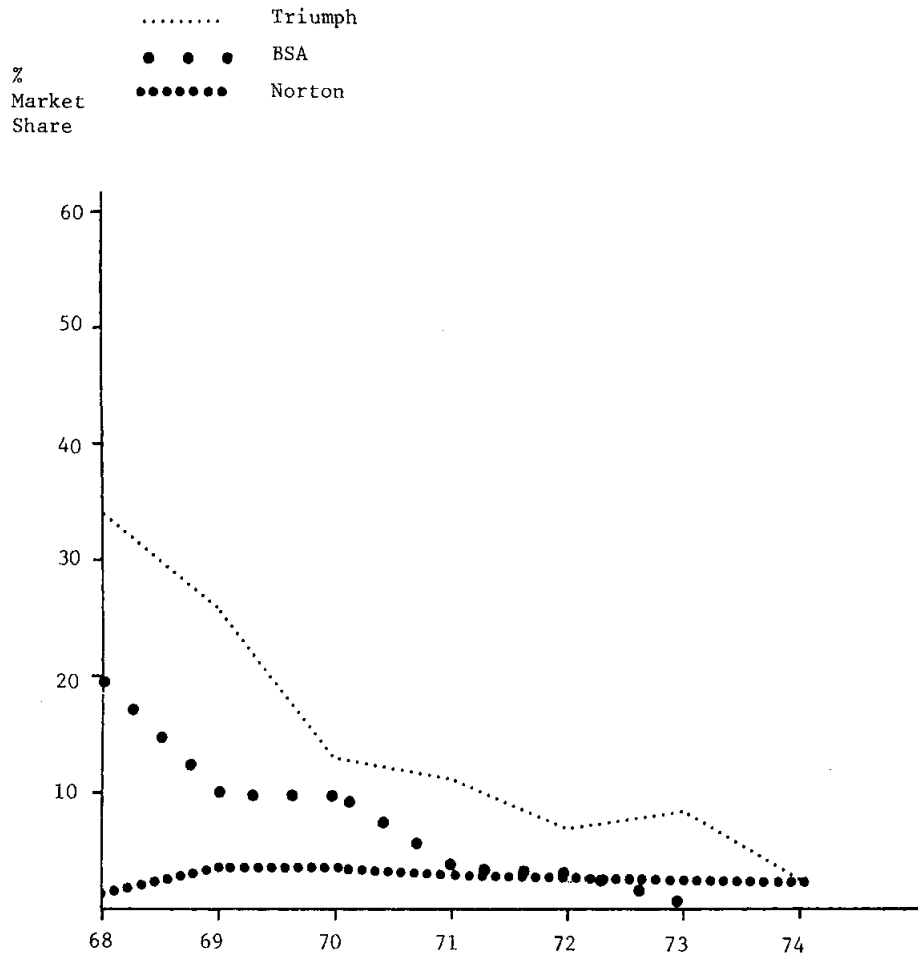
#### **Selling and distribution systems**

We have argued that a competitor's selling and distribution system and his dealer network are important influences on his market share position. An understanding of the present British market situation therefore requires an assessment of strengths and weaknesses in these areas for each major world market.

*The USA and Canada.* NVT is represented in the USA by its subsidiary company Norton Triumph Corporation Inc. This company attempts to offer a full range of s and d support, but is inhibited in the quality and depth of this support by the relatively low volumes currently being sold. Norton Triumph's advertising and promotion budget, for example, is only \$800,000 as against over \$10 million for Honda. Disparities of this kind obviously imply that Norton Triumph's market position is weak in comparison to the wider line Japanese competitors.

What is more, Norton Triumph's marketing network has been growing weaker in the last three years. Lower volumes have led to enforced economies in the Norton Triumph organisation, thereby curtailing the sales support it can provide. And there has been considerable decay in the dealer network. In 1972 in the US BSA/Triumph had 850 dealers and Norton had 750. By 1975 a *Motorcycle Dealer News* survey showed only 408 dealers describing themselves as holding the Triumph franchise, and indeed it is the expectation of Norton Triumph Corporation that by the time they have eliminated all the dead wood from both the Norton and the Triumph dealer networks, they will be down to about 400 active dealers in total. All this must have weakened the s and d system for British motorcycles.

### Market shares of motorcycles $\geq 440$ cc USA 1968-1974



Source: R.L. Polk

However, the long history of British models in the US market, and the success they enjoyed during the sixties, has established some firm and loyal contacts for Norton Triumph in all parts of the trade. Triumph has for long been regarded as one of the "big six" manufacturers—with Honda, Yamaha, Suzuki, Kawasaki and Harley-Davidson—for the US market. Consequently press coverage of British products is good, dealer loyalty is often surprising, public awareness seems to be well in excess of what could be expected from a one or two per cent market share, and the Bonneville even continues to play starring roles in Hollywood films. There is a base on which to build, even if it has been eroded by competitive advances and by the decline of the British as a force in the market in recent years. Norton Triumph's competitors are now far more firmly entrenched, and it will be an uphill battle to regain position from them, but the basic organisation of the selling and distribution system is in place, and there is goodwill in the market on which to draw, though at present it is largely latent.

British distribution in Canada is handled by Norton Triumph Canada Ltd., which maintains a lower profile in the market than its opposite number in the US. In Canada the volume base is however much smaller, and NTC's selling and distribution system is pitched in line with these volumes. The competitive standing of the British manufacturers is, therefore, similar to their position in the USA.

*The United Kingdom.* Nationalism is a force with purchasers of motorcycles, and the local producer in any country enjoys a market share well in excess of that which is achieved in foreign countries. Norton and Triumph are no exception to this rule, and their market shares of superbikes in the UK (Norton 33 per cent in 1974, Triumph 38 per cent in 1973) remain very high. These market shares also reflect the strength of NVT's dealer network and selling and distribution system for the UK, relative to other non-national manufacturers. The lack of a range of bikes has had its impact on this position of strength, but the UK evidently remains a market on which NVT exercises a considerable hold.

*Other European Countries.* The responsibility for sales in both the UK and other European countries rests with Norton Triumph Europe. NTE has appointed a variety of importers for all European countries in which they are active with the exception of France where Norton is covered by a very small wholly owned subsidiary in Paris, while Triumph continues to be handled by CGIM, the old importer.

British sales in these quite substantial markets have been extremely low. It is claimed that British products are unsuitable for European riding conditions, in the sense that their lack of consistent reliability is regarded as particularly damaging by European riders who like to be able to travel long distances without trouble on their motorcycles and who value the traditional strengths in handling, styling and performance less highly than the British and Americans. Our impression is, however, that European riders would be no less attracted by a British model that really did perform and handle well, and which retained the British look in terms of styling, than would the Americans or the British, and

that their insistence on reliability is reasonable and no more than confirmation of a criticism that has been levelled at British bikes in every market. Of course, to the extent that current British models are unreliable and do not actually offer superior performance, they constitute poor vehicles for establishing a stronger position in European markets. Nevertheless the question remains of why, in the past, the British share of market in Europe has always been so much weaker than in the UK and North America.

The main explanation for this weakness must be the very limited historical commitment to establishing selling and distribution systems in European countries by British manufacturers. Importers in the European countries have been expected to pay prices for British products which were little below the prices to *dealers* in the UK. This pricing policy insures either that the retail price of British machines is too high, or that the importer has an insufficient margin to allow him to develop a suitable sales and distribution system, or both. It is also a reflection of the attitude that European sales are incremental, an inessential and limited part of the total sales effort which should provide high contribution levels on each machine sold in return for a minimum of investment in market development. In Germany, for example, NTE have been unwilling to invest £3000 to obtain general homologation\* for their 1974 models, preferring to treat each machine sold as a separate case, an attitude that can only make sense for a supplier who expects to achieve very low volumes.

The current market position in European countries is therefore very weak. The Triumph and Norton names are known to the enthusiast in most European countries, and there is some familiarity with these markets in NVT; beyond that, all remains to be done in terms of developing a respectable market presence.

*Rest of the World.* Norton Triumph has a sales subsidiary in Australia and makes some sales both there and in New Zealand. Other markets include South Africa and the Middle East. However in most markets outside of North America, Europe and the British Commonwealth, NVT has no real on-going representation or established market position.

### **The situation in 1975**

NVT's sales in 1975 have reflected the depressed state of the North American market. This situation has been caused by the severe economic recession in the US, and we can expect a much stronger market in 1976 and 1977.

Since full market data on the US has not yet become available, it is impossible to say whether the recession has hit all cc classes equally. BMW and Harley-Davidson, both superbike specialists, have suffered less severe setbacks than the market as a whole. Also recent newspaper reports in Japan have claimed that Honda have not suffered a decline in exports for bikes over 500 cc. Furthermore, exports of the 1000 cc bike are supposedly well ahead of schedule and production facilities have been expanded to increase monthly production from 4000 to 5000 units. Japanese exports of big bikes to the US are said to be close to 1974 levels. All this indicates that it is quite likely that overall superbike sales in the US have suffered a relatively minor decline, if at all. Thus both

---

\* Homologation: the process of demonstrating to the authorities that a particular model passes the legal requirements of a country.

Norton and Triumph have clearly lost even more market share in 1975. This is not surprising in the light of the 1975 model prices. Indeed if 1974 models were not still being sold at their lower prices, Norton and Triumph's shares would be lower still. If the British industry wants to maintain any sort of market position with its existing models, prices will have to be brought down to much more competitive levels as soon as possible.

### **The British marketing philosophy**

Just as there was a discernible marketing philosophy running through the policies of the Japanese competitors, so there appears to be a British marketing philosophy. The fundamental feature in this philosophy is its emphasis on model by model profit levels. It is seen as essential that throughout its life cycle each model, in each market where it is sold, should yield a margin of profit over the costs incurred in bringing it to the market. With this as the primary goal, a number of subsidiary policies follow:

1. Products should be up-rated or withdrawn whenever the accounting system shows that they are unprofitable. Unfortunately the accounting system will be based on existing methods of production and channels of distribution, and not on cost levels that could be achieved under new systems and with different volumes. It will also overlook the effects that each model may have on the costs of producing and marketing other models in the range, and on the saleability of other products in the range. Under competitive pressure it leads to a focus on high cost, high margin business, regardless of volume and market share.
2. Prices are set at the levels necessary to achieve profitability—and will be raised higher if possible. The second order effect that loss of volume may have on costs and hence on profit in the longer term is taken less into account.
3. The cost of an effective marketing system is only acceptable in markets where the British are already established, and hence profitable. New markets will only be opened up to the extent that their development will not mean significant front end expense investment in establishing s and d systems ahead of sales.
4. Plans and objectives are primarily oriented to earning a profit on the existing business and facilities of the company, rather than on the development of a long term position of strength in the industry.

These are the policies that have led to the British industry's low and falling share of world markets, and to its progressive concentration on higher and higher displacement models. What is more, profitability, the central, short term objective to which these policies have been directed, has in fact deteriorated in the longer term to levels that now call into question the whole viability of the industry.

In the next chapter we shall examine the commercial performance of the industry directly and see how the fundamental economics of the motorcycle business have in fact insured that the type of marketing philosophy outlined above led inexorably in the long term to the exact reverse of its short term profit goals.

# THE ECONOMICS OF THE MOTORCYCLE BUSINESS

## Introduction

The commercial performance of the British motorcycle industry has deteriorated severely between the sixties and the seventies. BSA/Triumph, which had been profitable—though never spectacularly so—in motorcycles during the sixties, began to sustain heavy losses in the seventies. Including provisions for reorganisation, etc., the company lost roughly £13 million before interest in the years 1971 to 1973. Norton Villiers, which started the seventies in a profit making position, began to lose money in 1973. The combined company, Norton Villiers Triumph, has continued to make losses since the merger. [Reference to NVT's current financial position deleted for commercial security]. Yet at the same time as the British manufacturers have been losing money, the major Japanese manufacturers have been quite profitable, as shown by the summary of comparative financial performance given in Exhibit 10.

It is not the case that the motorcycle industry as such is now an impossible business in which to be profitable. Rather, there are some key underlying factors influencing commercial performance which allow the Japanese to be profitable, while the British make large losses. In the previous chapter, one major difference between the British motorcycle manufacturers and the Japanese was discussed in detail: the Japanese have achieved huge and growing production volumes whilst British production volumes have been static at a much lower level and, more recently, have even declined. The volume differences and profitability differences are in fact closely inter-related. The purpose of this chapter is to examine this economic relationship in some depth in order to provide a foundation of economic understanding. This foundation will be essential later in this report when we consider the commercial implications of alternative future strategies for the British motorcycle industry.

### The importance of relative costs

It is clear from the market analysis that price levels in the market place have essentially been dictated by the Japanese for the last ten to fifteen years. The British manufacturers have, if anything, tended to price at a premium relative to the Japanese. The conclusion is inescapable: the British companies' losses stem from a *cost* position which is not competitive with that of the Japanese\*.

At its most basic, the primary objective of commercial strategy must obviously be to achieve a position such that your costs incurred in making the product concerned and delivering it to the relevant market are as low or lower than your competitors'. The degree to which a company succeeds or fails in realising this objective will determine its viability in the business. The economic analysis undertaken in this chapter must therefore focus on developing an understanding

---

\* Provided, of course, that the Japanese manufacturers are not subsidising losses in the products in which they compete with the British with profits earned elsewhere. This question is examined in some depth later in this chapter in the section on Japanese Cost Performance, and it appears that there is no reason to suppose that any form of cross-subsidy is taking place.

**Motorcycle manufacturers: financial summary**

	Norton	BSA/Triumph	Honda Motor	Yamaha Motor	Suzuki
	Earnings	Earnings	Earnings	Earnings	Earnings
	ROI	ROI	ROI	ROI	ROI
1969/70 } 1970/1 }	£0.37m 4.5%	{ £0.4m N/A £(7.2)m loss	¥35.0b 24.6%	¥2.4b 16.2%	¥8.4b 18.8%
1971/2	£0.38m 7.3%	£(3.1)m loss	¥35.4b 19.6%	¥5.6b 30.2%	¥11.4b 15.8%
1972/3	£(0.02)m loss	£(2.9)m loss	¥34.2b 18.6%	¥8.8b 35.0%	¥10.6b 13.2%
1973/4		£(5.1)m loss	¥34.4b 14.8%	¥8.4b 22.8%	¥10.0b 11.4%
1974/5 (Est)		[deleted for reasons of commercial security]	¥32.0b 12.4%	¥9.5b 21.6%	¥9.0b 10.4%

Source: Annual Reports, NVT Group Accountant, BCG Tokyo

Notes: 1. Earnings are expressed before tax and interest, and include provisions for reorganisation, etc., in the case of BSA/Triumph, for which company the results of the motorcycle activities only are quoted.

2. ROI equals earnings divided by net assets at the end of the year.

3. In 1975 ¥1 billion = £1.5 million.

4. Year-ends: July for NVT, February for Honda, March for Suzuki, April for Yamaha. Data for Japanese companies is for Parent Company, not Group.



of the factors which determine the British motorcycle industry's present and potential future cost position relative to the Japanese.

As we shall see, it can be shown that these key factors distil down essentially to two: technology and scale. Technological learning and expertise itself tends to be related over time to scale and experience in a business, so it may well be that scale itself is the single primary, determining factor.

Viewed in this light it is clear that the poor historical marketing performance of the British motorcycle manufacturers, which resulted in the industry enjoying ever lower production *volumes* relative to the Japanese, itself tended to cause a progressive worsening of the British industry's *cost* position relative to the Japanese. The disastrous commercial performance of the British motorcycle industry in this decade has basically resulted from failure to understand the strategic implications of this relationship. Commercial success for the industry requires that means be found for escape from this vicious circle. Cost effectiveness relative to the competitors must be regained if the industry is to be commercially viable.

### **Cost effectiveness relative to competitors: the experience curve effect**

#### **Introduction**

It has long been recognised that the labour input required to manufacture a product tends to decline systematically with increases in accumulated production\*. The type of relationship involved—originally called the “learning curve”—has been frequently found empirically to apply also to the *total cost* involved in manufacturing, distributing and selling a product. The relationship can be expressed simply as follows:

- Each time the accumulated experience of manufacturing a particular product doubles, the total unit cost in real terms (i.e. in “constant money”, net of GDP inflation) can be made to decline by a characteristic percentage, normally in the region of 20 to 30 per cent.

The Boston Consulting Group has been able to explore this relationship in a broad range of industries in many different countries, and it has been found to apply extremely widely. The relationship is best illustrated by plotting real unit cost against cumulative production volume (a quantitative measure of “accumulated experience”). If logarithmic scales are used a straight line normally results, as shown in the schematic example in Exhibit 11. This line typically has a slope such that the unit cost drops to around 70 to 80 per cent of its former value for each doubling of cumulative volume, and is usually referred to as an “experience curve”. For interest, a variety of actual examples of cost and price experience curves is shown in Appendix 8.†

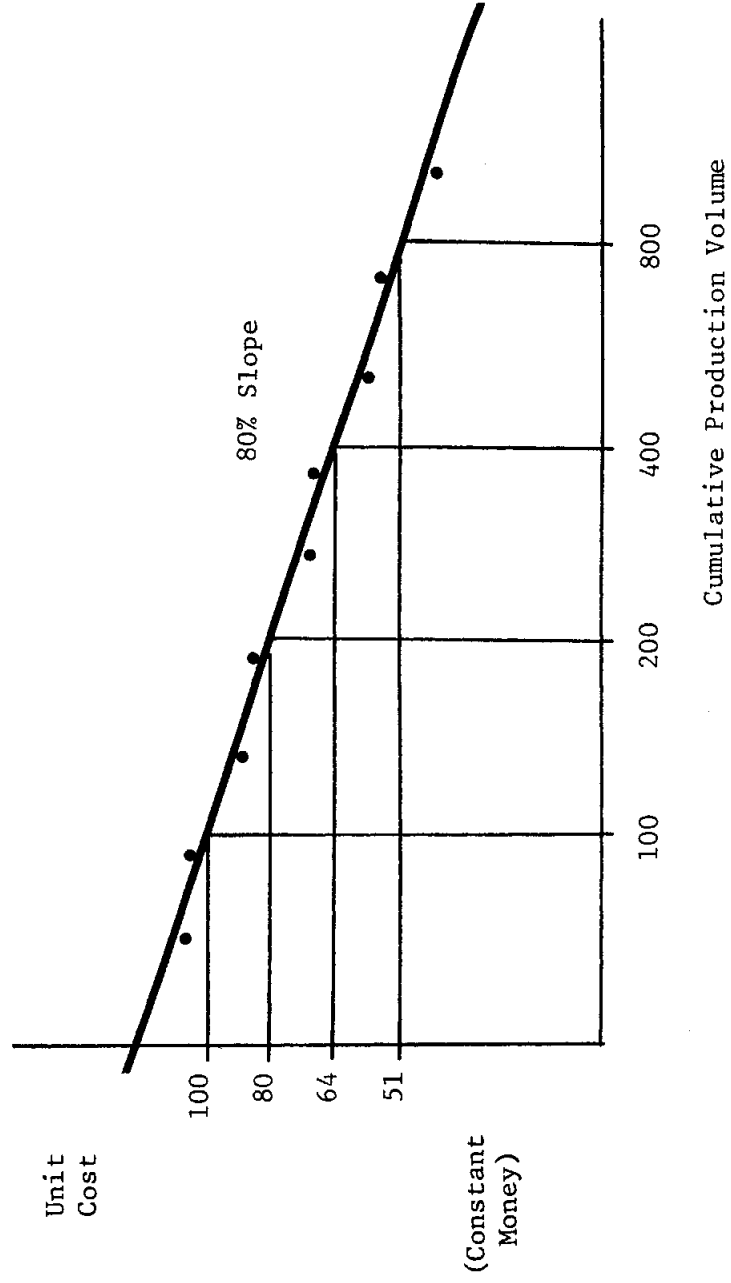
---

\* One of the earliest references to this phenomenon was “Factors Affecting the Cost of Airplanes”, Wright, T. P., *J. Aeron. Sci.*, vol. 3, pp. 122–128, February, 1936.

† For a full description of the experience curve effect and further examples of its application in practice see *Perspectives on Experience*, The Boston Consulting Group, Inc., Boston, 1972.

EXHIBIT 11

The experience curve (schematic)



Note: Each point plotted represents the data for a particular year in the product history.

### **Application to the motorcycle industry**

As overall market leaders, the Japanese have dominated pricing in the motorcycle industry. It is therefore appropriate to begin this analysis by examining the extent to which the experience curve concept appears to explain the performance of the Japanese. Unfortunately, it is impossible directly to determine unit cost performance data for competitors, since the data are not publicly available. Sources can be found, however, for unit price and production volume data. Over the long term, price behaviour is a useful guide to movements in the underlying costs, and so an experience curve analysis on prices can be extremely revealing.

*Japanese price performance.* In Exhibit 12, price experience curves are drawn for the Japanese motorcycle industry as a whole, based on aggregate data collected by MITI. These curves show price reduction performance of a consistent nature for each of the size ranges of motorcycle considered, the rate of price reduction being most rapid of all in the largest range, 126–250 cc, which is following an experience curve slope of 76 per cent. The other slopes are more shallow, at 81 and 88 per cent, but there is no mistaking the fact that real prices are descending smoothly over time. These experience-based price reductions clearly go a long way towards explaining the historical competitive effectiveness of the Japanese in the market place in small and medium motorcycles.

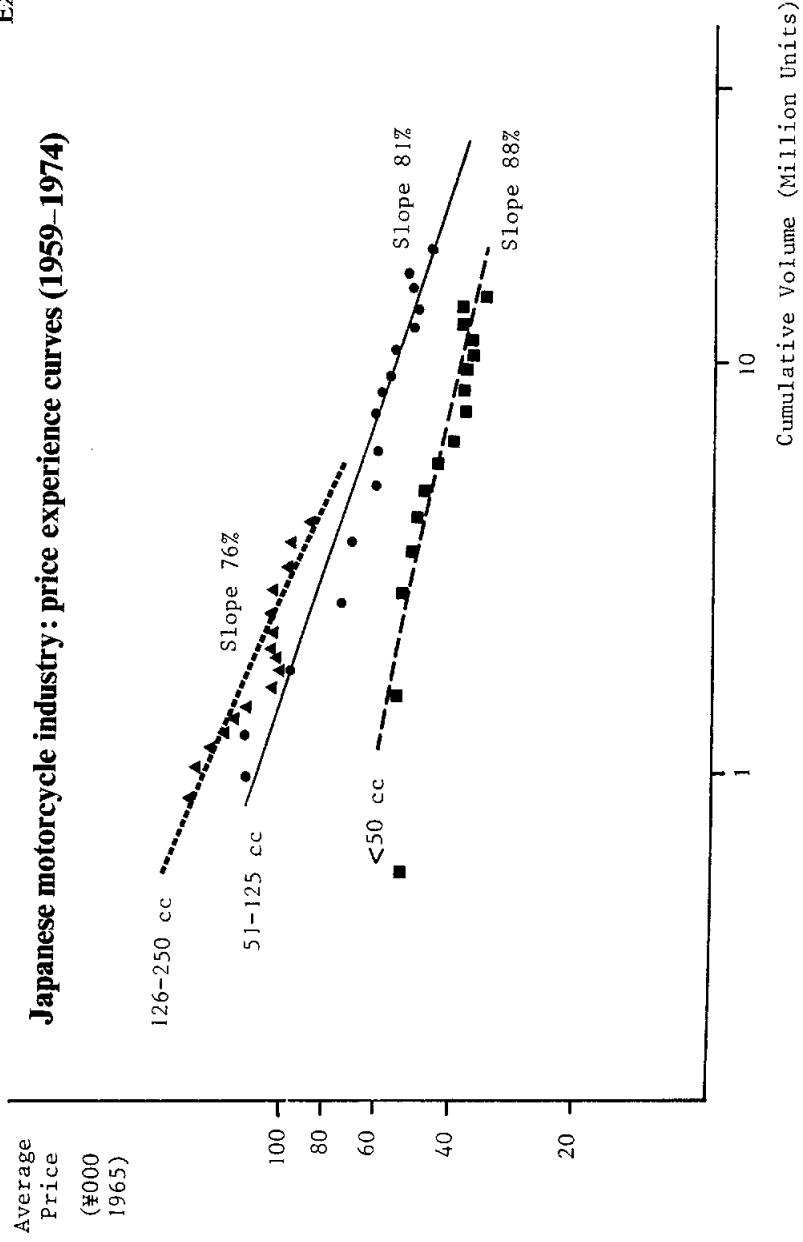
For the purposes of strategy development for the British motorcycle industry, it is necessary to look more closely at price performance in the larger bike models. The Honda CB 750 has been the pacesetter in superbikes in terms of both market penetration and pricing. In Exhibit 13, price experience curves are plotted for this product and for two other large Honda bikes. The prices of other Japanese manufacturers have been broadly comparable to Honda's in the equivalent size range (they usually tend if anything to price at a slight premium relative to Honda), so that we may use Honda as a good "benchmark" for the Japanese competition in big bikes in general.

It is clear from Exhibit 13 that price performance in the large bikes has been consistent with that in small: real prices have declined along experience curve slopes in the region of 85–87 per cent. This has also been true of the price in the United States, when converted into yen terms.

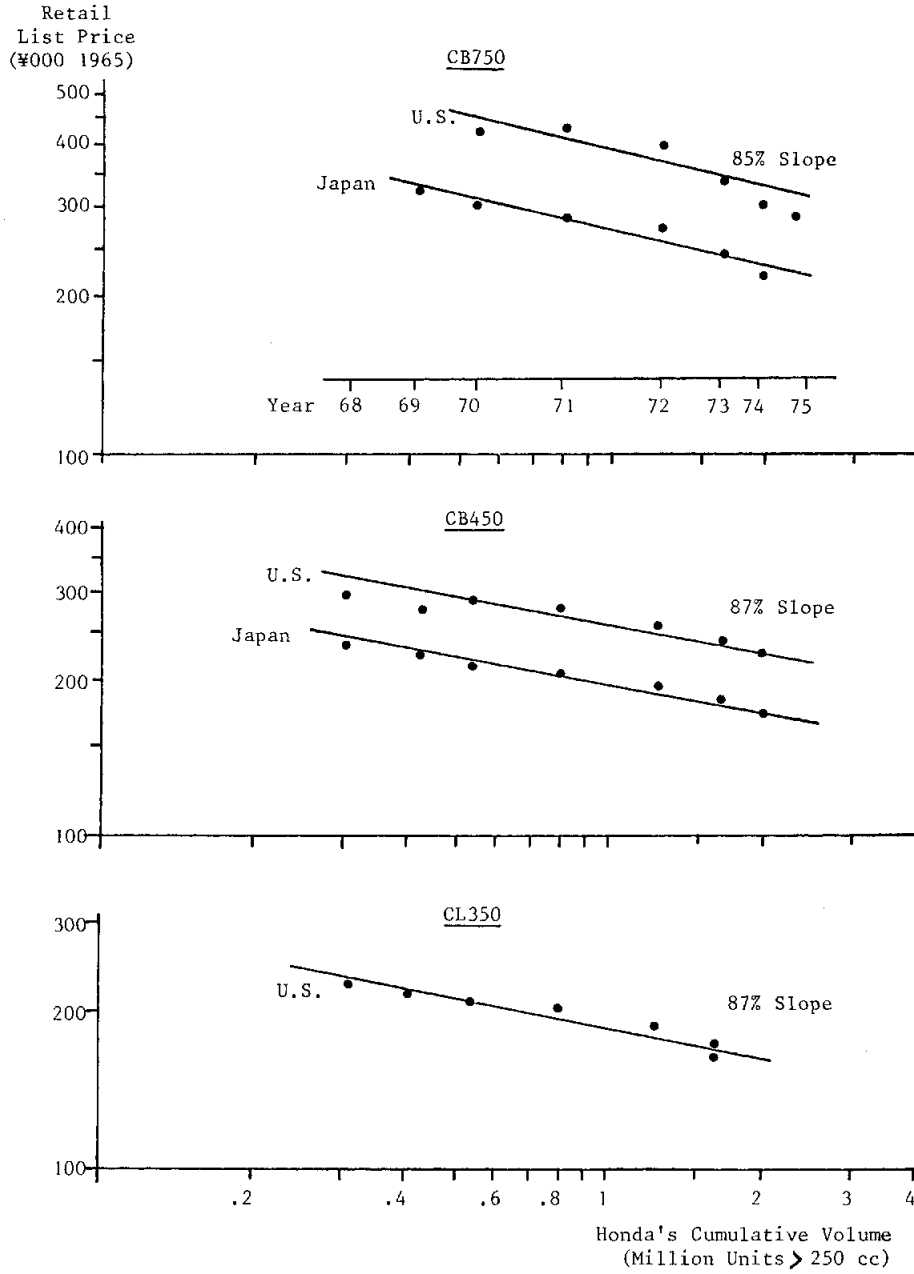
An interesting feature of the curves is that the prices in the U.S. are so much higher than that of the same products in Japan. As shown in Exhibit 14, the premiums are high across almost the entire range of bikes and are far larger than seems necessary, even allowing for the extra costs incurred for duty, freight and packing in shipping bikes from Japan to the United States. This certainly suggests that there is no possibility that the Japanese are "dumping" their products in the U.S. market: quite the reverse. Furthermore, it may well indicate that competitive though the Japanese have been in the United States, based on the downward trends in their real price levels over time, there may well be plenty of scope for them to be even more competitive in future if seriously challenged in that market. They could simply reduce their margins on exports to the United States to levels more in line with those enjoyed in their domestic business.

EXHIBIT 12

**Japanese motorcycle industry: price experience curves (1959-1974)**



Honda large bikes: price experience curves



*Japanese cost performance.* The implication of the downward trends in real prices for the Japanese is, of course, that there have been underlying experience-based cost reductions: that the decline has not been accounted for simply by a reduction in margins. As we have seen already, however (Exhibit 10), the major Japanese manufacturers have been continuously profitable, and this suggests that cost reductions have indeed taken place in parallel with real price reductions. On the other hand, all the Japanese motorcycle manufacturers also make a significant proportion of products other than motorcycles (in 1974 about 35 per cent of Honda's turnover, and about 40 per cent of Suzuki's, was accounted for by cars; of Yamaha Motor's turnover about 40 per cent was in products such as boats and snowmobiles). It is, perhaps, reasonable to question whether these products are sufficiently profitable to "subsidise" the motorcycle business.

A review of the three major Japanese manufacturers' financial performance is given in Appendix 9. Based on this review it seems clear that in fact none of these manufacturers is subsidising the motorcycle business from other businesses. Indeed Honda was actually losing money in its car business in 1974, which suggests that their motorcycle business that year may have shown returns of the

#### EXHIBIT 14

##### Honda price premium, USA vs Japan

*Premium on retail list prices, 1974*

<i>Model</i>	<i>¥000</i>	<i>Japan Price</i> <i>\$ Equiv.</i>	<i>U.S.</i> <i>Price (\$)</i>	<i>Premium</i>
CB 750	395	1411	2024	43%
CB 550	355	1268	1732	37%
CB 450	303	1082	1471	36%
CB 360	253	904	1150	26%
CB 350	275	982	1363	39%
MT 250	218	779	965	24%
MT 125	158	564	743	32%
CB 125	166	593	640	8%

*Premium allowing for freight, duty and packing*

CB 750, U.S. retail list price 1975	= \$2112
Price to dealer	\$1584 (75% of 2112)
Price to distributor	\$1373 (65%)
Japan list price	¥440,000 or \$1517 (equivalent)
Price to distributor	\$ 986 (65%)
Ocean freight to LA	60
Duty	63 (3% U.S. Retail Price)
Packing costs	40
	<u>\$ 163</u>

Thus, indicated price to U.S. distributor for equal manufacturer's margin to that on bikes sold in Japan = \$986 + 163 = \$1149

Thus, premium in U.S.A. even after allowing for freight, duty and packing =  $(1373/1149 - 1) \times 100$  = 20%

Note: The versions of the smaller bike models shipped to the States may be slightly more expensive than their Japanese equivalents (extra lighting, etc.). The versions of the larger bikes are, however, reported to be identical in both markets.

order of 20 per cent (BIT) compared with the 12.4 per cent return earned by the company overall (Exhibit 10). The overall inference from this profit performance must be that each manufacturer has indeed achieved an experience curve effect on costs in parallel with those achieved on price. The existence of this experience curve effect in the motorcycle industry has important strategy implications.

#### **Competitive strategy implications**

As we have discussed, failure to achieve a cost position—and hence cost reductions over time—equivalent to your competitors' will result in commercial vulnerability. At some point your competitors will start setting prices which you can not match profitably, and losses will ensue. The strategic importance of the experience curve is that it explains clearly the two possible long term causes of uncompetitive costs:

- Relative growth: failure to grow as rapidly as competitors, thereby progressing more slowly than them along the experience curve
- Relative slopes: failure to bring costs down the characteristic experience curve slope achieved by competitors.

#### **Past British strategy and commercial performance**

The first of these factors would appear to be the major cause of the poor commercial performance of the British motorcycle industry. It provides a new strategic perspective on the significance of the loss of market share by the British industry and the high volume strategy of the Japanese.

The Japanese began by developing volume and experience in small motorcycles in their domestic market during the fifties. Experience curve related cost reductions followed, leading to a highly competitive cost position which was used as a springboard for penetration of world markets. As we saw in the previous chapter, the British manufacturers tended to respond by withdrawing from the small bike segments of the market which were being hotly contested by the Japanese with their superior costs. The Japanese progressively developed greater volumes and experience in ever larger capacity ranges of motorcycles. As they did so, their relative cost position in these motorcycles also improved and their prices, which were brought down in line with costs, became increasingly difficult to match. The larger bike segments were therefore also withdrawn from over time in their turn, as the non-Japanese competitors, and in particular the British, retreated to higher and higher displacement classes of motorcycle.

Useful strategic insight can be gained by examining the reasons which may have led to the failure of the British motorcycle industry to halt the advance of the Japanese during the sixties. In the early and mid sixties this was probably due at least in part to complacency and an erroneous belief that the Japanese were unlikely ever to be a threat in larger bikes, which were "more difficult to make". Although smaller manufacturers had been driven out of business, the largest company in the industry, BSA/Triumph, was profitable through the sixties as shown in Exhibit 15.

Given the tendency toward short term profit orientation of the British industry, this continuing profitability no doubt encouraged any feelings of complacency

to persist. In any case profitability was not sufficiently high readily to permit investment at a rate comparable to that of the Japanese. The latter had achieved higher rates of profitability and this, combined with financial policies involving high gearing, enabled them internally to fund rapid rates of growth. This is illustrated in Exhibit 16 using up-to-date information for the 1970–74 period; the Japanese companies' financial characteristics were quite similar to this right through the sixties.

Continuing profitability for the British following this strategy depended critically on the growth in the motorcycle market being sufficient to offset their "segment retreat". This was in fact the case during the sixties so that although they were participating in narrower and narrower segments of the market, these segments were themselves growing rapidly. As a result, overall production volumes were broadly maintained at the 80,000 unit level throughout the period as shown earlier in Exhibit 1. This meant that the factories continued to be fairly busy, and because at any point in time the Japanese were not yet strong in the segments to which the British had retreated, the business remained profitable.

*Segment retreat strategies.* Strategies of this kind, in which competitors who are initially fairly strong and broadly based in the market progressively retreat over time to the lower volume and more specialised segments, are frequently encountered in industry. They normally owe their origins to an excessive focus on short term profitability and often do produce profits for quite long periods of time, as with the British motorcycle industry. In the long run, however, they are almost always disastrous. The reason for this is that they allow the new competitors who are penetrating the higher volume segments of the market to become larger and more powerful over time, and—based on experience curve cost reductions—to develop high and secure profits in the segments which the retreating competitors have vacated. This gives the new competitors a tremendous position of strength from which, ultimately, they can be expected to attempt to penetrate the last segments to which the smaller retreating competitor has withdrawn. And he now no longer has the resources to withstand this this attack.

## EXHIBIT 15

### BSA financial performance during the sixties

Year	Sales	Earnings Attributable to Ordinary Shareholders	Net Assets	ROA %
1960	N/A	£1.54m	£21.1m	7.3
1961	N/A	1.25	27.1	4.6
1962	N/A	0.67	21.5	3.1
1963	N/A	0.48	23.5	2.0
1964	£33.1m	0.71	24.0	3.0
1965	40.3	1.97	25.9	7.6
1966	46.6	2.16	30.2	7.2
1967	35.5	1.88	31.8	5.9
1968	36.5	2.01	26.8	7.5
1969	33.9	0.41	29.4	1.4

Note: Data no longer exist for separating the results of the motorcycle activities from those of the Group for this period. It would seem however, that motorcycles were major contributors to Group profits throughout the period.

Source: Moodies.



## Financially sustainable growth rates 1970-74

Company	Average Return on Net Assets, R (AT, BI)	Average Gross Debt/Equity Ratio, D/E	Average After Tax Interest Rate on Debt, i	Average Dividend Payout, p	Sustainable Growth Rate, g*	Actual Net Asset Growth
Honda (Group)	7%	3.0	2.5%	0.30	14%	14%
Yamaha	12%	1.0	3.0%	0.15	18%	21%
Suzuki	6%	2.7	3.0%	0.50	7%	10%

45

*Comments:* Basically good profitability, combined with a relatively high use of debt and low dividend payout, enables the Japanese companies to sustain high rates of growth (Suzuki is clearly weaker than Honda and Yamaha in this respect). British companies typically use less debt and pay higher dividends which limits their ability to grow. BSA in the sixties was no exception, with a dividend payout in the 0.5-0.75 region, and a very low D/E. Its sustainable growth rate through the sixties was in the region of 1 to 4%.

## \* Sustainable Growth Rate

The rate at which a company can internally finance growth is a function of its earning power, the proportion of earnings it retains, and the extent to which it gears up these retentions with debt. The relationship can be expressed in a simple formula, as follows:

$$g = \{D/E(R - i) + R\}(1 - p)$$

For a fuller description of this "sustainable growth formula", see *Growth and Financial Strategies*, The Boston Consulting Group, Boston, 1971.

Only two possibilities can result in a segment retreat strategy being successful commercially. The first is continued market growth such that the perpetual development of new segments creates a continuing avenue for retreat. These conditions rarely if ever persist indefinitely. In the case of the motorcycle industry they no longer exist, both because future market growth is likely to be slower and because the market appears to have reached a "natural" limit with respect to the sizes to which motorcycle engines can go without the machines becoming totally unmanageable on the road.

The second possibility involves calling a halt to the retreat and refusing to withdraw further. Commercial success will then depend on retaining a volume position *within the segment* such that your overall cost of manufacturing and selling products in the segment is as low or lower than the competitors'. Doing this is facilitated if "barriers to entry" exist making it difficult for the larger competitors to penetrate the segment. This is only infrequently the case, and certainly in motorcycles the Japanese have had little difficulty in taking a dominant share of the superbike segment, which is effectively the "last citadel" of the British manufacturers. The heavy financial losses incurred by the British in the last few years may be directly attributed to their failure to retain at least a superior share *of this segment* relative to the Japanese competitors. Indeed it seems clear that these losses were effectively an inevitable long term result of continuing with the essentially defensive strategic posture adopted by the British industry in the face of the emergent Japanese competition a decade or more before.

If these economic relationships now appear so clear in retrospect, it seems reasonable to probe deeper into the reasons why no action was taken during the sixties to halt the trend towards perpetual retreat. It is likely that the complacency and short term profit orientation which were the immediate cause of the continuing decline were themselves merely symptoms of a more fundamental underlying factor. There are a number of reasons for supposing that the British did not appreciate the critical significance of the economic interrelationship embodied in the experience curve effect. This perhaps resulted in part from the fact that—as shown in Exhibit 17—the British industry itself did not appear to be achieving reductions in real costs and would therefore be hardly likely to identify the strategic importance of the cost/volume relationship: the BSA "sell out" policy is the clearest symptom one could have of a failure to appreciate the strategic importance of maintaining volumes relative to competitors.

*Summary.* The British industry has found itself on the wrong side of *both* the key economic factors mentioned earlier: we have seen already that the industry was not achieving adequate relative *growth*; it now appears that it was not achieving an adequate experience curve *slope* either.

#### EXHIBIT 17

**The British motorcycle industry: real prices and costs**

[deleted for reasons of commercial security]

Any commercially viable strategy for the British motorcycle industry must seek to restore the competitive balance with respect to both these factors. Some

means must be found both for achieving real cost reductions and for reversing the effects of the volumes lost relative to the Japanese. It is therefore critically important first to develop a sound understanding of the specific factors which can give rise to experience curve cost reductions, and secondly, to establish the precise nature and extent of the Japanese lead in these factors so that we can form a clear view of the magnitude of the task involved in restoring the balance. These two topics form the subject of the remaining sections of this chapter.

## **Factors influencing experience curve performance**

### **Introduction**

Over time, and as a function of accumulated experience, a process of learning goes on in any business. This may influence the product design itself, either in terms of its technical and performance characteristics or in terms of the cost effectiveness with which it can be manufactured. The learning process also extends into the manufacturing area and will not only affect the technology of the production equipment used but also more mundane but vital areas affecting efficiency such as factory organisation, control methods and administration. The effects of learning may be important not only in the factories of the business under direct consideration but also in the factories of those supplying it with raw materials and components. Finally, the processes of learning and experience tend also to permeate the selling and distribution operations of the business, influencing marketing effectiveness.

*Cost structure.* The precise ways in which experience impacts on cost effectiveness vary from industry to industry and also vary depending on whether one is examining production, marketing, or other functions within the business. The relative importance of different elements of cost also varies between businesses. In Exhibit 18, the typical cost structure for the British motorcycle industry is displayed schematically. [Detailed analysis of cost structure deleted.]

### **EXHIBIT 18**

#### **British motorcycle industry: cost structure**

[Deleted for reasons of commercial security]

The costs and value added of the British motorcycle industry divide into three major elements, of roughly equal magnitude and importance:

- Selling and distribution
- Production (factory value added)
- Purchased materials and components.

We shall examine the factors influencing experience curve performance in each of these elements in turn.

#### **Selling and distribution**

There are a complex variety of costs involved in selling and distribution.

Certain of the costs—duty, freight and landing charges—are effectively fixed. Costs in the marketing company (NTI) are, however, subject to some reduction as volumes expand. This reduction should stem partly from improved administrative effectiveness as a function of experience, and partly as a function of overall scale, spreading costs such as those associated with the warehouse, the preparation of marketing literature, monitoring of legislation and so forth, over a larger total volume. The NTI costs overall are, however, fairly small [detailed figure deleted].

The major element of s and d costs lies with the distributor in each market. These [detailed figure deleted] cover the expenses of the sales force, the physical distribution of the product, and dealer support and training, in addition to the obvious expenses of headquarters administration and advertising. The manner in which these costs can vary as a function of volume is discussed in some detail in the appraisal of the U.S. motorcycle market in Appendix 1. To summarise the conclusions of that appraisal: it would seem that in the short term these costs are fixed. Long term, however, they are basically discretionary: as we saw in the preceding chapter the quality of s and d systems varies significantly between competitors. The larger a competitor is in terms of market share, the more he tends to spend on s and d. This is interesting, because in fact one would expect unit costs to fall as a function of increased *overall* sales volume, to be further improved if sales *per model* are high, and to be improved yet again if the average volume *per dealer* is high. Each of these factors tends to increase as market share increases, and yet we see the individual competitors spending more on s and d as their size grows, rather than allowing the scale-based increase in cost effectiveness to reduce their costs.

The reason for this seems to be a conscious decision by the manufacturers: instead of reducing costs through rising scale and experience in s and d, they prefer to deliver more “value”, hence tending to stabilise their higher market share position. Thus both Yamaha and Norton Triumph have distribution expenses in North America which amount to about 20% of sales, despite their tremendous market share/volume disparity; each of the major contenders in the market spends about 2% of sales on advertising; and so forth.

This, then, appears to be the mechanism by which the experience curve effect operates in the s and d function: increased scale and volume at the overall, per model, and per dealer levels, enable the provision of a superior quality system at the same unit cost. The increased effectiveness is thus built into added value, rather than reduced cost.

*Dealer margins.* Although the dealer is not under the direct control of the distributor, it is perhaps worth mentioning that increased dealer and model volumes allow the dealer to turn his stock over more rapidly and hence operate at a good return on investment with a lower margin on sales. Thus high volume Japanese dealers can frequently offer 5–10% discount off retail price whereas dealers in lower volume bikes rarely discount. This is a benefit from scale at the dealer level which is immediately reflected in a lower price to the retail customer.

### **Production**

A representative breakdown of the factory cost structure for a British motor-

cycle is given in Exhibit 19. In this section we shall focus on the factory “value addition” processes, which as can be seen from the Exhibit divide into three main areas: engine part machining, cycle part manufacture, and—of rather less importance—assembly (of both engines and finished bikes). There is scope for experience-based cost reduction in each of these areas. The bases for the cost reduction are twofold. First, there is the cumulative learning effect, which over time can influence all technological and organisational factors associated with the design and manufacture of the product. Secondly, there is the influence of current volume and scale, which frequently affects the extent to which the most up-to-date technology can be applied in practice, and the degree to which production facilities can be specialised and focused.

## EXHIBIT 19

### Motorcycle factory cost structure

[Deleted for reasons of commercial security]

Growth, as well as total current volume, is also important. The growing competitor will need to invest in equipment continually to provide the capacity for expansion. This enables him to use the most modern production equipment and methods, the technology of which will itself reflect the cumulative influence of volume and learning over time. Modern developments in production technology normally focus on increased productivity. This can only be achieved sustainably over time by increasing the capital and reducing the labour content in the manufacturing process. With growth, there is no need for a redundancy programme to implement the new methods. This helps rapidly growing competitors such as the Japanese to realise their full experience curve cost reduction potential in practice.

The extent of the production cost reduction potential in the motorcycle industry varies at different stages of the manufacturing process. At the overall level, the total range of manufacturing methods and technology open to a company is both a function of that company’s accumulated experience in the business concerned and, to a certain extent, a function of overall engineering industry experience in the form of generally available machine tools and commonly known methods. Virtually all of the machines and methods used in motorcycle manufacture in the West involve technology which is generally available from independent machine tool manufacturers. In Japan, however, it is much more common to find the motorcycle manufacturers also designing and making, under conditions of high secrecy, their own specialised equipment. The general level of technology they employ in these machines will therefore tend to reflect their own superior cumulative production experience in motorcycles.

Whatever the general level of technology which a company has reached as a result of its overall production experience, the cost reduction process within the constraints imposed by that technology tends to be similar. For any manufacturing step, the company normally finds that the methods available to it vary across a spectrum. At one end of the spectrum, with the simplest (and usually oldest) technology, fixed costs are low but variable costs are high:

these methods are labour intensive and cost effective only at lower output volume levels. At the other end of the spectrum one finds capital intensive methods, using more complex and modern technology: fixed costs are higher, but variable costs are lower. These methods offer the potential of very low unit costs, but require high output volumes.

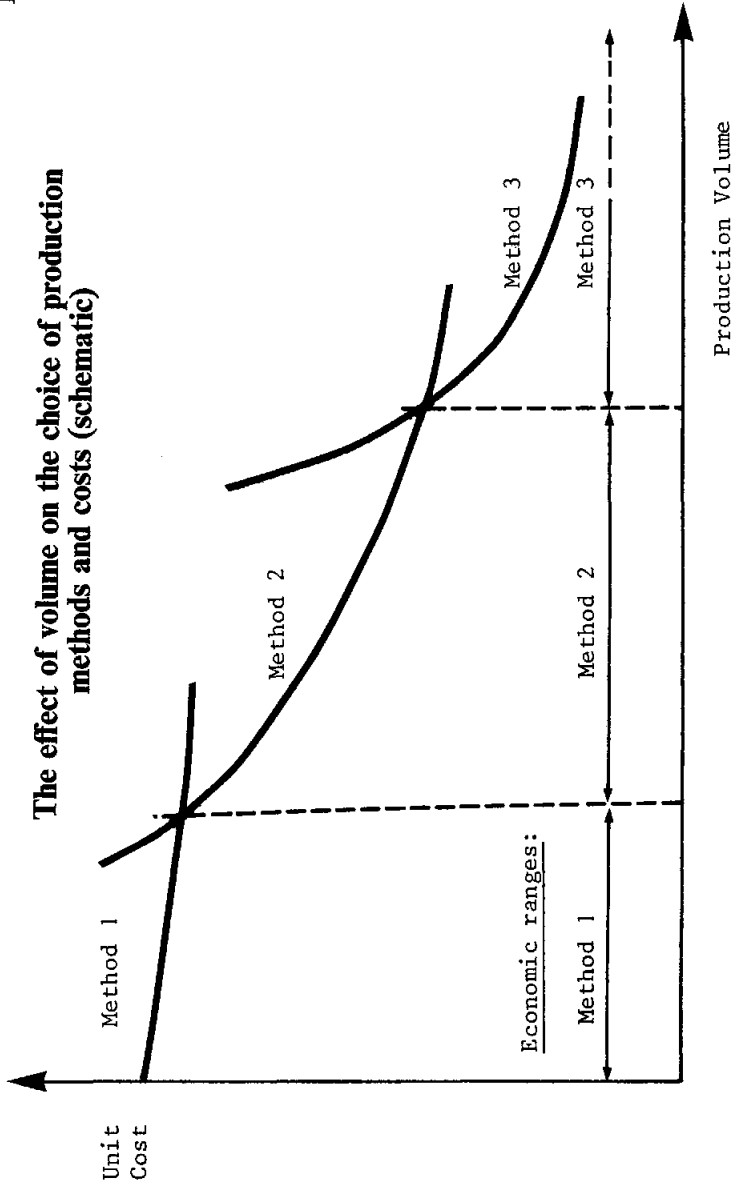
This general range of choice is illustrated schematically in Exhibit 20. In practice, the significance of the possible impact of the choice of different methods varies depending on the stage of the manufacturing process under consideration.

*Engine parts.* Manufacturing methods can reach their most sophisticated levels in the production of the engine parts (including the transmission). Engine part machining affords an excellent example of the general cost reduction process described above. The ability actually to apply the best technology depends critically on the output volume required for the part concerned. At low volumes, highly labour intensive methods are used involving general purpose equipment which embodies little automation and performs relatively few operations per machine. Because each operation is controlled manually, the costs vary very little with volume using this method. Given a suitable product *design*—and this is essential—more automated methods can be used at higher volumes. These might still involve the use of fairly general purpose machinery, but arranged around “rotary index” tables and more automated in operation. Finally, at the highest volume levels, very highly automated and specialised in-line “transfer machines” can be used. These have a very high capital to labour ratio and require extremely high volumes: whereas rotary indexing begins to be economically justified at output levels of roughly 5,000 units per month, in-line machines might require more than 10,000. They are also relatively inflexible machines and can accommodate only minor variations in product design.

The overall range of choices for manufacturing methods tends to follow this type of pattern throughout the engine part manufacturing processes, and the potential cost savings, given high volumes per part, are quite high. Since these processes involve the largest elements of value added in a British motorcycle factory (Exhibit 19), they represent a critically important area on which to focus cost reduction attention.

*Cycle parts.* The ratio of value added to purchased material and components tends to be lower in cycle parts. Some of the components are effectively bought complete and assembled into the bike, for example electrical parts. The actual value added is mostly attributable to work on the frame, fork legs, exhaust system and wheels. Much of this work does not appear to be quite so amenable to high volume cost reduction techniques as engine part manufacture, although methods can unquestionably be streamlined and improved at higher volumes. For example, painting can be automated, jigs and fixturing improved, and so forth. Major savings can also come from design modifications, for example using more pressed parts in frames, rather than expensively milled steel tubes.

*Assembly.* At low volumes, assembly tends to be done by relatively small groups of workers, each performing quite a number of operations. Movement of the partially assembled machines is done by hand, although use will normally



*Notes*

Method 1 has low fixed costs but high variable costs. It is labour intensive and economic only at low volumes. At higher volumes, Method 2 is economic. This has a higher capital content, higher fixed costs, and lower variable costs. At even higher volumes, Method 3 offers the lowest costs. This is even more capital intensive and has the lowest labour content, but requires very high volumes to amortise the fixed costs.

be made of jigs and trolleys to reduce effort where possible. At higher volumes, motorised assembly lines can be used. The operations are divided more finely, more men are employed, and output per man is substantially increased. Again, however, the cost reductions achievable here with existing technology are not so significant as those possible in engine parts manufacture. In adopting this kind of assembly, it is possible to accommodate quite a lot of variation in product design, and even to run different bike models on the same line with only a brief changeover period. There is a great deal of skill involved in managing these changeovers, however, both administratively and also physically, in terms of the logistics involved in ensuring that all the right parts are available on time for assembly into the new bike model. This skill tends to be a function of accumulated experience.

#### **Purchased materials and components**

As shown in Exhibits 18 and 19, roughly half the factory cost is accounted for by purchased materials and components. The influence of volume on cost performance here derives first, from the increased buying power that comes with volume, and secondly, from the application of the experience curve effect to reduce costs within the parts supplier's manufacturing operations. The latter essentially follows the general pattern observed in the case of the motorcycle manufacturer's own production process discussed above; this need not be reviewed further here.

The other advantage, that of increased buying power, extends beyond the obvious benefits that derive from "volume discounts". Large customers not only enjoy better prices, they also receive better service. The supplier will take a greater interest in his large customers' needs and work closely with them to ensure that these needs are fully met. Small customers are, however, very much on their own, and frequently find that suppliers are not responsive to their needs. Thus volume can provide a tangible benefit in the quality of the relationship with suppliers which complements the extra cost effectiveness the supplier himself can develop in production based on the volume.

### **The British motorcycle industry: present cost effectiveness relative to competition**

#### **Introduction**

All of the factors outlined in the previous section have been building in effect within the motorcycle industry over the last fifteen years. Today the Japanese are much larger in both cumulative experience and current volume than the British industry. This has resulted in a massive disparity in cost effectiveness between the two.

In Exhibit 21 a productivity comparison is made between the British and Japanese motorcycle industries. Examining the data, there seems to be a fairly clear relationship between high output volumes and high productivity, as the experience curve would lead one to expect. Even at the total company level, Honda produce over 100 bikes *and* over 20 cars per employee per year; this must equate to something well over 200 "bike-equivalents" per year. At the factory level (which is more comparable with the British figures), Honda's



Suzuka factory—the largest motorcycle factory in the world—probably produces more than 300 bikes per man; the other Japanese factories have productivity figures in the range 100–200 bikes per man.

#### EXHIBIT 21

##### Motorcycle industry productivity comparison

	<i>Motorcycle Output</i>	<i>Motorcycles per Man-Year</i>
<b>BRITAIN</b>		
Small Heath Factory 1975	10,500	10
Wolverhampton Factory 1975	18,000	18*
Meriden Factory 1972/3	28,000	14*
<b>JAPAN</b>		
<i>Honda</i>		
Total Company	2 million	106 bikes <i>plus</i> 21 cars
Suzuka Factory	1.5 million	350 (Estimate)
Hamamatsu Factory	500,000	174
<i>Yamaha</i>		
Total Company	1 million	200
<i>Suzuki</i>		
Motorcycle Activities†	800,000	114
<i>Kawasaki</i>		
Akashi Factory	300,000	159
<b>OTHER</b>		
Moto-Guzzi/Benelli	40,000	13 <i>plus</i> 20 mopeds
BMW	25,000	20‡
Harley-Davidson	38,000	11
	(1974—includes 3 month strike)	
”	50,000	15
	(Projected full year)	

\* Higher proportions of bought-in components than Small Heath.

† Head Office and Main Plant (machining) plus Toyama and Toyokawa motorcycle assembly factories.

‡ Very low proportion of bought-in components.

Sources: Annual reports, company histories, published articles. Plant data in Britain direct from NVT manufacturing records. Information on other non-Japanese companies partly derived from interviews with the companies concerned.

In contrast, the British factories produce in the range of 10–18 bikes per man. Present plans for the cooperative at Meriden are equivalent to outputs in the range of over twice their 1972/3 performance (the last year of consistent operation at Meriden). On the other hand, it remains to be seen whether this output can be achieved in practice; it will certainly be difficult using existing equipment and methods.

The other non-Japanese competitors achieve overall volume and productivity levels which are broadly similar to those of the British industry. Moto-Guzzi and Benelli, with reasonably new (but largely general purpose) machine tools, achieve a level of around 13 bikes plus 20 mopeds (probably effectively less than 20 total “bike-equivalents”) per man. BMW achieve a level of about 20, and Harley-Davidson can probably develop a productivity of around 15 bikes

per man. All of these figures are an order of magnitude lower than the Japanese and it is revealing to note that the only one of these companies which is reported to be highly profitable in motorcycles, BMW, achieves this profitability on the basis of a *very* high price premium relative to the Japanese. Both the other companies listed set prices at rather lower levels than BMW, as do the British, and all have been under profit pressure in the recent past.

These comparisons of productivity performance in terms of “bikes per man” afford a useful impression of the overall difference in scale and effectiveness between the British and the Japanese manufacturing operations. The comparison does tend to favour the Japanese, however, since they have a large number of smaller bikes—of lower work content—in their product mix and they also tend to buy rather larger quantities of components in ready-made form from outside suppliers.

The use of value added as a measure tends to avoid these difficulties. In 1975, an upper figure for the level of value added per man in the British motorcycle factories is £5000.\* In fact, because the industry is presently sustaining losses at the factory level which amount to roughly one-sixth of factory value less raw materials, it might well be more realistic to scale the figure down to around £4200 per man. The levels of value added per man at the total company level for the major Japanese motorcycle manufacturers are shown in Exhibit 22. The levels are extremely high, particularly in the case of Honda where a level of almost £18,000 per man per year was reached in the six month period to February 1975. The smaller companies achieve lower levels of value added per man (though still more than twice that of the British), consistent with the experience curve effect.

The cost advantage of the Japanese is securely based on this higher productivity. It does not arise from lower labour costs; indeed labour costs have exceeded those in the British factories for a number of years and are continuing to climb at a higher rate, as shown below:

TABLE 10

Factory labour remuneration

	1970		1973		1975	
	¥000	£	¥000	£	¥000	£
Honda	107	125	162	249	197(est)	296(est)
NVT Average	—	N/A	—	143	—	203

Notes: Figures are monthly averages, including all fringe benefits (including bonuses, factory housing, etc. in the case of the Japanese); NVT average based on 40 hour week.

Nor does the advantage appear to stem from any form of special government subsidy. In common with other leading Japanese export industries (e.g. consumer electronics), the motorcycle industry receives no unusual government support; it does qualify for the usual export incentives including favourable tax treatment. These appear, however, to be minor in the context of their overall costs. Indeed if they were not, one might expect to see prices on export bikes being lower than on those in Japan. In fact, as we have already remarked, the opposite is true.

\* Footnote on individual plant deleted.

The overall value of the Japanese strategy in a national economic context is that the experience-based productivity improvements resulting from their growth and scale have been sufficient both to allow rapidly advancing rates of pay for their employees, *and* to bring down the real costs and prices of their products in the market place. This type of growth-based volume/cost relationship is something the Japanese strive for as a nation in all their leading manufacturing industries. It is perhaps this factor above all others that accounts for the competitiveness of many of their industries in world markets, the strength of their currency, and the rapidly rising national income per capita and economic living standards of their people.

## EXHIBIT 22

### Japanese motorcycle manufacturers: value added per employee

Year*	Honda		Yamaha		Suzuki	
	¥000	£	¥000	£	¥000	£
1967/8	6300	7400	3300	3900	N/A	—
1968/9	7400	8600	3700	4300	6300	7300
1969/70	8200	9600	4100	4800	6200	7300
1970/1	8600	10700	5200	6500	6800	8500
1971/2	8500	12000	6500	9200	6900	9700
1972/3	9000	13900	6500	10000	6900	10600
1973/4	9700	13700	6600	9300	6300	8900
1974/5 (1st 6 months)	11900	17800	N/A	—	N/A	—

\* Based on year ends of August 31st for Honda, October 31st for Yamaha, and September 30th for Suzuki.

Source: Annual Reports and Security Analysts' Reports.

We have so far discussed the cost superiority of the Japanese motorcycle industry only at an overall and highly aggregated level. Before attempting to identify any possible commercially viable strategies for the British industry we must first understand precisely what the practical means are by which the Japanese develop their superior cost effectiveness. The best way to do this is by making a detailed comparison of the present positions of both the British and the Japanese with respect to each of the key factors influencing experience curve performance: selling and distribution; production; and purchased materials and components.

*The selling and distribution system.* The s and d systems of the major competitors were discussed at some length in the previous chapter, because this was an important consideration in explaining the relative marketing performance of the British and the Japanese. It was established that the Japanese have an unusually strong relative position based upon such physical factors as: larger distributors offering a much better service to dealers; superior advertising coverage; more and larger dealers offering better sales and repair services to retail customers; and so forth. There is no point in repeating this discussion here. It is, however, worth noting again the conclusions covering the relationship between the s and d system and the experience curve, reached earlier in this chapter: improved volume and scale is used to allow greater value addition,

hence consolidating and strengthening market position, rather than reducing unit costs. Thus the proportion of retail price accounted for by s and d operations remains broadly constant regardless of volume and market share. If this is so, the critical factor determining overall competitiveness becomes unit *factory* cost. This is itself a combined function of production effectiveness and the cost of raw materials and components. Accordingly we shall concentrate on these areas in the comparison between the British and the Japanese which follows.

### The British industry

*Production system.* A detailed review of the historic development and present situation of the British motorcycle manufacturing facilities is given in Appendix 10. The present factories owe their origins to a mixed history of mergers and acquisitions through the sixties and seventies. There have been a number of unsettling reorganisations, including factory closures at Woolwich, Andover (both Norton Villiers) and Redditch (BSA/Triumph); redundancy programmes were implemented some years ago in the existing factories at Wolverhampton and Small Heath; and finally the threatened closure of Meriden culminated in the disruptive workers' occupation of the factory in 1973. The continual organisational changes have tended to have a dissipative effect on the already limited potential for experience-based cost reduction in the industry. There has been comparatively little opportunity for learning to cumulate smoothly over time—complete motorcycle assembly has only been carried out at Wolver-

### EXHIBIT 23

The British motorcycle industry		
<i>Factories</i>	<i>Employees</i>	<i>'000 Sq. Ft.</i>
Wolverhampton: Motorcycles	1115	—
Industrial Engines	447	—
Total	1562	480
Small Heath: Motorcycles	1245	—
Subcontract	330	—
Total	1575	1000
Meriden (Plan): Motorcycles only	590	350
<i>Other Departments</i>		
Engineering Staff (Wolverhampton and Kitts Green)	110	
Norton Triumph International (Marketing, etc.)	87	
Norton Triumph Europe (Andover)	55	
Villiers Engines Limited (Industrial Engines)	35	
Group HQ (Allocation)	5	
	292	
Total U.K. Employees <u>4000</u> (approx.)		

hampton since 1972, for example—and the factory operations have not been functionally specialised to the degree of many of the Japanese factories. This somewhat turbulent history no doubt helps account for the fact that real costs seem to have risen historically in the British industry, rather than declining on an experience curve basis.

The total present employment in the industry in the U.K. is roughly 4000 people, as outlined in Exhibit 23. Approximately 800 of these are in fact engaged in industrial engines (Wolverhampton) and subcontract engineering work (Small Heath), rather than in the motorcycle business itself. The factory buildings are old, many dating from the First World War period, and not up to modern standards for efficient working, particularly Small Heath, which is multi-storey, and Wolverhampton, which is a rather confused site containing many separate buildings. Worker morale at Small Heath and Wolverhampton is relatively low given the poor commercial performance of NVT and the present prospects of short time working. At the time of writing morale is quite high at Meriden, but the situation may be a little artificial since it is still relatively early days following the final success of the occupation in achieving the workers' objectives.

The factories themselves contain mostly old, general purpose, fairly labour intensive equipment. At Wolverhampton, for example, as many as 60 per cent of the machine tools may be more than twenty years old, and 80 per cent may be more than fifteen years old. This equipment is not capable of low cost high volume production; nor is it ideal for producing parts with the sort of close tolerances necessary for a reliable final product. A particular problem here is the inaccuracies that creep in when workpieces are moved between a large number of machine tools each performing a separate operation.

The plants thus show all the signs of many years of chronic underinvestment, and it is noteworthy that net fixed investment per man is of the order of only £1300, compared with over £5000 for Honda. The factories have effectively no experience of high volume, low cost, highly automated manufacturing and assembling methods. Although relatively highly automated assembly techniques were due to be used at Small Heath some years ago (in "Shop 64") these plans were scrapped and the equipment sold off as the volumes were not achieved. Very little specialised or highly automated equipment exists, and that which does is frequently not used (e.g. 3 rotary index tables at Small Heath and Meriden). As we shall see later the situation is very different in the case of the Japanese.

*Design Process.* NVT's engineering staff involved in design and development number approximately 100. Of these, a large number are detailers and draughtsmen so that the qualified professional engineers are quite few in number. What is perhaps more significant than the fairly small numbers is the way in which the design function has been oriented historically. It would seem that the focus has been very much on "pure" design considerations, rather than on designing products which were intrinsically low cost to produce. There has evidently been a tendency to use non-standard fixings (bolts and screws, etc.), for example, with attendant implications for high manufacturing cost, and parts may well not have been designed such that the machining costs were minimised. An exception to this was the Trident, which was designed to use existing (labour intensive)

equipment. Unfortunately this virtually guaranteed a high cost design compared with one which could have been made in high volumes on modern equipment. The design is also such that the engine will almost inevitably leak oil—which is highly undesirable for marketing considerations—since the joints between crankcase parts and cylinder block meet in a “T”, which is virtually impossible to seal tight in both planes. It is critical, especially when planning to use capital intensive high volume techniques, that designs be executed with production requirements kept very much in the forefront. None of the existing British motorcycle designs is suitable for manufacture using modern production techniques. This is another point of difference with the Japanese.

Design lead times are rather long in the British motorcycle industry. An absolute minimum of 18 months is quoted for getting from a basic concept to a set of drawings that are ready for production; tooling for actual production will then take another 18 months or more. This may be partly due to a lack of explicit project control, with firm programmes and checkpoints. Certainly there appears to be no formal paperwork relating to project control at Kitts Green. This situation may have been encouraged in the past by the fact that R & D work priorities were frequently changed. The length of time required is also doubtless a function of the fact that R & D resources are rather limited in absolute terms, with only about 100 employees in total, roughly half of whom tend to be working on the continuing development of existing models, rather than on new projects.

[Deleted for reasons of commercial security]

Finally, it should be noted that within the R & D area in NVT there are a number of capable and enthusiastic people. In terms of pure product design, British bikes have in the past performed better than their rivals, and probably still do retain an advantage in terms of handling, and this owes much to the design team. Also, in terms of the bikes' appearance, the styling function has been very effective. What has been lacking is the tight control of the design function and its close coupling to the requirements of marketing and production in order to produce integrated, cost effective models within reasonably short lead times.

*The Parts Supply Industry.* Purchased materials and components account for around half the factory cost of the bike, and unfortunately NVT suffers from a disadvantage in purchasing in these. The disadvantage stems at core from the company's low production volume. This does not enable supplying companies to use the best and lowest cost technology, which requires high volumes. Furthermore, relative to large car companies NVT is a very minor customer of large auto industry suppliers such as Dunlop, Girling, Lucas, Smiths, and so forth. As a result, NVT probably gets less good service from these companies than that enjoyed by a British Leyland or a Ford. This is only natural, and probably an almost inevitable result of the realities of the small customer/large supplier relationship. Commercially, the latter will only be interested in the business if it is profitable for him; he will keep the level of service down and the margins up to a level at which he makes a net contribution on the business, in which he is anyway using low volume/high cost manufacturing methods. The low level

of service will tend to manifest itself in the form of a reluctance to invest on behalf of the customer, and a tendency for new product lead times to become quite long—6 months might be a typical minimum. All of these are basically volume related problems. The lack of volume and experience which has already adversely influenced the effectiveness of NVT's internal organisational relationships and production technology has also extended its influence outside the company, into its relationship with parts suppliers and the technology they use.

*Summary.* An overall picture thus emerges of an industry which uses outmoded methods and equipment; which has not focused its marketing and design functions on the development of bikes which can be produced at a competitive cost using high volume methods—and be sold at those volumes; and which, because of its small size, enjoys only a relatively limited service from parts suppliers who themselves do not use low cost high volume techniques in the manufacture of the bikes' components.

### **The Japanese Industry**

The Japanese motorcycle industry, and in particular Honda, the market leader, present a very different picture to that described above. The basic philosophy of the Japanese manufacturers is that high volumes per model provide the potential for high productivity as a result of using capital intensive and highly automated techniques. Their marketing strategies are therefore directed towards developing these high model volumes, hence the careful attention that we have observed them giving to growth and market share. And then in production, the cost reduction potential is realised in practice as a result of a primary focus on production engineering and investment for cost reduction.

The overall result of this philosophy over time has been that the Japanese have now developed an entrenched and leading position in terms of technology and production methods. A fairly detailed review of the Japanese motorcycle production system is made in Appendix 11, and the specific types of technology the Japanese employ are outlined in Appendix 12. The major factors which appear to account for the Japanese superiority in both these areas are summarised below.

*Production System.* The product lines and numbers of employees of the major Japanese motorcycle factories are set out in Exhibit 24. Most of the factories are much larger than the British factories. It is also noticeable that they are quite specialised. Honda, for example, has a plant just making engines at Wako. Both Suzuki and Yamaha have plants almost entirely devoted to parts machining and the manufacture of machine tools themselves. Specialisation of this kind is only feasible as a result of the high volume of production which the manufacturers enjoy. The British motorcycle factories have not been able to achieve comparable specialisation.

The influence of the high model volumes developed by the Japanese and their dedication to advanced production engineering, is in evidence virtually everywhere one goes in the plants of Honda, Yamaha and Suzuki. The focus on volume-based cost reduction begins at the metal forming stage. Extensive use is made of automated high pressure die casting techniques, for example, which can

offer savings as high as 20–40 per cent over gravity methods. The high pressure process is often felt in this country to produce castings of dubious strength and porosity. But Honda uses these methods extensively for crankcases and even cylinder blocks, whereas in the British motorcycle industry their use tends to be restricted to smaller, less critical parts. High volumes are necessary—normally in the range of around 50,000 units per annum—for high pressure die casting to be economic. There are obviously relatively few items in the British motorcycle industry for which the process would currently be economic. Thus not only do the British fail to enjoy the cost advantage from using this technique, they do not develop the experience which is necessary to ensure that the technical difficulties inherent in the process can be overcome and sound castings produced.

#### EXHIBIT 24

##### The Japanese motorcycle industry

HONDA (1974/5 Sales £730m, 19,000 employees)

<i>Factories</i>	<i>Employees</i>	<i>Products</i>
Suzuka	8500	High vol. 125 cc bikes 550 cc, 750 cc bikes Civic and 145 cars TN 360 Truck
Hamamatsu	3100	50 cc plus 125–500 cc bikes Generators, outboards, tillers, etc.
Sayama	2800	Cars
Wako	2000	1000 cc bikes Engines
<i>Other</i>		
Honda R & D Co.	1300	R & D
Honda Engineering	1400	Machine tools

YAMAHA (1974/5 Sales £250m, 5500 employees)

<i>Factories</i>	<i>Employees</i>	<i>Products</i>
Iwata	2200	Bike and Engine Assembly Snowmobiles
Hamakita	1600	Parts machining Machine tools
Niii	700	N/A
<i>Other</i>		
R & D (at Iwata)	800	R & D

SUZUKI (1974/5 Sales £270m, 10,000 employees)

<i>Factories</i>	<i>Employees</i>	<i>Products</i>
Hamamatsu	4500	Parts machining, some assembly Machine tools
Toyama	800	Bike assembly
Toyokawa	700	" "
Kosai	1100	Car and Truck assembly
Iwata	1400	" "
Osuka	350	Castings " "
<i>Other</i>		
Technical Centre	1000	R & D

KAWASAKI (Motorcycle activities 1974/5 Sales ca. £60m, 1700 employees)

<i>Factory</i>	<i>Employees</i>	<i>Products</i>
Akashi	1700	Motorcycles

Source: Interviews, Annual Reports, Company Histories. All figures approximate.

Not only are pressure die castings cheaper as castings, they can be made with a precision which other casting techniques do not match. This later saves cost



in the machining process, both because less time and equipment is required, and because less waste material is created. The Japanese make extensive use of methods in which machining and waste requirements are reduced by prior metal forming. These processes include hot and cold forging (e.g. of gears—instead of turning and then shaping the entire tooth pattern, they will start with a forged blank requiring relatively little machining). They also use sintering wherever possible (e.g. gear pinions, chain sprockets, for light motorcycles) since there is no waste and frequently no subsequent machining is required at all.

In the machining of parts extensive use is made of highly automated techniques. Rotary index and in-line transfer machines are very common, as virtually all Honda's engines, for example, are sold in sufficient volumes to justify this approach. (At Suzuka their average annual model volume per engine size is 200,000; even at Hamamatsu, where less popular models are made, it is 70,000.) The machine tools themselves are often purpose-made, highly specialised, and multi-function in operation. Many of these specialised tools and transfer lines are made internally by the motorcycle manufacturing companies themselves. Honda Engineering, for example, have 1400 employees working on machine tool design and manufacture and production engineering—almost 10 per cent of the total employees of Honda Motor overall. Suzuki has a similar internal machine tool operation, and so also do Yamaha (though less extensive than those of the other two).

The Japanese manufacturers quote three advantages as a result of making their own machine tools: lower cost than if they were buying them outside; shorter delivery times (less than six months versus eighteen months on the open market); and also greater secrecy, both concerning future product plans and concerning the specialised techniques of the machining operations themselves. The Japanese thus keep the learning aspects of production experience in machining motorcycle engine parts as closely proprietary as possible, rather than sharing the experience with others through the medium of the open market machine tool industry. This way they give away very little of the experience advantage their high volumes confer on them.

In addition to the cost advantages which result from these automated machining methods, there are also product quality advantages. No machining operations are accidentally missed; tolerances are kept very high; and registration of all holes, bores, faces, etc., relative to each other can be kept well nigh perfect. The latter in particular is hard to achieve using separate general purpose machine tools, but is very important for motorcycle reliability in operation.

It will be recalled that the manufacture of cycle parts, for example the frame, is said to be more difficult to automate than machining. This is true, but the production engineering focus of the Japanese is being brought increasingly to bear on this area. An increasing proportion of cheaper pressed steel parts is being found in frames for Japanese high volume motorcycles. Also, much attention is being given to the possible use of industrial robots to perform frame assembly. The Japanese are thought by some authorities to lead the world in industrial robot technology—a logical extension of their preoccupation with high productivity and automation—and so these techniques may well be found in application soon in motorcycles, perhaps at Kawasaki (Kawasaki Heavy Industries already make industrial robots elsewhere in their Group).

Assembly is at present the least automated part of the Japanese motorcycle factories. They do however use powered conveyors and achieve very rapid cycle times in the one minute (small bikes) to two minutes (large bikes) range. In assembly the advantage of their volume and experience is most clearly seen, not in the assembly process itself, but in the sophisticated factory control techniques used to ensure the timely delivery of the necessary parts to the various points in the assembly line. Good synchronisation is particularly important, especially when there is a model changeover on the line.

*Design Process.* In design it would appear that the Japanese strike a most effective balance between the “pure” engineering, production engineering, and marketing requirements of a new project. Before design work is started at all a preliminary cost assessment and commercial evaluation is made. Precise programmes are then laid out for research work, later development work, and finally work actually to get the completed design into production. Production engineers are involved in the project team from the earliest stages, so there is little fear of the needs of production being overlooked. Furthermore, at regular checkpoints the cost projections and commercial prospects are re-evaluated before proceeding. Before the final design is committed to production it is subjected to a particularly rigorous detailed costing and marketing review.

Overall, the philosophy of the design process seems to be that design effectively provides a service to production and marketing, and all design features are subjected to careful cost and commercial evaluation. The contrast with the pure engineering dominated history of the motorcycle design function in the U.K. is obviously quite marked.

R & D “effectiveness” also seems much greater in the case of the Japanese. Honda claim that they can get an idea from conception to production in eighteen months; Suzuki claim two years. The British industry would probably settle on three as an absolute minimum. Of course, aided by their overall volume, the Japanese are able to provide very large R & D facilities at low costs. Honda has the largest R & D establishment, but the lowest number of R & D employees as a proportion of sales and hence, presumably, the lowest R & D costs per motorcycle produced:

	<i>R &amp; D Employees Per £1 million of Sales</i>	<i>Total R &amp; D Employees*</i>
Honda	1.8	1300
Yamaha	3.2	800
Suzuki	2.7	1000
NVT	4.0	100

\* Includes all R & D employees, not just professional engineers.

NVT has a much smaller R & D establishment than any of the three major Japanese companies, but a higher ratio of staff to sales and thus a proportionately higher cost. It would therefore appear that the experience curve concept can apply to R & D costs, as well as production costs, and while it is conceded that quantity does not necessarily equal quality in R & D, it obviously does impact on the speed with which ideas can be examined. Furthermore, Honda is reported to have a “drawer” or “refrigerator” in which it keeps “on ice” many design projects which have already reached an advanced stage of develop-

ment, and which it can therefore bring to market quickly if this seems commercially desirable. This may also help explain such phenomena as their ability to bring out superb two-stroke off-road bikes so quickly when the dirt bike market took off in the USA a few years ago.

*The parts supply industry.* The parts supply industry in Japan is able to develop its own experience-based cost reductions as a result of the high volumes required by the motorcycle manufacturers. The parts suppliers tend to have the same production engineering focus as the motorcycle manufacturers themselves, and use highly automated techniques where possible. The larger suppliers sometimes design their own specialised machine tools, though they will often have the tools actually built by an outside machine tool manufacturer. Even the smaller parts suppliers show ingenuity in making their own modifications to general purpose machine tools to increase their level of automation.

Not only are the parts production costs low, but the relationships between the suppliers and the motorcycle manufacturers are very close. The commercial logic of this for the supplier is inescapable: he is critically dependent on the huge requirements of the motorcycle manufacturer for his sales. The suppliers are therefore very responsive to the manufacturers' needs, new product lead times are low, and service is very good. Component inventories are kept very low and deliveries of high usage components must be made perhaps several times a day, timed to the minute.

This relationship is the opposite of the British case. The dependence is increased in the case of companies like Honda and Suzuki, who actually amalgamate their car buying power with their motorcycle buying power and purchase jointly. In fact Honda's purchasing power is such that it centrally buys all common raw materials, getting a high volume discount on them, and then makes the raw material available to its parts suppliers.

Over time the already close relationships have tended to develop beyond the purely commercial area. Under pressure from the manufacturers, notably Honda, the parts suppliers are increasingly integrating their planning activities with the motorcycle manufacturers. This includes not only financial plans but also future R & D plans. Recently, for example, Honda informed some parts suppliers it did not want their parts prices to increase for the next five years (an exercise of raw buying power unthinkable for the British motorcycle industry). Having stipulated this, however, Honda is now working closely with the suppliers to help them rationalise and modify parts designs. Honda is also suggesting new production methods and technology to the suppliers. All of this will help keep the parts costs down over the five years.

In some cases the closeness of the parts supplier relationship is cemented by financial cross-holdings or by Honda giving financial support to the supplier, either in the form of loan capital or perhaps by providing machine tools on lease. This type of relationship is being taken even further still in the case of Honda's new factory for the manufacture of 125–300 cc export models, which is presently being built at Kumamoto. Here, affiliated parts companies have been allowed to set up within the factory site, and an additional 30 parts suppliers have set up operations in the vicinity to supply the new factory.

Overall, a clear picture emerges of a closely integrated parts supply system. Most of the parts suppliers are fairly profitable with ROA (AT, BI) in the 6–10 per cent range—it does not seem to be a case of the motorcycle manufacturers earning their profits at the expense of the parts suppliers—and the relationship between them and the motorcycle manufacturers is such that they simply both profit from the intimate cooperation. The contrast with the British situation is again marked.

*Future developments.* The present cost effectiveness of the Japanese motorcycle manufacturing system is evidently high, and based on advanced production techniques which are capital intensive and involve low labour content. As this process of cost reduction continues in Japan it will become increasingly difficult to achieve further labour savings in certain areas of the factory notably final assembly. Meanwhile, labour costs will be continuing to rise rapidly in Japan relative to those in many of the overseas markets. The Japanese manufacturers can therefore be expected increasingly to move in the direction of “knockdown” assembly operations in overseas countries. Honda already has some 30 assembly operations in foreign countries, and has announced plans to expand this number dramatically. The other manufacturers have similar plans.

These activities will not be restricted to the Less Developed Countries. Kawasaki has already established a factory in the USA, at Lincoln, Nebraska, largely for local assembly, and Honda have assembly operations in Belgium and Ireland (both presently rather small), and are reported to be in the course of establishing another in Italy. Suzuki is also reported to be interested in establishing operations in Europe. This approach, possibly coupled with some overseas sourcing of labour intensive parts, will form a key element in the Japanese manufacturers’ future cost reduction strategies. It can be expected that the overall results of these strategies will be a continuation of past Japanese “experience curve” cost reduction over the long term.

## Summary

In this chapter we have shown the way in which cumulative volume and growth impact on productivity and cost effectiveness. The overall result of the high and growing Japanese production volumes relative to the British has been the development by the Japanese of a superior cost position. They now continue to be profitable while the British industry is making heavy losses.

The superior cost position of the Japanese is based on advanced production methods and techniques. These techniques permeate the parts supply industry as well as the operations of the Japanese motorcycle manufacturers themselves. The methods have been developed as a result of cumulative learning and experience over time, and rely critically on high model volumes for their effective application.

The British motorcycle industry at present does not have experience in applying these types of manufacturing techniques. Nor do many of its existing parts suppliers with whom the British motorcycle manufacturers have a relatively weak relationship. The existing British motorcycles in any case have designs

which are unsuitable for advanced production techniques, and are not sold in sufficient volumes to warrant the use of these techniques.

The commercial future of the British motorcycle depends on finding ways of offsetting these formidable disadvantages. The possible strategy alternatives by which this might be achieved are discussed in the following chapter.

# STRATEGY ALTERNATIVES FOR THE BRITISH MOTORCYCLE INDUSTRY

## Introduction

The present disparity in performance and effectiveness between the British and the Japanese motorcycle industries is very great. The previous chapters have shown the manner in which this disparity extends to both the marketing and manufacturing areas. They have also analysed the commercial significance of the economic relationship between marketing performance, production volume and experience, and costs. Any commercially viable strategy for the British must seek to redress the balance with the Japanese along each of these dimensions.

This chapter of the report is devoted to identifying the strategy alternatives for the British motorcycle industry that appear to hold the greatest promise for recovering the necessary ground relative to the Japanese, and to evaluating their commercial advantages and disadvantages. In addition, the broad implications of each strategy for employment and the U.K. balance of payments will be explored. More detailed questions relating to the short term cash problems of the industry and the precise steps required to implement the longer range strategies will be left to a later chapter, together with an assessment of the risks associated with each.

### **Overall strategy objectives.**

The concept of the experience curve shows the commercial importance of achieving volumes at least comparable to the volumes presently developed by the leading competitor in each segment in which the industry chooses to compete. The evidence of the various competitors' profitability and productivity demonstrates clearly that the experience curve is fully applicable in the motorcycle industry. Thus, if the British industry fails to find models in which it can enjoy volumes comparable to the leading competitor, it will continue to struggle in the long term.

Any commercially viable future strategy for the British motorcycle industry must therefore be based on an integrated marketing and production plan designed to achieve two basic objectives:

1. To develop model volumes in the segments of the market for which each model is intended which are comparable with those of the leading producers, as only by this means can cost competitive production methods be adopted.
2. To target market segments where this is possible and which are of sufficient size and growth potential to constitute a worth-while long term opportunity.

If these objectives are reached, then it should be possible for the industry to be profitable in the long term. Much ground has been lost, however, and it is not clear whether it will be possible to regain sufficient ground at this late stage, with growth slowing in the major markets, to re-establish profitability. Success will rest, first, on whether any product segments can be found in which it is feasible for the British to develop the necessary model volumes.

## Product and volume segments for the British motorcycle industry

Obviously, to attempt to match Honda's volume across the board would be an impossible target for the British motorcycle industry. Except for superbikes, the British industry has now no market presence at all; the British do not begin to have a comparable sales and distribution network; and overall they lack the production techniques and industry infrastructure of the Japanese. For the British motorcycle industry the task now can only be to identify a segment or niche in the overall market *within* which it might be possible to attain comparable volumes and cost effectiveness to the Japanese industry.

### Small motorcycles

Small machines are the historical strength of the Japanese. They have a large home market and are heavily dominant in this segment worldwide. Honda's volumes in individual small displacement engines may run at the quarter million level and over. Accordingly it is in small machines that Japanese production technology has developed furthest, so that these bikes are made by the most automated, most capital intensive, least labour intensive production lines in the Japanese industry. All the evidence suggests that small machines are also the most competitively priced. Furthermore, even if Japanese production costs could be approached sufficiently for the British to be profitable at existing price levels, this would undoubtedly depend on developing very high production—and sales—volumes. Sufficient volumes could certainly not be developed by relying on the U.K. market alone, and so it is possible to discard—on both a commercial basis and in terms of the best interests of the British consumer—any strategies which would depend on having Japanese manufacturers excluded by tariffs or otherwise from the British market. Any such large scale attack on the world market for small motorcycles by the British industry would undoubtedly meet with the most determined resistance in the market place, since this is regarded by the Japanese as their heartland business, and prices would tumble. In any case, the British have no s and d system suitable for selling large volumes of small bikes in a variety of international markets, and to establish one would be a lengthy and costly task. It must be concluded that small bike production is unlikely to be profitable for the British industry.\*

*Mopeds.* These products are motorcycles which have engines of not more than 50 cc displacement and which can be propelled by the use of pedals. While they are very similar to motorcycles from a production standpoint, the shares of world markets held by the Japanese producers are rather lower than in motorcycles as such. There are also a number of substantial European producers who have held high shares of the large European market for mopeds.

The Japanese are in fact not even the largest moped manufacturers. The largest are the French, whose domestic market has traditionally been the biggest

---

\* To confirm this conclusion we have conducted a cost study on a 175 cc two-stroke machine, with a view to estimating the cost competitiveness the U.K. industry might achieve if it attempted a high volume approach in small bikes. The central conclusion was indeed that even designing the machine for low cost, and employing the best methods available to the U.K., the resulting costs would *still* be uncompetitive, even assuming *no* price reaction from the Japanese. This analysis is included in Appendix 18.

moped market in the world. Motobécane, with a sales volume of roughly 700,000 mopeds (and 600,000 ordinary bicycles) is the largest French producer and is due shortly to expand (via the takeover of Vélosorex, the "number three" in the French moped industry) to about 1,000,000 mopeds per year. Cycles Peugeot is "number two" in the industry with a sales volume of over 400,000 units; coincidentally this is also Honda's moped volume. There are also other significant manufacturers in Europe, notably Puch of Austria, who have a strong market position in the U.K.

The competition in mopeds is thus concentrated and strong. Mopeds have not been made in this country since Raleigh dropped out of the business in the sixties owing to profit pressure. Productivity figures would suggest that experience curve cost advantages have been gained by the competitors: Motobécane, for example, have approximately 3,500 employees and so produce approximately 200 mopeds *plus* 170 ordinary pedal cycles per man per year. This compares quite well with Japanese productivity levels. Based on this it seems clear that the British industry will have great difficulty in achieving comparable costs in manufacturing mopeds unless very large volumes are achieved.

Such large volumes would be as difficult to achieve in the presently existing moped market as would competitive volumes in small bikes in general, as discussed earlier. The British home market for mopeds at about 80,000 p.a. is amongst the smallest in Europe and, although it has grown rapidly since 1972, this growth is mainly the result of a one-time change in the law which will in all probability not be repeated (see Appendix 3). In other European countries not only are the local producers well entrenched, but the market is static or declining. The only possible growth market for mopeds is the USA where a substantial demand for several hundred thousand machines might emerge, if laws were passed that lowered the age limit for riding mopeds to say 14. Although there are hopes of such a legislative change, no firm commitments whatsoever yet exist. All the major producers of mopeds, European and Japanese, are poised to take advantage of such a change, if it occurs. In the face of this competition, the British would need to develop dominant shares of the U.S. market for them to achieve competitive volumes. It is most unlikely that this would prove feasible.

On the other hand, there might be scope to supply say Sears Roebuck in this type of vehicle (for which after sales service is less significant than with ordinary motorbikes), and thereby develop significant volumes without having a large s and d system of one's own. At this point in time this is all highly speculative, however, and could not conceivably form a feasible focus for a future manufacturing strategy for the British motorcycle industry.

#### **Large motorcycles**

Compared with the situation in small bikes and mopeds, competitive volumes in large bikes—especially superbikes—are much lower. The market leader in superbikes, the Honda CB 750, is reported to be produced in volumes of 80–90,000 per annum. The Honda Goldwing is produced in a plant with a capacity of 60,000 units per annum. The Suzuki 750, by way of comparison, is produced at the rate of 30,000 per annum.



The analysis of competitive production methods outlined in the previous chapter suggested that it is at volumes of 60–70,000 per annum that the substantial savings of (e.g.) rotary indexing technology become possible. Certainly all of the competitive superbike volumes appear too low to justify the most sophisticated production techniques, such as extensive use of in-line transfer machinery\*.

It is not long since the British motorcycle industry produced over 30,000 superbikes a year (in three separate models); the industry's present market reputation and image is consistent only with superbike manufacture; and an s and d network for British superbikes exists in the USA which is the largest market for those products. The British industry is clearly at the least commercial disadvantage in attempting to manufacture and sell superbikes, and it would seem sensible to focus on superbikes as the one product area in which the industry could most conceivably regain long term profitability. Indeed if a strategy could be devised enabling the industry to develop a model volume of 70,000 superbikes, and set up suitably advanced manufacturing methods for this volume, it might be able to compete on comparable terms, *on a cost basis*, with the industry leaders. In the next sections we shall examine possible alternative superbike strategies more closely.

## **“Single model” superbike strategies**

### **Introduction**

Broad production considerations suggest that volumes of a single model of the order of 70,000 units a year are likely to be necessary if there is to be any hope of reducing costs to a level comparable to Honda's. The lingering suspicion is that given Honda's overall experience advantage, costs may actually be rather higher than Honda's even given the 70,000 volume. Commercial success will therefore depend on whether there is a possibility of developing such volumes at a price equal to or ideally even somewhat higher than Honda's.

If such volumes cannot be developed, then costs will certainly be even higher because less sophisticated production techniques will have to be used. This in turn will require an even greater price premium if the industry is to be profitable.

Sales volumes depend primarily on two factors: the perceived attractiveness of the product in the market place, and the price at which the product is sold, relative to its competitors. We shall consider each of these factors in turn.

### **Product positioning**

Given that for the foreseeable future it is likely that under any strategy there will be uncertainty surrounding the strength of the British cost position relative to the Japanese, it would seem logical in terms of product positioning to attempt to find niches in the market which avoid direct competition with the industry leaders, at least until such time as the chances of competing successfully with them head-on are better than at present.

---

\* An exception is the Goldwing, in which each engine has a pair of horizontally opposed twin cylinders. This effectively doubles the number of blocks machined and as a result Honda is reported to use an in-line machine here.

We have seen, however, that Honda and the other Japanese manufacturers are unlikely to overlook any substantial new market opportunity. To hope to find a product or a market of any significant size which the Japanese will not enter would be an unrealistic foundation for strategy. Even if the British could pioneer some totally new product or market of real potential—and it must be said that no unexploited opportunities of this kind have been identified in our work—one must expect a company like Honda to undertake and complete any necessary development work and enter the market within a year or two of a British product launch and even more rapidly if the product concerned has already been placed on ice in their “refrigerator”.

Rather than looking for segments in which there is no Japanese product, the search should be for products which have a somewhat different appeal and image than those offered for essentially the same market by the Japanese. In a maturing market, riders with a variety of different principal interests emerge. Some will look first for economy, others will stress ease of operation, and so on. The Honda 750 is an excellent all-round machine, and has had a broad appeal that has made it the most popular superbike on the market with volumes of the order of 80,000 units per year. But not every rider finds that the CB 750 suits his particular needs; and it would be impossible for any single 750 cc machine to do so.

The Japanese volume orientation automatically leads them to target the bulk of the market, and to avoid fragmenting their production into more than one model if possible. This sets up potential opportunities for other competitors to satisfy demand in more limited, specialist segments, for which the Japanese models may not be ideal. The established reputation of British machines suggests that if the British wish to avoid direct competition with the Japanese they should concentrate on manufacturing a product with an image of superior performance, handling and styling. However, since these are features which are of interest to most riders, and which the Japanese also try to deliver, the distinctive characteristic of the British product should be an up-market appeal to riders who are prepared to pay more to obtain a premium product.

BMW already employ this strategy—involving in their case extremely high price premiums and relatively low demand—and have been able to avoid direct competition with the Japanese in doing so. Indirect competition, of course, is unavoidable, in that the level of price that can be charged for a model depends upon the price the Japanese are charging and the degree to which the premium product segment perceives that model to be superior to the mass market Japanese products. But BMW has found a niche in which, at present, it can be profitable on far lower volume than the Japanese.

Whatever the precise image and positioning of the product, actual volumes will also depend on the price charged relative to the competition. BMW has a high price, low volume, approach. Presumably lower price, higher volume, approaches are also possible. Alternative price-volume positionings are discussed in the next section.

#### **The price–volume relationship**

Exhibit 25 illustrates schematically the way in which volume can be expected to vary in relation to price, for a British motorcycle competing with the Japanese.

$P_J$  is the Japanese price level for the competing model of similar displacement. As the price of the British bike increases above this level volume falls gradually up to a point  $P_1$ . We would expect  $P_1$  to be some 10–15% above Japanese prices. Beyond  $P_1$  volume falls rapidly as price increases further, until it begins to level out again at  $P_2$ , which is some 20% above Japanese levels. Beyond  $P_2$  volume continues to fall gradually to  $P_3$ , which is some 30–40% above the Japanese prices. Thereafter it reduces quite rapidly towards zero.

The reason for the price-volume relationship having this shape is that many motorcyclists seem prepared to pay up to 10% more for a product which they think is the best for them. Different models often have a spread of up to 10% between them on price, and price-volume graphs show very little price-market share relationship within the  $\pm 10\%$  premium range. For most people to whom a British product appeals, a premium of this amount would be acceptable, and to price at Japanese levels would not increase volume much beyond the level reached with an up to 10% premium.

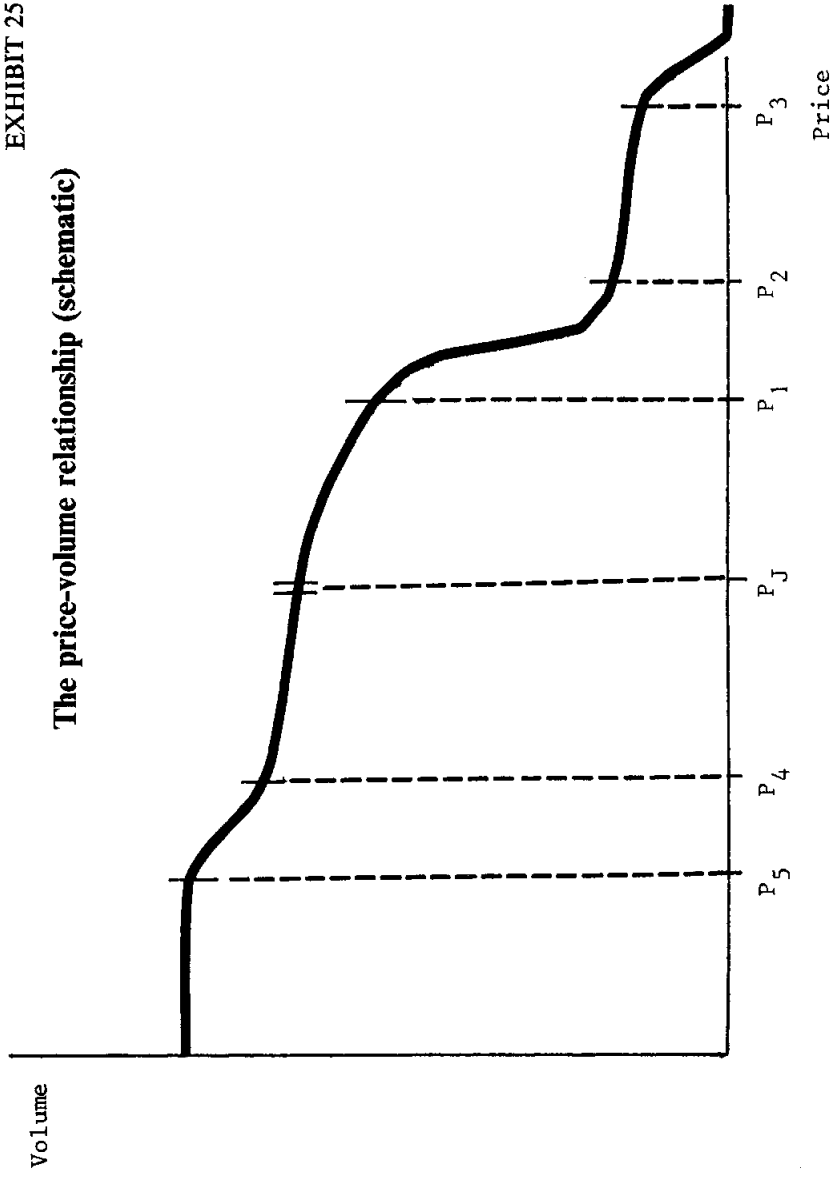
Premiums in excess of 10% do, however, begin to hit volume quite severely. British bikes have been sold for some years at moderate premiums, but British models have never sold well in the past in any year in which they were priced more than 10% above the competition. Furthermore the view was commonly expressed in market interviews that anything over a 10% premium does begin to have a sales impact. It is at this level of premium that the motorcyclist begins to feel he needs to see some very definite advantages to justify his extra outlay. Consequently those with only a mild preference for the British model will not be prepared to pay this premium, leaving by  $P_2$  (at 15–20%) only those with a strong preference for the British model.

The flattening to the curve beyond  $P_2$  is accounted for by the fact that anyone prepared to pay a 20% price premium—which is already significant—will probably go to 30% or even 40%. For example, BMW's price premium was originally at a level of about 20% in the early seventies, but has been moved up over time into the region of 30–40% without adversely affecting sales (simultaneously building an ever higher premium image over time). They are by far the highest priced bike to sell in any volume. There is, however, some point  $P_3$  beyond which it becomes increasingly hard for anyone but the most committed to believe that he is getting value for money. Despite their "money no object" image, BMW have never tried to push their premium beyond 40%. There are a few "hand-made" specialty bikes priced at levels in excess of BMW's, but these are all sold in negligible volumes. It would certainly be impossible to conceive of pricing above BMW and developing anything approaching similar volumes, particularly with a much less proven product.

The particular price premiums corresponding to  $P_1$ ,  $P_2$  and  $P_3$  and the share of market achieved at each of these levels will depend upon the particular model and market in question. But the shape of the curve really indicates that there are only two sensible premium price strategies: a price at  $P_1$  or a price at  $P_3$ . In both cases price has been pitched as high as possible without precipitating a major volume decline, and in both cases, a price cut would not lead to a major volume increment.

EXHIBIT 25

The price-volume relationship (schematic)



Given the experience-based cost advantages enjoyed by the Japanese it would seem most unlikely that any price lower than the Japanese could be profitable for the British industry. It is nevertheless worth explaining the shape of the price-volume curve at prices below  $P_7$ . Just as a price premium of up to 10% or more would deter relatively few British buyers, so a price advantage of up to 10% would attract relatively few. But at around a 10% price advantage ( $P_4$ ), volume begins to take off. In practice, however, it must be expected that if this occurred the Japanese would retaliate aggressively either directly or through dealer discounts, and thus the nominal price advantage would soon be eroded. In addition the British dealer network would begin to find it difficult to sell more machines. A point,  $P_5$ , would therefore be speedily reached beyond which further price advantages would not in fact be allowed by the Japanese, who would instead enter into a price-cutting war. We therefore show no further volume increases beyond  $P_5$ .

In terms of price, therefore, two broad strategies emerge for the British industry: if going for volume, a price no greater than 10–15% higher than the Japanese can be contemplated; if less interested in volume, a price premium of the order of 30–40% is the maximum practicable with a noticeably superior product before sales will dwindle to vanishing point. The volumes actually achieved at either price level would be a function of the attractiveness of the British product, and this would depend on how the product was positioned in the market place in terms of factors such as styling, performance, image and so forth, as discussed earlier.

#### **Price-volume alternatives for the British industry**

BMW's niche in the market corresponds roughly to the 30–40% premium relative to the Japanese discussed in the previous section. The volumes developed by BMW following this strategy are relatively low, in the region of 20–25 thousand units per year. This volume is achieved in the total of three different models. Clearly the British industry would be unlikely to achieve this sort of volume in a single model even given appropriate product positioning, if pricing at a similar premium. The question remains whether it would be possible with a single model to develop a higher volume, at the 70,000 per year level, adopting the lower premium level of 10–15 per cent.

The precise volumes that would be developed by the British under either pricing strategy will obviously depend to some extent on the intrinsic appeal of the products manufactured, but it is possible to set some broad parameters. Our marketing analysis showed that in 1980 world sales of 750 cc machines will be about 200–250 thousand. Seventy thousand units of a single 750 cc model would therefore represent around 30% of world demand, while twenty thousand units would represent nearly 10% of world demand. In 1973 (the last full year of British production) the U.K.'s share of world markets for 750 cc models was under 20%. This included three models, the Bonneville, the Trident and the 750 Commando. The Bonneville, which in this year accounted for over half the British industry's sales of 750's was priced well below Japanese levels. The Kawasaki 900 Z-1 and the BMW 900, the two most successful superbikes introduced in the last three years, sold about 25–30 thousand and under 10 thousand

respectively in 1974—with the Kawasaki targeting a moderate premium segment and the BMW targeting its high premium segment.

We also know that Japanese manufacturers will themselves be launching a variety of new products in the superbike class before 1980, and that they will be guarding their shares of the market jealously. The diminished rate of growth for superbikes worldwide will simply reinforce the difficulty of gaining share from the Japanese in this segment.

Overall, it seems that the volumes that can be expected for any single new British model would probably be insufficient at the very high premium (30–40%) to support even a 15–20 thousand production. They would certainly be insufficient at a moderate premium (10–15%) to justify a 70,000 unit production capacity. The conclusion must be that a high volume strategy concentrating on a single model is certainly infeasible, and even a low volume, high premium, strategy based on a single model is rather unattractive in terms of likely total volume.

*The low volume, high premium, alternative.* It seems as though this alternative might generate a model volume of up to 15,000 units at a price premium of 30–40 per cent over the Japanese. Could this approach conceivably be commercially viable? Certainly it could build on the industry's existing strengths—in particular the British reputation for producing high performance, good handling, enthusiasts' machines—and major changes from the production methods employed today would not be essential. The question would simply be whether costs could be controlled sufficiently to allow profitability at the 30–40 per cent premium, and whether the product's quality would be perceived in the market as being worth that premium.

It should be noted, however, that retaining today's production methods would be something of a weakness if following this approach. Even if the machine tools were replaced with more modern ones, the apparently logical choice would be to purchase general purpose tools, for low volumes suggest the use of labour intensive production processes such as those presently used. These methods will inevitably be high cost relative to the Japanese and therefore *necessarily* have to go hand in hand with a premium price in the market place. If a motorcycle is to justify that premium price it should offer not only outstanding performance, but also a high standard of quality and reliability. But in practice, in motorcycle manufacture, it is more difficult to produce a product to very close production tolerances if it is made in low volumes by traditional methods. High volume, capital intensive, mass production techniques reduce the possibilities of human error and automate the process to a degree which can make inaccuracies virtually impossible. For this reason, despite the fact that their volume may not justify it on cost grounds, BMW manufacture their cylinder blocks using in-line transfer machines.

In evaluating any low volume high premium approach, the British industry must consider carefully whether it will be able to solve the production problems inherent in the traditional low volume methods, as well as whether it can be profitable using these methods at even a 30–40 per cent price premium.

*The high volume, low premium, alternative.* Unfortunately it would appear that the British industry cannot hope to develop with a single model a volume approaching 70,000 units at the low to moderate premium of 10–15 per cent. The significance of this level of production rested on the fact that at the 70,000 level modern methods could be employed which significantly reduce cost. Presumably a total volume of production of 70,000 units could be achieved if several different models were produced. But if it is necessary to make a range of motorcycles in order to achieve that volume, and if those motorcycles have to be manufactured on different production lines, then the cost advantages of the volume are lost. If on the other hand, it were possible to conceive of some way of retaining most of the production cost advantages of the 70,000 volume, whilst actually producing a range of models, the high volume, low premium approach could become potentially more attractive. Possible strategies involving such a “family” of bikes are discussed in the next section.

## Strategies involving a “family” of motorcycles

### Production considerations

There are in fact a variety of ways in which several models can be produced without completely losing the cost reduction potential inherent in the total overall volume. BMW’s approach, for example, is to take the same crankcase casting—for the machining of which a major capital investment is made—and by “boring and stroking” it to produce a range of capacities from 600 to 900 cc.

The so-called “modular” approach to construction employs different main engine castings for each engine capacity, but designs them in such a way that they can all be processed on the same transfer line. The more similar the machining processes, the less the changeover time between models, and the lower the cost.

If the British industry is to be cost competitive in the future, and market a range of models, they *must* be designed to come off the same transfer machinery. If they are not, there is little hope of any model in the range being cost competitive. In assembly, of course, several models can share the same production line without significant loss of efficiency, provided the appropriate parts control and administrative back up are provided.

One characteristic of this approach to production is that the unit costs of the smaller machines in the family may well be higher than they would have been if the smaller bikes had been designed independently and the production line tailored specifically for them. [Comment deleted for reasons of commercial security.] The logic of including these machines is to develop greater volumes, and hence lower costs, in the family *overall*, and as such they would [Comment deleted for reasons of commercial security] be an essential part of the overall volume strategy, both in a production and in a marketing sense.

### Marketing considerations

From a pure marketing point of view a range of products is distinctly desirable. A wider range is valuable in two ways:

1. A wider range leads to higher overall volumes in each market and hence provides the base across which to spread the expenses of a superior s and d system.
2. It allows motorcyclists who trade up from cc class to cc class to continue with the same manufacturer in each class. Since there is loyalty amongst motorcyclists in the sense that it is more likely for a motorcyclist to purchase a given marque if he has previously owned that marque, those manufacturers with smaller displacement machines can expect higher shares of riders who trade up to larger machines than they would obtain if they only offered the larger machine. In Appendix 1 the effect that lack of smaller machines has on sales of Triumph's larger machines is quantified and it is concluded that Triumph's sales volume might be about 10–20 per cent higher in larger machines, if it offered a range of machines of various smaller displacements.

Exhibit 26 reinforces the idea that the British industry could successfully market a family of machines even if the range concentrates on the larger sizes only. It is in these larger sizes that the traditional strengths of the British are most highly valued. One marketing image could successfully run through a family of large bikes covering say 500, 750 and 1000 cc machines. It would be considerably more difficult to develop a consistent image that would be effective across the whole cc range, since the important attributes vary so widely from the small machines to the large.

The general marketing attractions of the “family” approach suggest that if the British industry had three models of different displacements, designed to target not only the superbike classes of 750 cc and over but also the substantial 500 cc class, volumes of twenty to twenty-five thousand in each of these classes at a moderate premium in the 10–15 per cent region could well be feasible. If sufficient cost reduction can be achieved as a result of the total overall volume, this could well be a commercially attractive strategy.

Incidentally, it is worth adding that the “family” approach could equally well apply to the low volume, high premium, strategy with similar beneficial commercial effects. In this case, however, it might be logical to restrict the range to two machines—a 750 cc and a 1000 cc model—since our marketing analysis has shown that high premiums are difficult to sustain for lower displacement motorcycles.

#### **The strategy alternatives**

Two different possible strategies for the British motorcycle industry have been identified:

1. The low volume, high premium, specialist approach. Volumes of around 15–20,000 sold at a price premium relative to the Japanese of 30–40 per cent. Traditional, highly labour intensive production methods. Probably two superbike models—a 750 cc and a 1000 cc machine—in a “family”.
2. The high volume, low premium, approach. Volumes of around 70,000 sold at a price premium of 10–15 per cent. Modern, capital intensive production methods. Probably three models: 500, 750, 1000 cc, designed to come off the same transfer machinery.



EXHIBIT 26

Per cent of purchasers rating attribute a very important influence on purchasing decision less those rating it of little or no importance  
(Street Motorcycles only)

	< 125 cc	125-250 cc	251-449 cc	450-650 cc	> 651 cc
Handling	57	33	44	60	57
Quality of Workmanship	67	65	73	67	80
Economy of Operation	27	24	12	(8)	(7)
Power	22	18	34	49	62
Styling	17	26	37	45	56
Price	55	46	38	27	7

Source: Ziff-Davis Market Research Dept.  
AHF Market Research  
Survey Data, 1972

Another alternative which should be considered is the middle route. This would be moderate volume, perhaps 35,000 per annum, of one or two models. Sufficient modern transfer machinery would be used to ensure a consistent and reliable product, thus reducing any risk of the product not measuring up to the premium. Tactically, this could be viewed as the introductory phase of alternative 2.

The remainder of this chapter is aimed at evaluating these alternatives.

### Approach used in evaluating the alternatives

#### Introduction

Three strategy alternatives have been identified which appear in broad terms to hold some promise of being viable routes for the British industry to follow. Further analysis is required to establish whether any or all of them are, in fact, attractive. If this analysis is to be sufficiently reliable to provide a useful input into the decision making process, then it must involve careful examination of likely costs, volumes and prices. Out of these detailed projections will develop evaluations of the commercial viability and riskiness of each alternative, the magnitude of the necessary investment, the resulting employment levels, and the implications for the U.K. balance of payments.

It should be noted, however, that the three strategy alternatives have been defined in the worldwide competitive context of 1975—at 1975 cost levels, 1975 market price levels and at 1975 exchange rates. Under these conditions the alternatives have looked promising enough qualitatively to justify further, more detailed, analysis. However, the British industry obviously cannot come to market with new products overnight. In fact it is unlikely to reach the market with a new range of machines until, at the earliest, 1978. This raises the question of the extent to which an analysis conducted now, based on the costs, prices and exchange rates of 1975, can offer a useful measure of the attractiveness of an

entry to the market timed for 1978. Of particular concern here is the prospect of continued improvement in Japanese productivity, continued high rates of inflation in the U.K., and the relative movements of the pound, dollar and yen. Clearly the possible influence of long term shifts in exchange rates on the analysis must be elucidated before embarking on the detailed strategy evaluations.

#### **Productivity, inflation and exchange rates**

The role of a system of floating exchange rates is essentially to bring into balance the supply of and demand for each nation's currency. To achieve this balance, exchange rates must over the long term make the *average* export prices of each country equally competitive in world markets. If rates of productivity increase differ from country to country, or if rates of inflation differ, then these differentials will be compensated for over time by the movement of exchange rates. Actual observed movements of currencies can be described in these terms, for example:

- The rapid rate of Japanese productivity increase has caused the *real* value of the yen to appreciate against the dollar steadily over the last fifteen years. Because Japanese inflation has been higher than in the USA, however, the *numerical* value of the exchange rate has changed relatively slowly.
- On trend the real value of the pound has roughly equalled that of the dollar, reflecting the fact that differences in productivity improvement between the two countries have been small. Recently, however, the dramatically increased differential inflation rate has caused the numerical value of the dollar/pound exchange rate to fall rapidly.

The precise effects of these factors on exchange rates, and their implications for the motorcycle industry, are reviewed in some depth in Appendix 13. There appears little question that over the long term exchange rates will continue to compensate for differential national average productivity improvements, and differential inflation. In broad terms, this means that the underlying real shifts in the exchange rate between two countries—separating out the effects of inflation—will be determined by the relative rates of productivity gain on average in the two economies.

*The experience curve.* The experience curve effect suggests that relative rates of growth are the primary factors determining relative rates of productivity improvement. This suggests in turn that higher growth economies will tend to have strengthening currencies relative to lower growth economies, given similar inflation rates, and the performance of currencies such as the yen and the Deutschmark tends to bear this out.

If this is so, then the application of the experience curve to the motorcycle industry is in fact rather more complex than that suggested in the simplified discussion of the economics of the industry in the previous chapter. The Japanese motorcycle industry, even if achieving good experience curve cost performance in Japan, will only be able to reduce its prices expressed in real terms in a foreign currency if the industry is able to increase its productivity in the product concerned *faster than the Japanese national average*. In fact, this is unlikely: the

Japanese motorcycle industry is mature and it is not easy to foresee growth, especially in superbikes, continuing at the historic rapid rate. This will tend to reduce the Japanese industry's ability to continue experience-based cost reductions at the rate observed in the recent past. On the other hand, the Japanese economy is likely itself to grow less rapidly, so that the two will probably more or less keep pace.

Over the last several years it would indeed appear that Japanese motorcycle productivity gains have only just kept pace with the Japanese national average. Thus prices in the U.S. for (e.g.) the Honda CB 750 have been virtually constant in real *dollar* terms despite the fact that they were declining in real *yen* terms. Similarly the long term trend for the U.S. price expressed in real sterling is a constant\*. Exhibit 27 illustrates price trends for the CB 750, shown in dollars, pounds and yen.

The most likely forecast for the longer term, then, is that exchange rates will continue to compensate for Japanese increases in productivity and for differential rates of inflation. Furthermore, because the Japanese motorcycle industry is unlikely to perform much better than the Japanese national manufacturing average, this will mean that the real export prices of their motorcycles will tend to stay constant when measured in foreign currencies such as the dollar and the pound. The conclusion must be that, if our detailed evaluation of the alternatives, conducted in 1975 (under the implicit assumption that the industry could set up for a new model range overnight), suggests an alternative is commercially attractive, then the alternative will still be attractive in 1978. Even though the Japanese motorcycle industry can be expected to improve its real unit costs on an experience curve basis during the intervening years, this is likely to be offset by the appreciation of the real value of the yen against the dollar and the pound.

Thus, we have based all the following detailed analysis on early 1975 costs, prices and exchange rates. Projections of sales and profits are all expressed in the same terms.

#### **Evaluation method**

The detailed approach used in the evaluation of the three strategy alternatives is described in Appendix 14. In summary, it consists of three stages:

- Projecting the cost of producing the motorcycles, employing in each case the methods which are best suited to the production volumes.
- Projecting the optimum prices for the motorcycles relative to the competition, consistent with the need to move the targeted overall volume.
- Combining these inputs of volumes, factory costs and prices with data on sales and distribution costs, in order to develop an overall picture of commercial viability and risk. The implications for employment, and the U.K. balance of payments, can also be computed.

*The cost of production.* Two of the three strategy alternatives require the use of production methods which are very different to those employed in the British industry at present. The result is that, for these alternatives in particular, reliable

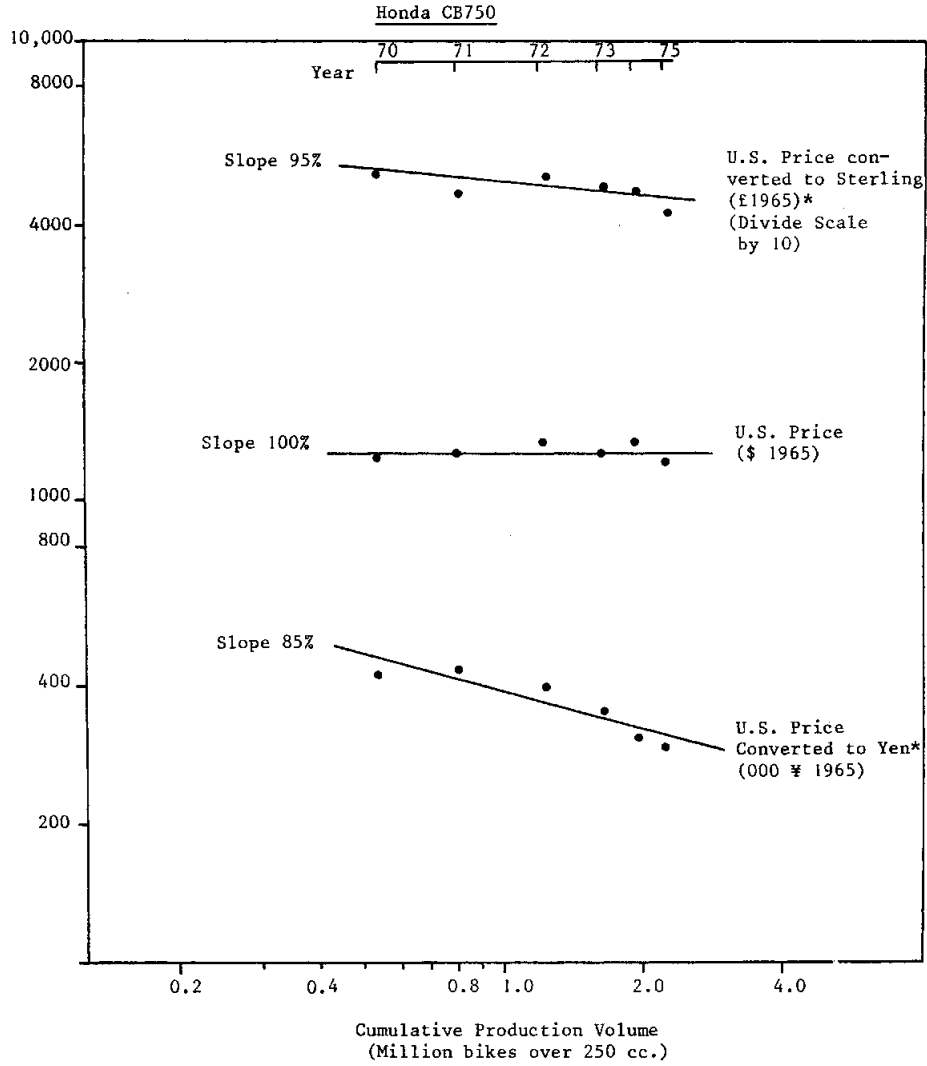
---

\* Although prices in real sterling have clearly been coming down slowly over the last few years, this is probably just a short term fluctuation on a long term constant trend. This point is discussed more fully in Appendix 13.

projections of the cost performance the industry can achieve cannot be based on extrapolations of existing experience. The approach employed here has been, whenever possible, to build up a projection of unit costs and investment from a

EXHIBIT 27

Comparative real price performance expressed in different currencies



\* Using exchange rate prevailing each year

detailed hypothetical plant layout appropriate for the strategy alternative under consideration.

Following this approach, the alternative production methods have been examined for each stage in the production process. The best method and equipment for the production volume concerned has been selected. The capital investment required is then the cost of purchasing, tooling and installing these machines. The projected manpower requirements are direct estimates of the number of men required to man the machines, based on the work content of each task.

In the case of engine machining in particular, where there is considerable scope for automation under the high volume strategy, productivity can be increased by up to ten times compared with the traditional methods. In other areas of the production process, for example assembly, there is less scope for modern capital intensive methods. Here, manning is based on a careful evaluation of detailed improvements to the methods employed in the industry today.

Overheads are similarly projected by an examination of individual components of cost on a department by department basis.

All of this extremely detailed cost analysis has been carried out with the cooperation of individuals in the motorcycle industry who are familiar with present and alternative production methods. In considering possible variations in the cost of purchased materials as a function of volume, we have sought views from representative component suppliers. We are indebted to all these individuals for their assistance.

The end product of this analysis is a set of projections, for each alternative, of appropriate methods, investment, manning, overheads and unit costs, together with an understanding of how that unit cost varies within a range of production volumes.

*Prices and volumes.* Price levels appropriate to each of the strategy alternatives have been set by consideration of:

- The generalised view of the price–volume relationship discussed earlier in this chapter.
- The specific pricing policies and product positioning of the competition.

Furthermore, the evaluations recognise that the actual prices realised, together with the costs of distributing and selling the products, will vary in different markets (e.g. U.S. versus Europe). The projections of sales volumes for each model are made within the context of the projections of overall market growth rates developed in the market analysis discussed earlier in this report.

*The commercial evaluation.* The volume, cost and price projections are brought together to yield a commercial view of each of the alternatives, including: sales and profitability; sensitivity of profits to fluctuations in price and volume; and return on assets employed. Other important factors—the implications for employment, and the impact on the U.K. balance of payments—are also evaluated.

The central purpose of these evaluations is to present a view on the long term

viability and commercial attractiveness of each of the alternatives. Consideration of problems in the short and medium term such as interim financing requirements, the problems of phasing in the new model range, and so forth, is left until the next chapter.

#### **The specification of the product**

In order to conduct the detailed analysis of costs, volumes and prices that is required it has been necessary to make assumptions about the specification of the product.

The evaluations have in fact been based on a range of machines designed around the NVT/Cosworth development (the "P86"). The P86 provides a sound basis for analysis. It is a sophisticated, high performance machine which builds well upon the historical strengths of the British industry, and fits well into the marketing niche suggested earlier in this chapter. There is every reason to believe that it could command a price premium, the size of which, of course, would depend upon the required volume.

Furthermore, the P86 is a machine which could be reasonably well suited to high volume production methods. For the purposes of this analysis, it is assumed that it would be developed just as far as possible to facilitate modern, low-cost techniques.

However, each of the strategy alternatives requires more than a single model. The key to designing a model family is that the models must be related in production terms. For the purposes of the following analysis the larger, 1000 cc, machine is taken to be a "stretched" version of the 750 cc P86, similar except for a relatively few engine components. It is assumed that a 500 cc machine, on the other hand, would be rather more different. The main engine components might be similar but smaller, while other components, perhaps covers and many of the cycle parts, would be the same as on the larger machines.

The details of these assumptions about the product, while critical for implementation, are not themselves important for long range strategy. In particular, the use of the P86 as a model for costing purposes indicates no commitment to this particular design. Indeed this and other possible model developments are evaluated in detail in the next chapter, and it will become clear that the P86 has disadvantages as well as advantages if being considered as the chosen vehicle on which to base future strategy. However the specifications of the P86, and the assumptions about the other members of this superbike family, offer a sound basis for projecting the likely cost structure of *any* appropriate range of superbikes which the British industry might produce, and hence for evaluating the *long term* commercial implications of the strategy alternatives.

### **Strategy evaluations**

The bulk of the detailed work involved in the evaluations of the three strategies is outlined in Appendices 15, 16 and 17, whilst Appendix 14 contains notes on methodology which are applicable to each. The principal findings are summarised below.

**The low volume, high premium, strategy**

*Description.* This alternative is the low volume, high premium, specialist approach. Volumes of 15–20,000 are sold at a price premium relative to the Japanese of 30–40 per cent. Traditional, highly labour intensive production methods are used. Probably two superbike models are produced: 750 cc and 1000 cc machines.

*Summary.* Considerations of the market price-volume relationship and detailed product positioning suggest price premiums of [deleted for reasons of commercial security]. These bring the British bikes to market at prices [deleted for reasons of commercial security] BMW. Total volume, at these prices, is 16,700 units generating a value of over £17.4 million.

TABLE 11

**Prices and Volumes**

<i>Model</i>	<i>Premium (%)</i>	<i>U.S. Retail (\$)</i>	<i>Sales (units)</i>	<i>Sales (£000)</i>
1000 cc	[deleted for reasons of commercial security]			
750 cc	[deleted for reasons of commercial security]			
			16,700	17,411

The methods employed are those used by the British industry at present: general purpose machinery and manual transfer. A limited amount of investment is necessary to eliminate the inevitable bottlenecks, to equip for new operations, and to ensure adequate quality. The precise size of the investment will depend partly on the extent to which the industry can “make do”. It would appear that the figure given below in Table 12 is the *minimum* investment required.

TABLE 12

**Investment in New Machines**

£4.0 million

**Manpower Requirements**

Direct employees	1053
Indirect employees	523
Total factory	1576

Motorcycles per man year 10.6

The estimated manpower requirement is based on the production volume of 16,700 motorcycles per year and a 40-hour week. In spite of using traditional methods, the fact that the model is carefully designed for production, that there has been investment in new machines, and that higher volumes of a single basic model are achieved, results in a 35 per cent improvement in productivity per man compared to present-day T160 experience. There may be an additional 700 jobs, associated with this alternative, in the parts supply industry. This estimate is based on the approximate value added content of bought-in components.

At these production volumes only limited savings are possible in materials cost: an estimated [deleted for reasons of commercial security] compared to current experience. Most of this is accounted for by redesign for cost saving.

TABLE 13  
**Cost Breakdown—U.S. market**  
 (£)

Materials	[Figures deleted
Direct labour	for reasons of
Overheads	commercial
Depreciation on new plant	security]
Total factory cost	
R & D, distribution and marketing	
Total unit cost	
Selling prices 1000 cc	
750 cc	

[Consequential footnote deleted]

The somewhat discretionary distribution and marketing costs are based on the historical experience of the British industry, and also on the s and d approach adopted by the Japanese competitors. [Comment deleted for reasons of commercial security.]

TABLE 14  
**Financial Summary**

		(£000)
<i>Sales</i>	1000 cc	[Figures deleted
	750 cc	for reasons of
		commercial
		security]
	Total	17,411
<i>Profits</i>	1000 cc	[Figures deleted
	750 cc	for reasons of
		commercial
		security]
	Total	989
Overall return on sales		5.7%
Overall return on net assets		7.5%

Note: Profits are operating profits, pre-tax.

*Commercial performance.* The estimated return figures shown in Table 14 are quite low. Furthermore, they are highly sensitive to price and volume realisation. As little as 6 per cent softening in price would eliminate the operating profit, as would a 20 per cent shortfall in volume. The 7.5 per cent return on net assets figure is the return on all assets employed, including working capital. An estimate of net profit after financing charges, but still pre-tax, can be made by applying a finance charge of 10 per cent to net working capital. If this is done, the profit figure is reduced to £379,000, only 2.2 per cent of sales. The return on assets figure drops to 2.9 per cent.

*Balance of payments.* This alternative would make a contribution to the U.K. balance of payments of about £13 million.



### The high volume, low premium, strategy

*Description.* This alternative is the high volume, low premium approach. Volumes of around 70,000 are sold at a price premium of 10–15 per cent. Modern, capital-intensive production methods are used. A family of three models is produced—500, 750, 1000 cc—all designed to come off the same transfer machinery.

*Summary.* This alternative, like the low volume alternative, involves the sale of premium machines at premium prices. However, the size of the premium is limited by the need to sell relatively high volumes. In the case of the smaller capacity motorcycle the premium must be particularly low, for in the smaller capacity sizes the traditional virtues of the British product become less highly valued and more importance is attached to value and economy. The total sales volume, supported by the strength of the three model product line, is 67,000 units yielding a sales value of over £54 million as shown below:

TABLE 15  
Prices and volumes

<i>Model</i>	<i>Premium (%)</i>	<i>U.S. Retail (\$)</i>	<i>Sales (units)</i>	<i>Sales (£000)</i>
1000 cc	[Figures deleted for reasons of commercial security]			
750 cc				
500 cc				
Total			67,000	54,450

Production volumes of this magnitude make possible capital intensive production methods broadly comparable to those currently employed by the Japanese in superbikes. Extensive use is made of rotary index equipment and more limited use is made of in-line transfer machines. Besides improvements in productivity, these methods bring with them the opportunity to maintain tolerances, and standards of quality and reliability, which are hard to achieve with conventional methods. The investment requirement is high, as shown below, but produces low costs at the target volume levels.

TABLE 16  
Investment in New Machines

£28 million

#### Manpower requirements

Direct employees	1962
Indirect employees	1019

Total factory 2981

Motorcycles per man year 22.5

The estimated manpower requirement for producing the 67,000 motorcycles per year is again based on a 40-hour week. The most dramatic gains in productivity resulting from the use of the modern methods are in machining. In other areas of production, e.g. assembly, the gains are more modest. The overall gain in productivity, compared to the low-volume approach, is 112 per cent. This high volume strategy may also provide employment for as many as 1700 in the parts supply industry.

TABLE 17  
Cost Breakdown—U.S. market

Materials	(£)
Direct labour	[Figures deleted]
Overheads	for reasons of
Depreciation on new plant	commercial
	security]
Total factory cost	
R & D, distribution and marketing	
Total unit cost	
Selling prices	1000 cc
	750 cc
	500 cc

[Cost analysis deleted for reasons of commercial security]

The overall savings in materials cost at these volumes are significant, up to [comment deleted for reasons of commercial security] compared to today's experience. However it is doubtful whether even these savings put the industry on an equal footing with the Japanese, who have extremely close relationships with their suppliers. [Comment deleted for reasons of commercial security.]

TABLE 18  
Financial summary

		(£000)
<i>Sales</i>	1000 cc	[Figures deleted
	750 cc	for reasons of
	500 cc	commercial
		security]
	Total	54,450
<i>Profits</i>	1000 cc	[Figures deleted
	750 cc	for reasons of
	500 cc	commercial
		security]
	Total	6,590
	Overall return on sales	12.1 %
	Overall return on assets	13.4 %

Note: Profits are operating profits, before tax.

*Commercial performance.* These returns appear more attractive than those in the low volume alternative. They are also more secure: a 12 per cent softening in price is required before operating profit is reduced to zero. If volume declines 20 per cent, operating profit is still £2.3 million, or 5.3 per cent of sales. Again, the 13.4 per cent return on assets figure is the return on all assets employed. If a financing charge of 10 per cent is assumed on net working capital, then the pre-tax profit figure is reduced to £4,790,000, or 8.8 per cent of sales. The return on assets figure becomes 9.8 per cent.

*Balance of payments.* This alternative would make a contribution to the U.K. balance of payments of about £41 million. Offsetting this in the first year would

be the fact that approximately 50 per cent of the investment in capital equipment would have to be made overseas, for sufficiently sophisticated machine tools are not available in this country.

**The medium volume strategy**

*Description.* This alternative was developed as a possible “middle route”. Volumes of around 35,000 units of, perhaps, two models would be sold. Sufficient modern machinery would be used to ensure a consistent and reliable product.

*Summary.* Under this alternative, sales volumes of the two individual models are not a great deal less than those under the high volume approach which employed three models. As a result, the price premium cannot rise above the [deleted for reasons of commercial security] figure employed before. The lack of a smaller model in the range will itself depress sales volumes of the 750 and 1000, and the nature of the price-volume relationship suggests that, at these prices, even a small price increase could depress sales volumes significantly. Careful marketing analysis suggests that 40,500 units of the two models could be sold at these price levels yielding a sales value of over £35 million:

TABLE 19  
Prices and volumes

<i>Model</i>	<i>Premium (%)</i>	<i>U.S. Retail (\$)</i>	<i>Sales (units)</i>	<i>Sales (£000)</i>
1000 cc	[Figures deleted for reasons of commercial security]			
750 cc				
			40,500	35,633

A central advantage of this alternative is that it makes possible the quality and reliability improvements that can be achieved with modern methods and equipment. At the same time it does not require the design of a complete family of three machines. It requires just two models of 750 and 1000 cc which could (perhaps) be P86-based. However, because this alternative involves modern methods, capital investment is still high.

This approach to production can be characterised as the BMW approach. BMW’s capital investments in transfer lines may not be justifiable in ordinary financial terms, but the quality and reliability advantages tip the balance in their favour. The investment required under this option is over £20 million.

TABLE 20  
Investment in New Machines

£20.5 million

<b>Manpower requirements</b>	
Direct employees	1330
Indirect employees	760
Total factory	2090
Motorcycles per man year	19.4

Again, the estimated manpower requirement is based on a 40-hour week. Because methods are very similar to those under the high volume approach, overall productivities are only a little lower. Associated employment in the parts supply industry would be about 1000.

TABLE 21  
Cost breakdown—U.S. market

Materials	(£)
Direct labour	[Figures deleted for reasons of commercial security]
Overheads	
Depreciation on new plant	
Total factory cost	
R & D, distribution and marketing	
Total unit cost	
Selling prices 1000 cc	
750 cc	

[Comment deleted for reasons of commercial security]

TABLE 22  
Financial summary

		(£000)
<i>Sales</i>	1000 cc	[Figures deleted for reasons of commercial security]
	750 cc	
	Total	35,633
<i>Profits</i>	1000 cc	[Figures deleted for reasons of commercial security]
	750 cc	
	Total	3,423
Overall returns on sales		9.6%
Overall return on assets		9.5%

Note: Profits are operating profits, before tax.

*Commercial performance.* Not surprisingly, these return figures fall between our estimates for the low and high volume alternatives. However, they are closer to the projected performance under the high volume approach. A softening in selling price of 9.6 per cent is necessary before operating profit is eliminated. A reduction of volume of 20 per cent lowers return on sales to 5 per cent. Again, the return on assets figure is the return on all assets employed. If a financing charge of 10 per cent is applied to net working capital, pre-tax profit declines to £2,183,000, or 6.1 per cent of sales. Return on assets similarly falls to 6.1 per cent.

*Balance of Payments.* This alternative would make a contribution to the U.K. balance of payments of about £26 million. Again, approximately 50 per cent of the initial investment would have to be made in machine tools of foreign manufacture.

### **The non-motorcycle businesses**

The discussion so far has concentrated entirely on motorcycle activities. It should not be forgotten that there are also significant non-motorcycle activities within the industry, namely industrial engines and subcontract engineering. In fact sales of industrial engines (including spares) amounted to £2.5 million, and subcontract engineering sales amounted to roughly £1.5 million in 1975. These businesses represent approaching one third of the factory activity at Wolverhampton and Small Heath respectively. In the past year, both activities have generated some profits, and for completeness it is important to conclude this section by examining the strategic role these businesses could play within the industry over the longer term.

*Industrial engines.* A brief review of the industrial engine business is given in Appendix 19. In some ways the situation is reminiscent of that in motorcycles. The market for industrial engines worldwide is huge and growing. It is massively dominated by Briggs and Stratton of the USA, who make roughly 8 million engines a year by highly automated low cost techniques. Villiers make 40 to 50 thousand a year, and have followed a segment retreat policy over time, withdrawing into the market for higher quality, long life engines. Briggs and Stratton's engines could be classified as being of a "throw-away" variety.

Villiers do seem to have retained a fairly good market position in their segment, and have increased unit sales at a compound rate of between 5 and 10 per cent in the last few years. Provided they maintain their relative market position, and Briggs and Stratton do not grow much more rapidly than Villiers, the relative *status quo* should be maintained, if real costs are kept under control on an experience curve basis.

For the long term, there may be further growth potential. [Comment on particular product deleted for reasons of commercial security].

The company is also examining possible expansion forwards into the end product area in certain applications. Care must of course be taken here to ensure that direct competition with established and entrenched competitors is avoided.

Essentially, industrial engines are separable from the motorcycle business and share very little in the way of costs. As such, they come somewhat out of the scope of this study and their strategy has not been appraised in depth. It would seem, however, that industrial engines could remain viable and continue to provide employment for around 500 people, provided the present relative competitive position is maintained. Given the small market share, this is unlikely to be highly profitable, but should be sufficiently viable to be self-sustaining.

*Subcontract.* This business is reviewed in Appendix 20. Though profitable at present, it would seem that it is unlikely to provide a vehicle for significant expansion of production and employment. The type of general subcontract business for which Small Heath bids is highly competitive and margins tend to be low. The attractive business is in more specialised manufacture of items [deleted for reasons of commercial security], where competition is reduced

owing to the degree of specialisation. Specialised equipment is needed for manufacture, and this also tends to give security once the business is won. Unfortunately, such business appears to be rare. In any case, the existing factory operations lack the flexibility and control effectively to run a subcontract business; the latter tends to get "mixed up" with the motorcycle activities. As a result, whilst one can envisage subcontract continuing at roughly the existing levels, it is difficult to see it expanding and if anything it may decline.

*Summary.* Overall, it would seem that the industrial engine activities, subcontract and service parts manufacture for past British models, could together provide viable, but probably only moderately profitable, employment for about 1000 people. This level of long term employment and activity can be considered as additive to the strategy alternatives considered for the motorcycle activities themselves.

### **Comparative summary**

All three strategy alternatives for the motorcycle activities are compared and summarised in Exhibit 28. It is clear that the high volume strategy offers the best long run returns. Returns under this strategy also appear more resilient to market setbacks than the others. Furthermore, this strategy is the only one which employs numbers of people comparable to those in the industry today.

However, even the high volume strategy shows returns which may be regarded as low by more usual commercial standards; and the investment required is substantial. Also, there are significant implementation problems and risks which are addressed in the next chapter. But this alternative does appear to hold the possibility of reconstituting a substantial and reasonably viable industry by the early 1980's. This position could then be used as a base for further growth subsequently, possibly attaining a position of attractive commercial performance later in that decade.

The low volume, high premium, strategy offers returns which are poor under the assumptions regarded as most realistic in our evaluations. If prices or volumes did not materialise as projected, the industry would rapidly be driven into a loss making position following this alternative. On the other hand, this alternative does require the least new capital. By the same token, it provides the least employment, has the least impact on the U.K. balance of payments, and would perhaps be unlikely to provide a foundation from which the industry could rebuild to a more substantial size later. This strategy really represents an ultimate condensation of the industry following the segment retreat strategy which has already been followed for so long in the past. There would be some doubt as to whether the industry could exist profitably in this form over the very long term, for it will not provide a good base from which to achieve continuing productivity improvements, while Japanese productivity improvements can be expected to continue over the long term.

The medium volume strategy offers returns and security which fall between those of the other two alternatives. Commercial performance under this strategy is in fact closer to that of the high volume strategy than the low volume. Tactically, this alternative could be considered as the first move towards the high

volume strategy, and would involve somewhat reduced investment and perhaps lower overall risk.

Finally, it should be noted that it seems possible that the non-motorcycle businesses, industrial engines and subcontract, together with motorcycle spares, could provide long term employment for up to 1000 people. The level of profitability to be expected would be low, but the activities could be viable.

## EXHIBIT 28

### Comparative summary of the strategy alternatives

	<i>Low volume</i> 750, 1000	<i>High volume</i> 500, 750, 1000	<i>Medium volume</i> 750, 1000
Models (cc)			
Average Price Premium (%)	[Figures deleted for reasons of commercial security]		
Sales (units)	16,700	67,000	40,500
Sales (£000)	17,411	54,450	35,633
New investment			
—Plant (£ million)	4.0	28.0	20.5
—Working capital (£ million)	—	6.0	0.5
—Total	4.0	34.0	21.0
Employment (factory)	1576	2981	2090
Productivity (Motorcycles per man year)	10.6	22.5	19.4
Long term operating results			
—Pre-tax profits (£000)	989	6590	3423
—Return on sales (%)	5.7	12.1	9.6
—Return on net assets (%)	7.5	13.4	9.5
Sensitivity			
—ROS % after 10% price cut	(4.3)	2.3	(0.4)
—ROS % after 20% volume cut	0.3	5.3	5.0
Estimated returns after finance charges			
—Pre-tax profit (£000)	379	4790	2183
—Return on sales (%)	2.2	8.8	6.1
—Return on net Assets (%)	2.9	9.8	6.1
Contribution to U.K. Balance of Payments (£ million p.a.)	13	41	26

#### Notes

1. All financial values are stated at 1975 cost and price levels.
2. Industrial engines, subcontract and spares, together with group staff, may account for up to 1000 more employees under each of these alternatives. Further employment is created in the parts supply industry. This would amount to about one half of the total in the motorcycle industry itself.
3. The estimates of new working capital requirements are over and above existing levels. In the case of the low volume alternative, the working capital requirement would actually be lower than the current level. In fact, present working capital levels are inflated and could be run down in the short and medium term. We return to this in the next chapter.
4. The net assets figures used for calculating return on investment include existing fixed assets and working capital in addition to the new capital required for each strategy.
5. Finance charges are estimated at 10% of working capital.
6. In the case of the high and medium volume alternatives, at least 50% of the investment in new plant would need to be imported, thus reducing the overall contribution to the U.K. balance of payments in the early years.
7. The complexity of the product, and the percentage of bought-in components assumed here, are broadly comparable to current Trident production at Small Heath. The productivity at Small Heath in early 1975 was 8.1 motorcycles per man year. These productivity figures are based on a 40-hour week.

## STRATEGY IMPLEMENTATION AND RISKS

### Introduction

The strategy alternatives we have evaluated are long term in nature. They rely on the introduction of new models which are to be produced with new equipment. None of these strategies could be implemented with any immediacy. An absolute minimum of two years would be required to bring a new model to production. This would mean that the model would be ready for the 1978 season. Needless to say it is essential, given current losses, that the industry proceed with whatever strategy is chosen with all despatch, and no effort should be spared in attempting to bring new models to the market by 1978. However, this is certainly an aggressive, and perhaps an optimistic, target. A more conservative assessment might place the introduction into the 1979 season, with full momentum perhaps only being gained by 1980.

Whatever the precise timing of the strategy chosen, it is clear that two basic practical problems confront the industry. The first of these concerns the short term: the role to be played by the existing factories and products, and the commercial performance that can be expected from the industry overall, until such time as the new models take over. The second problem concerns detailed questions of implementation of the longer term strategy: what models should be the chosen vehicles for the strategy; where the necessary production facilities should be installed; and how the selling and distribution system should be geared up for marketing them.

In this chapter both the short term transition period and the issues of longer range strategy implementation are discussed in turn. The chapter then concludes with a summary of the practical risks that the transitional and implementation considerations suggest might affect each strategy.

### The short term transition period

#### The existing models

Motorcycle sales will depend on the existing models, possibly with minor design modifications, during the years before new models are available. The existing models are now of old design and rather limited market appeal. For substantial sales to be achieved, they must be priced much more competitively against the rival Japanese models than they have been in the 1975 selling period just past. The required pricing and likely sales volumes vary from model to model.

[Product appraisal of existing products deleted for reasons of commercial security.]

*Summary.* All three existing British bikes must be regarded as purely interim models, to be phased out once a new model family is available. To sell in significant volumes, the Bonneville should be priced roughly [ ] the Honda CB 750, the Norton roughly [ ] Kawasaki Z-1, and the Trident no more than [ ] the Z-1. Based on these prices, it is possible to develop sales volume estimates and hence to project the near-term financial performance of the industry. This forms the subject of the next section.



### Short term financial projections

[Section dealing with profitability and cash flows in short and medium term deleted for reasons of commercial security.]

### EXHIBIT 29

#### British motorcycle industry short term financial projections (£000) [Deleted for reasons of commercial security]

The extent of this adverse financial performance lends extreme urgency to the implementation of whatever strategy option is chosen. A discussion of the issues involved in implementing the various strategy alternatives in practice follows.

### Implementation of the strategy alternatives

#### Introduction

In considering the question of how to set about implementing the various strategy alternatives it is important first, to be precise about the markets targeted and the required market share in each. This can then lead in turn to consideration of the marketing requirements for the specific new models which must be introduced to achieve those marketing targets. These models must be acceptable not only in a marketing sense but also in a production sense: their design must take into careful account the requirements for low cost manufacture.

Following from decisions on the required model policy detailed design work must be completed and the factories tooled appropriately for production. Groundwork must also be performed in the s and d system to pave the way for successful introduction of the new models. The effective administration and coordination of these interrelated tasks will be demanding, and this has certain implications for the organisational measures that should be adopted during the implementation period and thereafter.

In this section of the chapter each of these major implementation issues are considered in turn, beginning with the marketing targets.

#### The marketing targets

*The Low Volume, High Premium, Alternative.* The market volumes and share by market and by model implied in this strategy are as shown in Exhibit 30 (see also Appendix 15).

Similar volumes by each model have been assumed in each major market, which implies a rather higher share of the 1000 cc market than the 750 cc

### EXHIBIT 30

#### Market targets for the low volume alternative

North America		U.K.		Continental Europe		Rest of World	
Sales (000 units)	Market Share (%)	Sales (000 units)	Market Share (%)	Sales (000 units)	Market Share (%)	Sales (000 units)	Market Share (%)

1000 cc  
750 cc

[Figures deleted for reasons of commercial security]

market. This is reasonable, since the 1000 cc market represents the extreme of the demand spectrum, and probably includes the greatest number of purchasers for whom price is a matter of little importance. The North American projections show market share targets of around the 5 per cent level in these displacement classes. This is about the level achieved by BMW now. The price premium we have suggested probably means that there will be very little competitive sales overlap with the Japanese, but for the British to achieve these volumes some share must be taken from BMW, and probably also from Harley-Davidson and the other European manufacturers.

During the seventies Norton has held shares of rather more than 5 per cent of their cc class while Triumph took over 10 per cent of the 750 cc market in 1973. But these market shares were achieved with products at much lower price premiums than are required under this strategy. To justify the premium being sought the British bikes must be seen as genuinely superior motorcycles.

The British share of the U.K. market has historically been over 50 per cent in the superbike categories. Our projections of market shares in the U.K. well in excess of those held in the U.S. do assume some continued national loyalty and a lower retail price than in the U.S. However, given the price premiums required under this strategy we feel that it is unrealistic to assume a continuation of past market shares and it is unlikely that shares in excess of those we forecast—14 to 20 per cent—could be achieved.

Even if a low British marketing profile is maintained in Europe, market shares of around 3–4 per cent of this market should be achievable, given the right product. Our market share projections do however assume that importers in Europe are given a proper margin within which to work, rather than being charged the present very high prices by NTE. Even with the very low level of effort in Europe, Triumph took 3 per cent of the European superbike market in 1973, while Norton held over 1 per cent of this market in 1974.

*The high volume, low premium, alternative.* The market volumes and share targets used in the evaluation of this strategy are shown in Exhibit 31.

*The medium volume alternative* is in a marketing sense a variant of this strategy. It involves cutting out the 500 cc model from the range, and achieving volumes in the 1000 cc and 750 cc model that are 10 per cent below the figures

#### EXHIBIT 31

##### Market targets for the high volume alternative

North America		U.K.		Continental Europe		Rest of World	
Sales (000 units)	Market Share (%)	Sales (000 units)	Market Share (%)	Sales (000 units)	Market Share (%)	Sales (000 units)	Market Share (%)

1000 cc  
750 cc  
500 cc

[Figures deleted for reasons of commercial security]

in Exhibit 31. The reduction in volume is a result of fewer trade-up sales from "loyal" 500 cc buyers, and is consistent with the analysis of the value of this type of trade-up set out in Appendix 1.

Market share targets in the U.S. of over 10 per cent are implied under the high volume strategy. It is considered that these are feasible targets despite the moderate price premium required. In 1973, Norton and Triumph together held nearly 20 per cent of the 750 cc market, with the present models. By 1980 we assume that an attractive new model range will be in existence. So, despite premium prices and the fact that there will be only one model in each cc class, the target shares [ ] do not look impossible.

On the other hand, this market share level is similar to that of Kawasaki and Suzuki, both of whom may be expected to target market shares of around 10 per cent in superbikes in 1980. To expect the British to achieve much more than 10 per cent is therefore probably unrealistic. Even this target implies a very major recovery from the low shares currently being achieved (now well under 5 per cent of superbikes in 1975), and a considerable success in matching and taking share from Japanese manufacturers. To achieve this objective will require sustaining volumes on existing models to maintain a market presence until the new models arrive, and a new range that is really well received by the market when it does arrive, and is seen to offer something distinctive and different from the Japanese.

The projections for the U.K. under the high volume strategy require the maintenance of high market shares in the home market. Since British prices in the U.K. will be quite competitive under this alternative, there is a good chance of achieving the sort of market shares that the industry enjoyed before the Meriden shutdown,

An integral part of this strategy is the achievement of substantial sales in Europe. The projections imply levels of market share just below 10 per cent, a far higher target than has previously been achieved. These targets are only possible provided a major thrust is made to establish sound s and d systems in Europe. The sales drive will be facilitated by the reduction in tariff barriers to zero that will take place by 1980; the Japanese will still then be subject to duty. This, together with differences in transport costs, will result in the British enjoying an advantage of some 5-6 per cent of the retail price.

Provided the necessary determined sales efforts are forthcoming in Europe target market shares close to U.S. levels by 1980 are not unreasonable. It would be unrealistic, however, to target shares of better than 10 per cent due to the low base from which the British are starting, and the strong commitment that the Japanese now have to Europe. And, if the sales efforts in Europe are not increased as we have recommended under this alternative, sales would not rise much from present levels, even with a new range of models. Overall, the European projections for the British industry must be regarded as the least certain, since they depend on changes of such a fundamental nature from present practice.

Sales in the Rest of the World in 1973 were 3-4 thousand. A level of five thousand in 1980 is projected under the strategy. This is in fact conservative, and requires less than keeping up with market growth.

*Summary.* In general, then, it seems that the targets set for market share penetration under the various strategies are fair: they are neither unduly optimistic, nor pessimistic. The targets do, however, assume and critically depend upon skilled and efficient marketing operations and tactics. Furthermore, success in achieving the targets will depend heavily on the perceived quality and attractiveness of the new model range. The models must be designed to satisfy both the marketing requirements and the production requirements for low cost.

#### **Choice of new models**

From the marketing point of view it is important that the new models introduced in any of the long range strategy alternatives be perceived in the market place as a genuine product design advance. Only in this way can the necessary price premiums and volumes be achieved. The apparent quality and luxury will, of course, need to be greatest under the low volume, high premium, strategy. For all the strategies, however, similar general considerations should guide the product design. There are three major areas of concern. First, the new models should build on, and extend, past British motorcycle strengths. Secondly, the faults of previous British motorcycles should be eliminated. Finally, the product must be positioned with care in the correct market "niche".

*Building on strength.* British motorcycles have a reputation for superior performance and handling, for high quality finish and distinctive styling. These are strengths that any British model should build on. The sales failure of the 1971/72 re-design programme can be heavily attributed to its attempt to alter what was universally recognised to be a major British advantage, the styling of the products.

To the extent that existing models fail to live up to the traditional British reputation, they need to be altered or withdrawn. New products, however, must preserve the best in their predecessors, as well as remedying their defects. New model strategy should in this sense attempt linear rather than discontinuous development.

*Elimination of faults.* We have identified certain weak areas in present British products and these must now be eliminated. In particular, the reputation for unreliability must be eradicated. This means that, in future, British models must outperform their competition in terms of durability and reliability, and that the market must be made aware that this is so. The image created for British products in advertising and promotion campaigns must stress this new policy, and it may be possible to reinforce the message by offering extended or superior warranties. Improved reliability must also be supported by better parts availability, so that past problems—in particular those since 1973—will come to be forgotten.

The other major problem for present British models is their air of obsolescence. We have shown how important new models have been in the Japanese push for market share gains. It is critical that any new British model be clearly seen as a genuine step forward rather than merely "badge engineering" on the old designs.

*Product positioning.* The competition will be introducing several new models of 750 cc or more before 1980. These models will tend to appeal to the "touring" rider, as distinct from the "sporting" rider. This is a somewhat vague distinction, but is based on the particular interests of, on the one hand, the long distance motorcyclist who may travel hundreds of miles in a day, cruising at high speeds on freeways; and, on the other hand, of the street racer, who uses his motorcycle for racing from traffic light to traffic light, or along winding mountain roads. The touring rider looks for comfort, high sustainable top speeds and maximum reliability. The sporting rider is more interested in acceleration, cornering and possible competition uses. The demand for touring motorcycles tends to come from older riders, and as the new entrants to the market in the 1960's have grown older, and as freeway systems have been extended in most developed countries, it is a demand that has grown strongly. This is why the competition have targeted their new models (the Goldwing, the projected Yamaha shaft-drive, the Suzuki Rotary and 1000) on the touring segment.

However, the requirements of the tourer and the sporting rider are not sufficiently different that a single model cannot have appeal to both types of demand. BMW motorcycles have always been seen as having a "touring" image, but in the *Motorcyclist* survey of July 1973 the BMW machine received superior ratings on both "sporting" and "touring" characteristics. What is more, most touring riders also have some sporting interests—and *vice versa*. A good superbike will appeal to both segments, even if it is of particular appeal to riders at either end of the sport-touring spectrum.

Despite the growth of the touring segment, we therefore suggest that British models should have a primary focus on sporting qualities. This is the image that British machines have always had, and it would be hard to shift that image. It is also an image which is distinct from most of the Japanese competition, with the exception of Kawasaki, and which may therefore help in creating a market niche for the British, and, provided that sporting British models are well designed and made, there is no reason why they should not have considerable appeal to touring riders in any case.

The detailed design of a machine to occupy this market position is outside the scope of this study. It is possible, however, based on the analysis above, to specify the general characteristics which the new model or "family" of models should possess.

The new model must have truly superior performance, it must have the ability to win major competition events, and it must look and handle like a British thoroughbred. Almost more importantly, the public must *believe* that it has all these qualities. We have already noted that Harley-Davidson motorcycles in the US are *seen* as superior in many respects, [ ]. This is a function of established reputation and sophisticated and effective marketing. The implications for the British industry must be that the marketing campaign that supports the British machines must be consistent with and an integral part of the overall marketing

strategy. Advertising and promotional support will be vital elements of a new strategy. Finally, the new model must be competitive in terms of reliability.

It will be useful to review in this light the major new model developments, presently under consideration by the British motorcycle industry. These are:

- The Cosworth (P86)
- Other balanced twins
- The Wankel
- The "Safety Bike"

In appraising these possible new models, it must be borne in mind that the chosen design must satisfy both the marketing requirements *and* the requirements of production for low cost manufacture. The latter requirement is particularly critical in the high volume alternative, where a family of models must be designed in such a way that they can be produced on the same transfer equipment.

*The Cosworth (P86).* The P86 is currently under joint development by Cosworth Engineering and NVT. It is a 750 cc balanced twin with a racing pedigree, being developed from the Cosworth power unit which has been so successful in Formula 1 racing cars. The P86 motorcycle engine, too, is intended as a racing engine, and there is a good chance that it will be as successful as its automobile predecessors on the tracks.

As we have seen, racing success would give a tremendous boost to the P86 in the market and would fit perfectly with the sort of market image suggested under any of the strategies. Sight must not be lost, however, of a requirement which is even more important: any new British product must, above all, be reliable. The question must be raised of whether an engine which is designed to succeed on the tracks can offer the robustness and reliability required for road use, even when detuned. It is essential that this requirement be satisfied by the P86 if it is to be a candidate for a long term strategy for the British industry [detailed comment on current product developments deleted for reasons of commercial security].

*The Wankel.* NVT has had several aircooled, twin rotor Wankel engines running in motorcycles for some time. In theory, such a design is virtually the ideal powerplant for a bike. It is smooth and it is light, and these are two characteristics which are of utmost importance in motorcycle design. In fact, these features are much more important in motorcycle engines than they are in cars. It is not surprising that the NVT Wankel has received an enthusiastic reception from some quarters of the motorcycling press. In practice, however, it is not clear that the NVT Wankel (or any motorcycle Wankel) has a future. There are very serious technical problems and major marketing "question marks".

[Detailed comment deleted for reasons of commercial security.]

In the market place the potential of the Wankel is really still an unknown. [Comment deleted for reasons of commercial security.] Further, the Wankel is unconventional, and as such is at odds with the "traditional" image of previous British designs. Overall, while this is an extremely difficult area to forecast, it seems most likely that the market appeal of the Wankel would be limited.

One last point concerns the technical and commercial risks associated with going into production with an unconventional, and relatively unproven, design. The problems which may arise upon prolonged use of a Wankel are hard to predict. It is particularly difficult for a small company like NVT to simulate and test completely the tremendous variety of possible operating conditions its motorcycles might meet in service. If the Wankel is marketed, and subsequently proves to be a troublesome design, besides being extremely harmful to the image of the U.K. industry, the burden of warranty claims could be too much for the industry to bear. NSU suffered exactly these problems in marketing the earlier version of its Wankel car. Much lower risks are associated with the production of conventional, well understood, reciprocating engine designs.

Overall, then, the Wankel faces major technical problems. Anti-pollution legislation would seem to rule it out as a basis for any of the long range strategies. But if the heat problem can be overcome it could be put into production quite quickly with very limited tooling costs, for the main engine components can be sourced outside NVT. This is the engine's attraction: it could provide a stop-gap product pending the development of new machines. But the risks associated with this design are very great.

*The "Safety Bike"*. The U.K. industry has, in the past, been presented with the opportunity to join in the development of a "safety bike". This particular design is one which has evolved from research into motorcycle safety financed by the U.S. Government. There is no question that the design offers very real improvements in motorcycle safety. This, together with the U.S. associations, cause it to attract attention as a possible growth opportunity for the British industry.

Unfortunately, from an objective marketing point of view, it appears that the safety bike idea has very limited commercial value. Any motorcycle is inherently extremely unsafe. Even the safety bike would be extremely unsafe compared with a car. The fact is that people do not ride motorcycles if they are

looking for a safe form of transportation. All our market research suggests that safety, *as such*, would not be a selling feature. Obviously if a motorcycle could be offered which offered greater safety *in addition* to all of the other selling points—performance, handling, looks, etc.—then it could give it some marketing advantage and the safety features should be adopted. However, none of the other important features should be sacrificed.

In the case of the proposed safety bike, the major marketing problem is that the design inevitably requires a “cafe racer” appearance. This style appeals only to a small segment of the market. It does not have the traditional appearance which is valued so highly by the enthusiasts who form the potential market for British motorcycles.

Finally, it should be noted that it is extremely unlikely that the safety bike will be “legislated” to market dominance. Historically, particularly in cars, the U.S. has moved very slowly in safety legislation, taking care not to disadvantage any individual competitor unfairly. The same pattern will hold good in motorcycles. If safety legislation is introduced, the Japanese will be given plenty of time to comply.

In summary, the safety bike does not make a good cornerstone for future British product policy. On the other hand some of the technology embodied in the safety bike (the use of more steel pressings in the frame for example) may become more popular and could be useful. There is evidence that the British industry has not followed developments such as the safety bike sufficiently closely in the past. They should do so now, for such projects often provide useful ideas even if the overall concept is not accepted.

*Summary.* We are obviously not in a position to make a detailed technical evaluation of the various engine developments which are currently under way. The technical views we have expressed have been based on discussions with R & D staff within the motorcycle industry, as well as with independent technical experts such as Ricardo Engineering. We have indicated that serious questions have arisen concerning the Wankel and that there are more limited reservations concerning the P86. Yet it is clear that the industry needs to make decisions about long term strategy now, and this means decisions about the product line. [Comment deleted for reasons of commercial security.]

The order of priorities which the industry must adopt at this point is perhaps different from that employed in the past. The industry must choose the model or models which are *commercially* right, and then concentrate the development effort on preparing those designs for production. If there is no basis in the existing R & D designs for a technically viable, reliable and commercially attractive product line, then the industry has no basis upon which to formulate a strategy.

At this point in time the Research and Development function is unquestionably the most significant bottleneck in the process of implementation of any of the new model based strategy alternatives. Implementation efforts should therefore focus on this function immediately.

#### **Research and development**

The projects which the industry presently has under way may or may not be



appropriate depending on the strategy that the industry chooses to pursue. [Comment deleted for reasons of commercial security].

The industry's research and development effort must be focused on designing and developing those products which are central to its future strategy. The industry cannot afford to dissipate its valuable development time on a large number of peripheral projects, each of which is of marginal value and many of which are speculative in nature. There must be focus, followed up by tight project control.

Furthermore, there must be close coordination *throughout* design and development with production engineering. This is the key to attaining a competitive cost position under any of the strategy alternatives but it becomes even more important if an investment is to be made in more modern, capital intensive methods.

Given the current rate of losses in the industry, it would seem that production of the new models must be targeted for the 1979 sales season at the absolute latest. This implies a field tested and proved design by the middle of 1976 at the latest. If the motorcycle industry's own R & D function cannot guarantee to achieve this target then outside assistance should perhaps be sought. Achieving this target should become the single-minded objective of the industry.

Coordination will be required to see that the design produced is well suited to modern production. Coordination is also required to ensure that the plans for efficient production are implemented successfully. This must be achieved during the inevitable upheavals of the short and medium term.

### **Organising production**

The period of transition to any new strategy brings with it particular organisational problems in production. Questions of how to phase in new models, how to phase out the old, where to locate production, what to do with the present workforce, and so on must be resolved. These problems are particularly grave at the present time in the motorcycle industry which clearly has an excess of productive capacity. However, the specifics of the problems the industry will face will depend on the actual choice of long range strategy.

*The Low Volume Alternative.* The forecast production volume under this alternative is 17,000 motorcycles per annum in 1980. If the decision is taken to pursue this strategy long term, then it is appropriate to streamline the industry as soon as possible to accommodate efficiently the projected levels of production. This suggests:

- Maintaining a 10–15 per cent price premium in the market place, and thus selling around 15,000 machines a year in 1976 and 1977.
- Concentrating motorcycle production into one factory.

The financial evaluation of the low volume strategy in the previous chapter showed it to be only modestly profitable long term. To achieve even this performance it was necessary to make the assumption that all motorcycle production would be concentrated on to one site, with the associated economies in purchasing, production and overhead. Concentrating production on to a

single site in the short term is also desirable both to prepare for the future strategy, and to minimise the interim cash drain.

Surprisingly, the physical task of moving the machine tools from one factory to another need not be particularly disruptive. All the motorcycles are made by essentially the same methods, thus simplifying the transfer. In addition the present high stock levels provide the industry with a buffer.

The similarity of production methods also means that all of the existing motorcycles and any new models can be produced side by side, at least for a time. The industry can take advantage of this to produce all three of the present models for several more years. Experience has demonstrated that if any one were dropped then sales for the entire industry could be expected to fall proportionately. It should also be noted that there is no production reason why the existing models should not continue in production for a while after the new model introductions. The improved profitability of the new models should, however, offer adequate incentive to ensure that the changeover takes place sufficiently rapidly.

The projected manning level for the motorcycle industry in 1980, under the low volume alternative, is 1600. The employment provided by subcontract, industrial engines and parts should amount to another 1000 jobs, so the total employment provided is 2600. It would not be impossible to fit all of these operations into a single facility. Small Heath could house them all. However, there are problems associated with this approach. First, space constraints would result in transitional problems, even at Small Heath. Secondly, this alternative would involve either new hiring at Small Heath or transfer of personnel from the other two plants. Finally, having all the activities in a single factory might be administratively difficult.

An alternative solution, which is only a little more costly, would be to close down only one of the existing three plants. One of the remainder would contain all of the bike production, and the other would have subcontract, industrial engines and spares. The employment levels at the two plants would be 1600 and 1000 respectively, long term.

Each of the existing factories is big enough to house operations of this magnitude comfortably. The more open nature of the buildings at Small Heath or Meriden would have the advantage over Wolverhampton for motorcycle construction. The space at Small Heath might make it easier to handle there the transitional problems of concentrating the existing models on to one site and phasing in the new. Also, Small Heath currently makes more of the motorcycle components than either Meriden or Wolverhampton, in particular having (for example) its own, reasonably modern, plating plant. However, any differences in the physical suitability of the factories, under this alternative, are small. The choice of which factory to close is a complex one in which labour relations problems are vitally important. But for a viable future, motorcycles, subcontract, industrial engines and spares require a *maximum* of two plants under the low volume alternative.

*The High Volume Alternative.* If the decision is taken to pursue the high volume alternative long term, then the approach to the problems of the short

and medium term will change. The need to maintain the market presence of British bikes, and develop the dealer network, will make it desirable to maintain volumes with the existing models as high as possible until the new range is ready. As we have seen, pricing the product line appropriately relative to the Japanese should make possible sales volumes of about [ ] units per annum in 1976 and 1977. The interim losses sustained by the industry would probably be bigger than under the low volume cost cutting alternative. But the difference has to be seen as part of the investment necessary to stand a chance of achieving profitable high volume operation long term.

Under the high volume alternative, as under the low volume alternative, the motorcycle operation should ideally be concentrated into one factory. The financial analysis in the previous chapter assumes that this will be done. As before, moving the existing models on to the one site in the near term is relatively straightforward and desirable. However, phasing in the new range is more of a problem.

The key to the high volume approach to production is that it employs different, more capital intensive, methods and machines. The plant is generally physically bigger and has to be installed in larger units. The only way that this sort of plant can be installed without disrupting other production at all is by installation into large areas of empty space. So ideally, for the high volume alternative the need is for a plant which is big enough to take the new production lines (preferably into existing empty spaces) while continuing production of the Bonneville, the Trident and the Commando under the same roof.

Small Heath is probably the only one of the three plants which could presently fulfil this role. Meriden is clearly too small and Wolverhampton is only a little larger. The multi-storey Small Heath factory is certainly not ideal—the floors can only carry limited loads and in the main building there are large numbers of obstructing pillars—but there are some newer, more open areas (such as “Shop 64”) which would provide adequate sites for (eg) the engine plant. Overall, any sacrifice of efficiency compared to a “green field” site would probably be small.

If motorcycle production were concentrated at Small Heath, then during the transition and proving period, during which old and new methods would operate side by side, it might be necessary to move subcontract work out. However, this could be coordinated with the concentration of subcontract, industrial engines and spare parts into one of the other factories. The employment in the motorcycle factory and on the other site would be 3000 and 1000 respectively.

The flexible working methods at the Meriden cooperative might provide a foundation for the radical changes, including the new methods and new machines required for motorcycle manufacture under the high volume alternative. However, during the transition period in particular, adequate space is essential to ease the problems of concentration on to a single site.

The ideal configuration for the industry under the high volume alternative is therefore one motorcycle factory, and one other site engaged on all the other work the industry does now. But there are alternative approaches. The high volume motorcycle production operation *could* be split into two parts, with

the engine on one site, and the cycle parts and final assembly on the other. This split is made possible by the very high cost/weight ratio of the engine. It can be transported from one site to the other at relatively low cost. If the industry were split this way the engine factory might employ 700 people and the cycle parts and assembly factory 2250. Most of the investment would go into the engine plant.

In strict commercial terms a split such as this is undesirable. Inevitably some overhead will get duplicated, and there will be increased communications difficulties. Overall, with the factory split one would expect to see higher costs, higher incidence of raw materials and parts shortages, slower fault rectification and so on. Quantification of the *overall* cost difference is difficult, but the disadvantages of the split-plant system are considerable.

Another alternative which has been mentioned is the "green field" factory. Little time need be spent on this here. There is little question that the building costs—perhaps £10 million—are not justified by the relatively small advantage it would have over one of the existing sites.

*Summary.* Overall, then, the *most likely* factory configuration under both low and high volume alternatives would be the same: one motorcycle factory, and one factory doing subcontract work, industrial engines and parts. In the case of the low volume alternative, however, a *single* plant would be more ideal, while in the case of the high volume alternative *three* plants is a (commercially undesirable) possibility.

The problems of phasing in new models, and initially relocating at a single site and subsequently phasing out the old, are minor in the case of the low volume strategy because of the similarity of production methods: this gives the engineers a surprising degree of flexibility. However in the case of the high volume strategy the physical problems are more substantial. The key to a successful transition is the availability of adequate space, preferably on a single site. If the space is available then the problems can be overcome.

Finally, it should be said that these problems are more properly the province of the production engineer. The comments in this section have been intended only to convey a feeling for the magnitude of some of the problems, and to discuss in general managerial terms the feasibility of some of the solutions. Much detailed implementation work would be necessary to translate any of the suggested options into reality.

#### **The selling and distribution system**

The Japanese producers have advantages in their s and d systems, due to the sales volumes across which they can spread their costs. These advantages lead to superior systems, at comparable or lower costs than the British, and consequently to more secure market positions. None of the strategy alternatives considered for the British industry would match Japanese market volumes, since our attempt has been to find more specialised market segments where the full weight of Japanese competition could be avoided. It will be necessary to tailor a distribution strategy to fit this general strategic approach. The objective is to achieve effective s and d for the strategy adopted, and to control costs as a percentage of sales to levels comparable to those of the Japanese.

The basic implementation decisions to be taken concern the type of dealers, positioning of these dealers, and the appropriate number of dealers, as well as the range of customers to whom the industry should try to appeal in its advertising and promotion. We shall discuss each of these points in turn.

*Type of Dealer.* As we have seen, the British industry's s and d system is now quite weak in the USA. The number of dealers carrying British bikes has declined markedly. In this situation, and given the importance of the s and d system both in influencing market share and as a proportion of total value added, it is desirable to assess whether any opportunities exist to restore s and d strength by using unconventional or new channels of distribution. Unfortunately, the nature of motorcycles appears in fact to preclude channels other than the traditional dealer. Particularly for bigger bikes, the motorcycle requires a knowledgeable and enthusiastic salesman, and adequate back-up service facilities. The service requirement involves a full parts inventory, trained mechanics and suitable premises. These are factors which rule out, say, discount stores, department chain stores, or service stations as suitable outlets. Only a serious motorcycle dealer is prepared to make these commitments. Without the necessary commitment an outlet will do more harm than good to a manufacturer's market position.

Both in North America and in Europe, attempts have been made to introduce motorcycles into car dealerships. Except where the motorcycle business has been set up quite separately from the car business, the results have been poor. Sears Roebuck in the U.S. used to handle motorcycles, but have now given up, not because they could not sell them, but because they could not cope with the subsequent requirement for service.

In superbikes, therefore, it would seem that the British motorcycle industry should continue to sell through conventional motorcycle dealerships.

*Dealer Positioning.* In the U.S. dealerships are typically exclusive or have one franchise which is their primary source of sales and profit. In Europe and other parts of the world, dealerships more frequently carry two or more major lines. In all cases, however, there is a very real distinction between the wide-line manufacturer who can offer a sufficient range of products to be a primary franchise, and the more specialist manufacturer who expects to form a more minor part of any dealer's business.

A wide-line manufacturer must offer enough different products with enough sales potential for the dealer to be able to rely on the franchise for his "bread and butter". Furthermore, the wide-line manufacturer will be competing with the other majors to win the best dealers and must try to match the quality of their dealer support in all areas. For the more marginal wide-line producers like Kawasaki and Suzuki, this has been a difficult task.

A more specialist manufacturer need not convince the dealer that his product line and support are the equal of the major manufacturers. He can emphasise that his intention is not to displace (or compete with) a dealer's established primary franchise, but rather to supplement the dealer's overall position with

a limited range of specialised products. The attractions to the dealer of a secondary franchise of this type are:

- He will reach buyers he would otherwise have missed.
- He need not devote much floor space or inventory to the secondary franchise.
- He will expect a good margin on the more specialist products.

The secondary franchise position, therefore, does not require a full range of dealer support, but should concentrate on devising parts systems and paperwork which are an easy “add-on” to the dealer’s main franchise. Probably the most common argument used against secondary franchises by dealers is the added complexity and workload. This should be minimised by attempting maximum compatibility of systems with the major manufacturers.

Triumph’s dealer positioning in the 1960’s was split between primary and secondary franchises, while Norton has always been a secondary franchise manufacturer. The limited range, special appeal strategies under evaluation for the British industry imply a secondary franchise dealer position. The British industry will not have the range of products to support a dealer as his primary franchise, and the British sales volumes will not be high enough to compete with the leading manufacturers in depth of dealer support. A better objective is to pair with strong and compatible major manufacturers in selected dealerships, and to concentrate on a more limited s and d system appropriate to this position.

An appropriate pairing for the British industry is Honda. Honda’s high share of market generates good traffic through its dealerships and the quality of its dealers is accepted to be high. Furthermore, Honda’s product image is sufficiently different from that of the British that Honda dealers may feel the British range would be a particularly useful secondary franchise, *complementary* to the Honda range rather than directly competitive with it.

*Numbers of Dealers.* As a secondary franchise, it is probably unreasonable to expect to sell more superbikes in a given dealership than the primary franchise. Otherwise, there would begin to be major objections from the primary franchise manufacturer. Exhibit 32 shows estimates of 1980 superbike sales per dealer for the major Japanese manufacturers, and also for the British industry. The figures are calculated for each strategy alternative, and with varying numbers of dealers. It is clear that to move the required volume in the U.S. under the high volume alternative about 1000 dealers will be required, while under the low volume alternative about 500 will suffice. This implies that the present network could handle the lower volumes, but that a significant expansion of dealer coverage would be necessary under the high volume alternative. Extensions in the dealer network should concentrate on removing some of the regional areas of weakness (e.g. the Southeast).

To get into a dealer’s showroom for the first time—or to return, after a period of dormancy—is by no means easy. Dealers will not be impressed by the record of the British industry, and will be sceptical about promised improvements. To overcome these attitudes it may be necessary to offer special incentives—such as sales on consignment—to establish the type of dealer net-

work that will be needed under either strategy in the future. This may be yet another necessary front-end investment requirement, particularly under the high volume strategy alternative, which will raise working capital needs for part of the year.

EXHIBIT 32

Estimated US sales per dealer in 1980

	<i>Estimated Market Share</i>	<i>Estimated No. of Dealers</i>	<i>Estimated Sales of Superbikes (≥ 750 cc)</i>	<i>Estimated Sales per Dealer</i>
Honda	30-35%	2000	80,000	40
Yamaha	12-15%	1600	35,000	22
Kawasaki	12-15%	1200	35,000	29
Suzuki	8-10%	1200	24,000	20
Harley-Davidson	15-20%	500	48,000	96
Norton Triumph:	High	350	27,000	77
	Volume	650	27,000	42
	Alternative	1000	27,000	27
	Low	350	11,000	21
	Volume	650	11,000	17
	Alternative	1000	11,000	11

*Advertising and Promotion.* A specialist range of products also implies a specialised marketing programme. In advertising, for example, the concentration should be on enthusiast magazines rather than mass media. The specific tactics of such a programme are outside the scope of this report, but the main point is that the cost of an effective specialist programme can be held much lower than one with a broader appeal, and thus these costs should be held to a similar proportion of sales to that spent by the Japanese.

*Implementation Steps in Each Market.* The strength of the British presence in world markets is variable and this implies implementation difficulties of varying degrees in the different markets. In North America, the objective is for the British industry to regain its previous position. The existing sales companies' facilities in North America are probably adequate for volumes of up to 50,000 in the USA and 5000 in Canada. The higher volume alternative would thus in fact simply imply the level of sales that is needed to keep the sales subsidiaries in North America operating profitably. Under the lower volume alternative there would need to be major cutbacks. As we have seen, however, the high volume alternative will require a major expansion of the number of dealerships in North America, and this must be the primary focus of the implementation process in that market.

In the United Kingdom existing distribution and dealership arrangements should suffice for any of the strategies considered. Particular care must be taken to ensure that share is maintained in this country under the high volume alternative, for the large bike market here is expected to grow rapidly in the coming years.

The implementation problems will be at their greatest in continental Europe. Here, a major effort to establish distribution and dealer networks will be needed.

Until the industry has new models to launch, there is little point in attempting to push forward too far, but the strategy alternatives we have outlined, particularly the high volume alternative, will require a successful penetration in Europe longer term. Setting up serious importers, or owned sales companies, and getting into dealer showrooms may require front-end expense investment. But unless serious efforts to sell in Europe are made, these growing markets will be missed by the British industry. Urgent management attention should be directed towards strengthening the European marketing effort.

It has not been within the scope of this study to conduct detailed reviews of the position of the British industry in other world markets. Certainly British sales into the rest of the world have not been high historically. Australasia is a relatively good market, but other parts of the world offer limited attraction for the British industry at the present time. The market for smaller motorcycles for transportation use means that the less developed countries are a major opportunity area for the Japanese, but the great bulk of the market for bigger bikes is in the developed world. Price levels in Japan make it unattractive to compete with the Japanese in their home market even in superbikes and the size of the market in countries such as the Arab oil-producing states does not merit significant diversion of time and effort from the first priority: ensuring adequate representation in Europe and North America.

*Summary.* The basic objective in s and d is to secure effective marketing which is consistent with the strategy under consideration. At the same time the strategy must be competitive in cost terms.

To achieve the competitive retail prices required in the strategies we have considered it will be necessary to operate with s and d expenses no higher (as a proportion of distributor sales) than some 17–18 per cent. This is comparable to Japanese levels: obviously their total spend will be far higher than the British industry could afford. So just as in production terms it was necessary to avoid direct competition in order to be cost competitive so it is necessary in selling and distribution to find a strategy that avoids direct competition with the Japanese.

The secondary franchise, specialised customer appeal approach which we have suggested is directed toward this. One key to its cost effectiveness is the fact that, despite lower overall volumes, the per model and per dealer volumes would be broadly competitive with the segment leaders, whether these were BMW (under the low volume alternative) or the Japanese (under the high volume alternative). Thus by focusing the s and d system in a manner relevant to the segment being targeted, competitive s and d costs can be achieved.

#### **Organisational considerations**

*The direction of R & D.* It is absolutely essential for the industry to focus its attention on the development of those new products which will provide the basis of the future strategy. The industry cannot afford to spread its scarce development resources over numerous projects which are of marginal relevance and value. Equally, the industry cannot afford continually to redefine its objectives, vacillating from one set of interests to another.



The key to achieving R & D focus, and success, is for senior management to enunciate a clear statement of industry strategy, and to establish a coherent and firm set of development goals. Then, R & D must be free to pursue these goals without excessive interference from above. Equally essential is a system of tight project planning and control. The only alternative is to see the industry fail once more to produce the appropriate models in good time to ensure commercial success.

*Participation of production engineering.* The institution of tighter direction and control in R & D, combined with a new emphasis on producing a *commercially* attractive product line, must coincide with an increased role for production engineering. Production engineering must be involved from the earliest stages of development if the optimum use is to be made of modern techniques. Only then can costs be brought into line with the financial projections of the previous chapter. This means more status for production engineering in the organisation: a greater acceptance *at all levels* of its central importance to success. The R & D function must also be made to appreciate the importance of designing the new models for cost-effective manufacture and in close co-ordination with production engineering staff.

*Acceptance of the need for cost reduction.* The essential cost savings can only be put into effect with the full cooperation of the workforce. Factory cost reduction in this industry means reduction in the labour content of a motorcycle and its components. This requires flexibility on the shop floor.

Pay schemes also play a role in cost reduction. For example, the piece work system, which is in operation at Small Heath, is not at all conducive to cost reduction. In fact it discourages innovation to cut costs on the part of both management and employees. Major methods changes can be accommodated, with difficulty, but the continuous improvement of existing techniques—which is essential for experience-based cost reduction—is almost totally frustrated. As the Japanese have shown, product cost reduction does not imply paying workers less: it implies introducing new methods which are sufficiently productive to enable management both to pay workers *more* and bring real product prices *down*. The significance of this relationship must be understood and recognised in the pattern of payment and labour relations in the industry.

However the long term remuneration scheme is structured, workers and their representatives, as well as management, must recognise the magnitude of the changes that are required in the short term if the industry is to secure a viable future. Furthermore, there must be widespread acceptance of the need for continuing improvement and change over time. The strategy options which the industry faces appear, at the best, only modestly profitable. Recognition at all levels of the absolute necessity of continuing cost reduction is the key to the industry's future success.

*Accounting and information systems.* If the emphasis is to be on cost reduction, then the accounting system must place the emphasis on real costs and real improvements in productivity. This is in direct contrast to the existing piecework systems. Also, the present system of measuring factory performance against a budget based on product transfers at cost tends to obscure the real competitive-

ness of each operation. Isolating the factories from the market so completely has in the past served to delay recognition of the commercial cost realities. Symptomatic of this is the fact that at Small Heath, subcontract—where the factory deals directly with the customer—is recognised as an extremely cost-competitive business; motorcycles have not been considered equally cost-competitive. It is clear that, regardless of what transfer pricing basis is used, information on market place competitiveness must flow unobstructed throughout the organisation.

The same is true of sales information. Factory profitability data which records only factory sales, i.e. internal transfers, can paint a very misleading picture of the overall health of the company. This year, the factories have in some months been felt to be “breaking even”: but they did this by producing motorcycles which were not being sold but were simply going into the distribution companies’ stocks. Information on the market sales performance of the bikes, perhaps compared to a budget, together with information on the actions of competitors, should also be available to all levels in the organisation. Cooperation and flexibility will not be achieved without the free flow of information.

### **The strategic risks: a summary**

As we saw in the previous chapter, the projected financial performance of the strategy alternatives ranges from poor, in the case of the low volume alternative, to only moderate in the case of the high volume alternative. It is now apparent that in addition there are a large number of risks associated with the difficulties of actually implementing the strategy alternatives in practice. These risks must be offset against the apparent financial attractions of the various alternatives in reaching a decision on whether the investment is worthwhile. The risks can be divided into four main areas: design, production, parts supply and marketing.

#### **Design risks**

None of the existing engine designs under development at NVT can be regarded without reservation as being the appropriate foundation for a new model range. Both the P86 and the Wankel have potential technical drawbacks in terms of product design, and in the Wankel’s case pollution problems appear sufficiently severe to rule it out for the long term. [Comments deleted for reasons of commercial security].

The question of whether a suitable product design can be made ready in fully field-tested form in a sufficiently short period of time is thus a major area of risk. [Comments deleted for reasons of commercial security].

In addition to the technical risks associated with potential designs, there is the risk that the designs will be too expensive to manufacture as a result of insufficient attention having been paid to production engineering requirements during the early design stages. We understand that this is not a major concern with the P86. If new engine designs are felt necessary for strategy implementation it will be essential that the close production engineering/design cooperation recommended earlier be adhered to in order to minimise the risk of producing an intrinsically high cost design.

It should also be noted that there may be some doubt as to whether the general characteristics of the designs currently under development will be sufficiently attractive to command the price premiums required under the various strategies. It appears that the characteristics of the P86 are broadly appropriate for the product positioning identified as desirable, [deleted for reasons of commercial security]. Only full trials will show whether the P86 could adequately fill this role.

#### **Production risks**

Under the high and medium volume alternatives production methods are advocated which are sophisticated and new to the industry. Experience and expertise in high volume, highly automated techniques are lacking at both managerial level and the shop floor. Yet if the high or medium volume strategy is to be implemented, negotiations with machine tool manufacturers must begin in the near future.

There is unquestionably some risk that the industry would be unable effectively to carry through the complex programme of factory design and equipment specification and installation that would be required under either of these alternatives. The risk would not be so much that the task would be found impossible, as that it would simply be beset by delays which would postpone unacceptably the new model introduction.

There are some very capable production engineers in NVT, but they are very few in number. To reduce the risks inherent in the process of implementing either the medium or the high volume alternative in the factories, it will be necessary to augment the industry's production engineering resources with new staff from outside, preferably engineers with direct experience of the design and installation of highly automated transfer equipment. This will to some extent increase the "front-end" investment required under either of the strategies requiring the use of this equipment, but this is essential to reduce the risk.

In the production area there is also the risk that any new plans might be found unacceptable by the workforce, and that implementation would be jeopardised by industrial strife as a result. This risk can only be reduced by the frank interchange of information advocated earlier. Similar considerations apply to the question of developing payment systems and working practices that facilitate the essential cost reduction over time.

#### **Parts supply risks**

One assumption underlying all of the alternatives is that components manufacturers in the U.K. will produce the necessary components at competitive prices. This implies that the parts supply industry will be willing and able to make comparable investment in new methods and equipment to that advocated for the motorcycle factories themselves under the various alternatives, and that these changes will produce comparable effects on costs to those achieved by the motorcycle industry itself.

If this support is not forthcoming—and being called on to provide it may be perceived as a rather risky proposition by some of the suppliers, used to only low volumes of orders from the motorcycle industry—then the motorcycle

manufacturers may be able to secure components at a competitive cost overseas. The industry currently does source a few components overseas, some of them in Japan, and should continue to shop around if adequate component prices are not achieved in this country. The business of motorcycle manufacture is too price competitive to allow any policy but purchase from the cheapest, secure source of supply. It will, however, be unfortunate if the parts supply industry does not respond adequately to the challenge, for overseas sourcing would obviously have an adverse impact on both balance of payments and employment.

#### **Market risks**

There are a number of market risks which merit consideration. The market projections we have made under the various strategies represent, we feel, realistic assessments: they are neither optimistic nor pessimistic. On the other hand, it must be accepted that there is always the risk that market growth forecasts, market share targets and price projections will not turn out as expected.

*Market growth.* The greatest risk concerning overall market sales levels is probably Europe. High superbike growth has been projected for Europe as a result of increasing standards of living and by analogy with the USA. If it turns out in practice that Europe is "culturally" very different from the USA and does not warm so readily to large bikes, then the growth forecast for Europe will not materialise. Certainly in cars Europe never developed the extremely large and powerful models which are normal in America. On the other hand, fuel has always been more expensive in Europe, the distances travelled lower, and the roads rather more difficult to negotiate. These differential factors are much less significant in the case of motorcycles and on the balance we consider our projections to be realistic.

With respect to market growth in general it should also be mentioned that there may be some risk of the energy crisis encouraging small bikes to grow at the expense of large. In fact, fuel costs are such an insignificant concern for those buying large bikes that this is unlikely to have much effect.

*Market Penetration.* All of the market share targets assume strategy implementation by an efficient and energetic marketing force. If this is not forthcoming, then the sales targets will not be achieved.

[Comments deleted for reasons of commercial security.]

An additional risk is presented by the need to develop new dealers in both the USA and Europe in order to gain the required penetration, particularly under the high volume strategy. This may require investment at the dealer level in terms of such items as support services provided and stocks sold on a consignment basis, before the new models are introduced. This could present another element of "front-end" investment required to reduce risk.

*Prices.* The final risk concerns projected price levels. Our volume projections have been made based on certain prices relative to the Japanese. The premiums allowed are felt to be realistic relative to the sales volume targets. Profits, how-

ever, will depend on the *absolute* level of Japanese prices in foreign markets relative to British costs. It is worthwhile repeating the critically important assumptions we have made here.

Costs have been projected under the various alternatives at 1975 levels, but the new models could not be sold before 1979. *It has also been assumed that Japanese superbike prices in future, when converted into sterling, will equal their present level (expressed at 1975 values and using 1975 currency exchange rates).* This is despite the fact that we expect the Japanese motorcycle manufacturers to continue making real cost and price reductions, in *yen*, based on experience curve productivity improvements. The reasons for this assumption have been discussed at length in the previous chapter and in Appendix 13. The argument essentially is that the Japanese rate of real cost decline in superbikes will be broadly similar to that in their export industries as a whole, and thus the rate of real cost decline will be exactly offset by the rate of real appreciation of the yen relative to the dollar and the pound. Certainly, over the last seven years Japanese superbike prices have remained constant in real dollars, although they have declined when expressed in real yen. We are simply projecting this to continue on trend, which seems the most reasonable assumption for the long term.

There are, however, a number of uncertainties attendant on this assumption. Future growth in superbikes is likely to be lower in the future than in the past for the Japanese. This will tend to reduce their rate of real cost reduction. As a result one might even expect real dollar prices of superbikes to *rise* in the USA. Certainly the real dollar prices of some Japanese small bikes (e.g. the Honda CT 90), have risen in the USA on trend over the last seven or eight years, for the small bike categories have grown significantly less rapidly than superbikes. Offsetting any possible trend of this sort, however, are a number of factors. First, it seems possible that over the last few years the real yen may have increased in value slightly more rapidly against the dollar than was warranted given underlying rates of productivity improvement. If so, then any readjustment could tend to bring the real dollar price of Japanese superbikes down. Secondly, the rate of growth of the Japanese economy itself could well slow somewhat in the next few years, so that superbikes maintain the same *relative* performance as in the past. Thirdly, we have already noted the high premiums at which Japanese superbikes are sold on world markets relative to their prices in Japan. Any tendency by the Japanese to bring these premiums down, perhaps encouraged by lower market growth or any tendency for the superbike business to become more competitive [comment deleted] would also tend to bring US prices down. Indeed there is already evidence that superbike price levels will be brought down by the introduction of new, inexpensive, 750 cc twin cylinder machines by the Japanese.

[Further comment deleted for reasons of commercial security.]

Finally, it should be noted that any tendency of the pound to appreciate in value later in the decade as a result of the availability of North Sea oil will also tend to offset any rise in the real dollar prices of Japanese products.

Overall, therefore, we consider that the assumption of constant real U.S.

prices for Japanese superbikes is the most realistic assumption. It is merely an extension of the Japanese pricing behaviour for superbikes in the USA and other world markets of the past five or six years. If this pattern changes, however, then it will naturally alter the returns to be expected under the various strategies.

### Summary

The overall financial prospects under each alternative, including both the short term transition period and the likely long term results, are summarised in Exhibit 33. The discussion of the major implementation issues and risks affecting the various strategy alternatives has brought a new perspective to the consideration of the long range financial implications of the strategies. First, it is clear that implementing the strategies will take time that is measured in years rather than months, and that during that time heavy accounting and cash losses will continue in the industry. Short time working will be essential during this period if three factories are retained. From a commercial viewpoint, it would indeed appear that closure of one factory, at least, should be considered. Secondly, it appears that the strategies which offer the best long term commercial returns—the high and medium volume strategies—not only require large amounts of capital but are also subject to considerable risk in terms of product design, production and marketing. On the other hand, these are the only strategies which offer the industry any chance of a substantial and viable long term future. The third option, that of low volume, affords low returns (admittedly with low investment and less risk in the medium term) and essentially represents a continuation of the industry's past "segment retreat" strategy. Even when reconstituted under this strategy, the industry would have an extremely dubious long term future, for there would be little scope using existing methods for real cost control sufficient to offset the continuing competitive advances of the Japanese.

## EXHIBIT 33

### Financial summary of the strategy alternatives (1975 prices)

	<i>Low Volume</i>	<i>High Volume</i>	<i>Medium Volume</i>
New cash requirements (£ million)			
—Interim*	11	14	14
—New plant	4	28	20.5
—Additional working capital†	—	9	3.5
—Total	15	51	38
Long term operating results			
—Sales (£ million)	17.4	54.5	35.6
—Pre-tax operating profits (£ million)	1.0	6.6	3.4
—Return on sales (%)	5.7	12.1	9.6
—Return on net assets (%)	7.5	13.4	9.5

\* Cash requirements for financial years 1975/6, 1976/7 and 1977/8; assuming short time working next year, appropriate consolidation of motorcycle operations for the long range strategy concerned and reduction of stocks.

† Because of the short term stock reduction, the additional working capital required subsequently, for the implementation of the long range strategy, is higher than that shown in Exhibit 28.

## **POSSIBLE STRATEGIES INVOLVING ASSOCIATIONS WITH OVERSEAS COMPANIES**

### **Introduction**

The strategies presented and analysed so far in this report represent exclusively British solutions to the problems confronting the motorcycle industry. Thus all the alternatives have involved retaining absolute British control over the execution of all phases of the design, production and marketing of the products of the industry.

The strategies considered appear to be the best available options for a fully British motorcycle industry and, given the exceptionally adverse competitive conditions now faced by the industry, the alternatives represent the most promising possibilities for attaining commercial viability. The high volume alternative offers the possibility of a fairly substantial and profitable industry in the long term, while the low volume alternative might allow a more near term return to limited profitability with much less new investment. The intermediate volume alternative strikes a compromise between the other two strategies.

It is, however, undeniable that the alternatives involve substantial risks and that they require significant amounts of investment for a relatively long term profit return. This investment outlook could not be expected to attract a private investor until clear prospects of profitability had been established. Thus, although the primary focus of our work has been directed to finding wholly British strategies for the motorcycle industry, assuming that funds could be made available to the industry from public sources, it seems appropriate also to consider certain other options for the industry involving rather lower capital input. These options all involve some form of relationship with overseas companies or organisations, and are in the main rather speculative in nature.

It should be noted that, if successful, the main contribution of some of the alternatives considered here would tend to be towards profit generation for the industry in marketing and distribution; little would be required in the way of U.K. production facilities. These options may therefore hold some possibility of maintaining viability for NVT as a corporate entity, but would contribute little to the re-establishment of viable motorcycle manufacturing operations in this country. Others of the alternatives considered do hold the potential of enhancing British manufacturing operations.

### **UK marketing, overseas manufacturing**

Many of the problems of the British motorcycle industry stem from the difficulty of matching the productivity and factory costs of the major Japanese competitors. It would seem that even to begin to do this in Britain would require massive investment and a wholly new approach to production methods. An alternative would be to attempt to purchase from overseas complete or substantially complete motorcycles, retaining in the U.K. only the design and marketing function and, perhaps, some assembly work. The problem of achieving competitive factory costs would in this way be shifted away from the British industry.

A vital assumption in this strategy is that competitively priced motorcycle components or subassemblies can be purchased abroad. If this proved to be so, and the British industry could therefore profitably market an end product at retail prices to match the Japanese, foreign sourcing would indeed be a very low investment route to rebuilding a commercially viable British market presence.

However, leaving aside the desirability of terminating basic manufacturing in this country, there must be real doubts as to whether foreign sources would in fact provide and continue to provide sufficiently low cost products for the British marketing system. One of the main reasons for this is the low sales volume of the British. This has been the primary factor causing the lack of competitiveness in the industry's own manufacturing costs, and without substantial market share gains it would be impossible to offer higher volumes to any overseas subcontractors. Unless these subcontractors were based in countries with particularly low labour costs, therefore, it would be unlikely that they could quote for components or subassemblies at a price competitive with that of the Japanese. Low quotes might be forthcoming initially on a marginal costing basis, but would be subject to upward revision over the longer term once any continuing commitment to the supplier was made.

#### **Specific alternatives**

*Japanese Sourcing.* The Japanese themselves are a possible exception. They could undoubtedly supply components at a competitive cost, and the British industry could assemble these into their bikes. Indeed use is already being made by NVT of low cost, high quality, Japanese batteries. Major engine components could even be forthcoming from Japan, although the British industry would be rather exposed strategically if dependent on its competitors for supply of such key components. If the British were really successful marketing bikes incorporating engines made by a competitor, for example, it seems likely that supplies could be withdrawn. It would therefore seem that significant sourcing of engines from Japan could not be contemplated under an arm's length relationship. The attractions could be greater, however, under some form of joint venture relationship which implied *mutual* commitment.

*Eastern Europe.* It is possible that Eastern European countries could provide bikes at a competitive cost, either based on a huge captive domestic requirement or, quite simply, based on a price not related to costs but geared more to the earning of foreign exchange than commercial profits.

If suitable products can be obtained this way at good prices, and with reasonable security of supply, then there is merit in this approach. If, on the other hand, product quality is dubious, or the bikes do not fit in image with those of the remainder of the British industry, then the soundness of the approach must be doubted.

*Moped Assembly.* It could be possible for the British industry to purchase moped components from outside suppliers overseas who have adequate volume in the manufacture of the parts (or are prepared to sell at marginal cost) so that they can be obtained at a competitive price. These parts could then be assembled in the U.K. without incurring a major cost disadvantage (since this



part of the process appears hard for anyone to automate very highly). This approach could give the industry a moped product which would be profitable to market and distribute. It should be noted, however, that mopeds would certainly not help, or themselves be helped by, sales in the existing superbike range: possibly quite the reverse. For this reason one might not wish to use the existing Norton or Triumph brand names—perhaps “BSA” might be revived to good effect, at least for the U.K. market.

If suitable—and secure—sources of parts supply can be found, and we understand this to be the case, then there is little reason not to exploit any possible sales of mopeds. However, this effort must not be allowed to detract from the sales of existing products.

### **Summary**

Any of these alternatives could offer some hope of developing sources of smaller bikes to fill out the British industry's product range. Care would obviously be needed to ensure that a consistent marketing image was maintained, and that the undoubted communication, scheduling and other administrative complexities of international sourcing relationships were effectively managed. It would also be important to ensure that the “secondary franchise” distribution strategy of the British were not jeopardised unless it were clear that the new range was wide enough to support a primary franchise distribution approach.

Obviously these strategies would have relatively little impact on U.K. employment in the short term, and would not have a major net effect on the balance of payments. Long term, however, this type of approach could help the British industry redevelop a market presence in segments it has long since vacated, and earn marketing and distribution profits in those segments. At some stage, though this is perhaps unlikely, volumes could reach levels at which a more significant proportion of the manufacturing operations on a small bike range could be profitably performed in the U.K.

## **UK manufacturing, overseas company marketing**

### **Manufacturing on behalf of a Japanese company**

It was recently reported in the Italian press that Ducati would be devoting some of their facilities to production for Honda. This scheme subsequently failed to materialise, but Honda's commitment to European manufacturing\* is shown by the fact that they are now reported by their Italian distributor to have built their own factory in Italy. It may be, therefore, that an opportunity could exist to manufacture for the EEC market for one of the major Japanese competitors in the U.K. For example it has been suggested within NVT that Suzuki might have some interest in this. (One would, however, express some doubts about the advisability of an association with Suzuki, for they are themselves the weakest of the “big three”.)

The attraction of manufacturing for a Japanese company would result from the leading market shares in Europe and hence the high volumes that they now enjoy. This might afford a substantial manufacturing opportunity and allow

---

\* Probably reinforced in Italy by the prohibition on Japanese imports of machines less than 380 cc.

methods to be employed that would achieve high levels of productivity. Indeed the latter would itself be a major incentive for entering into such an arrangement with a Japanese company. It might also be reasonable to expect that a British company manufacturing on behalf of, say, Honda would have access to some of Honda's proprietary manufacturing technology. Furthermore, products manufactured in this way would be designed and marketed with the full support systems of the Japanese.

While this strategy might allow continued manufacturing of motorcycles on a large scale in the U.K., it would probably involve almost total dependence on Japanese skills for design, production engineering, marketing and overall business development. The status of the British industry would be little more than that of a subcontractor, quite possibly not even allowed to participate in the technically most advanced and productive areas of production, such as engine manufacture.

It is quite possible that no Japanese company would in fact wish to enter into such an arrangement, or that the conditions they would attach to it would be unacceptable. On the other hand, the Japanese might have a clear incentive if significant import controls were applied in the U.K., or even the EEC generally, to penalise Japanese motorcycles. Also, as the costs of labour rise in Japan the manufacturers there will be increasingly keen to have their assembly done off-shore, in the local markets.

This type of relationship should clearly not be ruled out, although it would involve a radical rethinking by the British industry of its role, which would no longer be one of an independent motorcycle manufacturer. It is likely, for example, that a *quid pro quo* for this type of arrangement might be that the Japanese company would insist on the British phasing out their superbikes.

Finally, it should be observed that there are many possible ways in which such a relationship could be structured financially and organisationally. No detailed analysis of these alternatives has been carried out. It may be, however, that a joint venture approach would provide a good solution in terms of maintaining a cooperative interest between both the Japanese partners and the British industry in the success of the association, as well as in providing a potential source for some of the investment capital that would unquestionably be required for new manufacturing facilities.

#### **Use of foreign marketing organisations**

A very different variant of this basic strategic theme would involve the British industry looking to a foreign marketing organisation to handle local marketing, distribution and retailing, especially in areas where the British are now weak.

A foreign distributor handling British products through a conventional dealer network is of course no more than the typical importer situation. Given a suitable importer, this is an arrangement that has considerable attraction for smaller markets, but which hardly represents a new strategy for the British industry. To have a significant impact on the situation of the British industry, the arrangement would have to involve the use of new and unconventional distribution channels.

We have already argued that because of the technical nature of motorcycles, and because of their service requirements, it is most unlikely that unconventional channels could work effectively. The only unconventional channel-product combination that appears to hold any promise is the use of the Sears Roebuck type of outlet if a market develops in the U.S. for mopeds. If U.S. laws change to allow moped riding at, say, 14 years of age, a large demand for these products could emerge, and they are sufficiently lacking in technical complexity that the usual service problems that Sears has had with motorcycles could probably be overcome.

In this case Sears may be looking for a "private label" type of supplier, and the British industry should endeavour to have the chance of quoting on this business. The established European moped producers are of course better placed to supply such a requirement but might well be more interested in attempting to supply the end user market directly. The British industry's existing U.S. presence could also be a help in securing the business.

This is an opportunity which should not be overlooked, but which is obviously neither certain enough nor substantial enough to constitute a basis for future industry strategy in itself.

### **A product rationalisation joint venture approach**

In theory, a joint venture with a foreign, probably European, company focusing on product rationalisation could be attractive. If the British industry could get together with another producer, and each agree to concentrate their production on certain models, individual model volumes could rise for each producer. This might involve, say, Britain producing all the superbikes and their partner producing the remainder of the range.

The British industry would clearly welcome the opportunity to take over the whole superbike volume of, for example, Moto-Guzzi. It is less clear, however, that Moto-Guzzi would have much to gain, because the British industry has no volume outside superbikes to "trade", and could only contribute a promise to try to sell Moto-Guzzi's smaller bikes through their established s and d system. Distribution would in fact be the other possible basis for a joint venture of this type. With a producer whose distribution was strong in countries where the British were weak, and *vice versa*, this could lead mutually to wider and better market coverage and production volumes.

This strategy would probably have been a good defence to adopt against the Japanese a decade or more ago, when the product lines of the European producers were wide. Significant scope would then have existed for increasing model volumes through rationalisation with, say, one company concentrating on small bikes, another on large. Model volumes might well have reached levels which would have permitted costs comparable to the Japanese; the penetration of European markets by the latter could perhaps have been prevented.

Today, however, it must be admitted that this type of strategy is probably infeasible. The European companies that are sufficiently viable to appear attractive as possible joint venture partners tend to be those who have in the

past specialised on superbikes, as has the British industry, to avoid direct competition with the Japanese. There is obviously limited potential for mutual rationalisation with such companies. Then, as we have seen, any venture with a small bike producer would probably tend to favour the British who would have no small bike volumes to "trade". To the extent that the basis for the partnership would therefore be rather dubious, little real commitment or contribution could be expected from the partner as a result.

#### **Summary**

On balance, therefore, this type of approach appears unpromising. That is not to say, however, that efforts should not be made to identify any possible opportunities of this type that might exist. The European producers do have some common interest in resisting the Japanese challenge. The European market is large and growing, and the EEC as a whole may be persuaded that it should assist in defending the interests of its motorcycle producers. However, the problems associated with this approach are sufficiently serious that no attractive strategy of this nature suggests itself. Again, this is an alternative that should not be overlooked, but which does not at present appear in itself to provide an answer for the British industry.

### **Other options**

#### **Joint product development schemes**

Opportunities also exist for joint activities in product development with potential overseas suppliers of small bikes to the British industry. These activities are subject to doubt both on the basis of the apparent limitations of this product sourcing strategy itself, as discussed earlier in this chapter.

Any significant diversion of R & D resources away from product development for British manufacture cannot be tolerated if a new model strategy is to be implemented.

#### **Summary**

Our intention in this chapter has been to explore at a broad level the possible options that exist for developing strategies involving associations with overseas companies. It is apparent that while some of these are interesting, and should not be dismissed out of hand, there is none which affords an immediately useful strategic solution for the British motorcycle industry.

Amongst the options which perhaps merit some continued attention are the possibilities of greater cooperation with other European manufacturers, and the possibility of establishing a manufacturing or assembly joint venture with the Japanese. No detailed analysis of the possible financial requirements of such relationships has been conducted, however, and if serious interest were to be shown by a potential associate along the lines discussed, a thorough financial and commercial investigation of the specific form of collaboration being considered should be undertaken.

**APPENDICES  
TO  
STRATEGY ALTERNATIVES FOR  
THE BRITISH MOTORCYCLE INDUSTRY**

**MARKET HISTORY**

- Appendix 1: The United States
- Appendix 2: Canada
- Appendix 3: The United Kingdom
- Appendix 4: Continental Europe

**FUTURE MARKET GROWTH**

- Appendix 5: General approach to growth projections
- Appendix 6: The United States and Canada
- Appendix 7: The United Kingdom and Continental Europe

**ECONOMICS OF THE MOTORCYCLE INDUSTRY**

- Appendix 8: Some examples of experience curves
- Appendix 9: An outline of Japanese motorcycle manufacturers' financial history and commercial performance

**Production system descriptions**

- Appendix 10: The British motorcycle industry
- Appendix 11: The Japanese motorcycle industry
- Appendix 12: A summary of production technology employed in the Japanese motorcycle industry

**STRATEGY ALTERNATIVES FOR THE BRITISH MOTORCYCLE  
INDUSTRY**

- Appendix 13: Long term trends in currency exchange rates: the influence of the experience curve

**Evaluation of the strategy alternatives**

- Appendix 14: Note on Methodology
- Appendix 15: The low volume, high premium, strategy
- Appendix 16: The high volume, low premium, strategy
- Appendix 17: The medium volume strategy
- Appendix 18: A cost analysis of small bike manufacture
- Appendix 19: The industrial engines business
- Appendix 20: The subcontract engineering business

**STRATEGY IMPLEMENTATION AND RISKS**

- Appendix 21: Short and medium term financial projections

Printed in England for Her Majesty's Stationery Office by Harrison & Sons (Hayes) Ltd.

Dd 139226 K28 7/75



**HER MAJESTY'S STATIONERY OFFICE**

*Government Bookshops*

49 High Holborn, London WC1V 6HB  
13a Castle Street, Edinburgh EH2 3AR  
41 The Hayes, Cardiff CF1 1JW  
Brazenose Street, Manchester M60 8AS  
Southey House, Wine Street, Bristol BS1 2BQ  
258 Broad Street, Birmingham B1 2HE  
80 Chichester Street, Belfast BT1 4JY

*Government Publications are also available  
through booksellers*

ISBN 0 10 025325 3