科目：321 商管文獻評述

系組：國企系乙組

考生注意：1. 依次序作答，只要標明題號，不必抄題。
2. 答案必須寫在答案卷上，否則不予計分。
3. 試題隨卷繳回。

閱讀所附的文章以及利用過去所學到的知識，回答下列問題。

1. 說明國家競爭優勢 (competitive advantage of nations)與廠商競爭優勢（competitive advantage of firms）以及國際貿易理論中的比較利益（comparative advantage）學說的區別？（20分）
2. 說明國家競爭優勢理論的缺失？（15分）
3. 廠商如何利用國家競爭優勢理論制定國際競爭策略？(20分)
4. 用國家競爭優勢理論說明台灣廠商對大陸投資？（15分）根據此理論建議政府如何訂定因應的策略？(15分)
5. Porter 說，文化是決定國家競爭優勢的重要因素。請舉例說明這句話的涵義？(15分)

Determinants of National Competitive Advantage

The ways that firms create and sustain competitive advantage in global industries provide the necessary foundation for understanding the role of the home nation in the process. Yet this role is far from a simple one. Our search for a new way of understanding national advantage must begin from a number of premises.

First, the nature of competition and the sources of competitive advantage differ widely among industries and even industry segments. We must isolate the influence of the nation on the firm's ability to compete in specific industries and industry segments, and with particular strategies, rather than in broad sectors. We must allow for different sources of competitive advantage in different industries rather than rely on any single, overarching one such as labor costs or economies of scale. Since products are differentiated in many industries, we must explain why some nations' firms are better able to differentiate than others and not focus only on cost differences.

Second, global competitors often perform some activities in the value chain outside their home country. The globalization of competition does not negate the role of the home nation in competitive advantage but does change its character. It means that the task is not to explain why a firm operating exclusively in the nation is internationally successful, but why the nation is a more or less desirable *home base* for competing in an industry. The home base is where strategy is set, core product and process development takes place, and the essential and proprietary skills reside. The home base is the platform for a global strategy in the industry in which advantages drawn from the home nation are supplemented by those from an integrated, worldwide position.

Third, firms gain and sustain competitive advantage in international competition through improvement, innovation, and upgrading. Innovation, as I described earlier, includes both technology and methods, encompassing new products, new production methods, new ways of marketing, identification of new customer groups, and the like. The innovations that lead to competitive advantage involve an accumulation of small steps and protracted effort as much as dramatic breakthroughs.[1]

Firms gain advantage initially through altering the basis of competition. They sustain it through improving fast enough to stay ahead. This involves not only progress in executing existing advantages but also widening and upgrading the bases of competitive advantage over time. Often this involves the move to more sophisticated industry segments. Innovation and upgrading demand sustained investment both to perceive the appropriate directions of change and to carry them out.

As Schumpeter emphasized many decades ago, competition is profoundly dynamic in character. The nature of economic competition is not "equilibrium" but a perpetual state of change. Improvement and innovation in an industry are never-ending processes, not a single, once-and-for-all event. Today's advantages are soon superseded or nullified. At the core of explaining national advantage in an industry must be the role of the home nation in stimulating competitive improvement and innovation.[2] We must explain why a nation provides an environment in which firms improve and innovate and continue to do so faster and in the proper directions compared to their international rivals. The behavior required to create and especially to sustain competitive advantage is an unnatural act in many companies, as I emphasized in the previous chapter. We must understand what it is about a national environment that overcomes the natural desire for stability and jars firms into advancing.

Finally, firms that gain competitive advantage in an industry are often those that not only perceive a new market need or the potential of a new technology but move early and most aggressively to exploit it. Each significant structural change has the potential to nullify the competitive advantages of previous leaders, creating a new opportunity for shifting competitive position through an early response. We must explain why firms from particular nations move early and aggressively to exploit change in particular industries that foreshadows international needs.

Our task is to go beyond simply recognizing differences in competitive advantage among nations. The challenge is to explain them convincingly. It is now widely recognized that economies of scale, technological leads, and differentiated products create the conditions for trade: the nation whose firms gain them in an industry are able to export.[3] However, the ability to gain these advantages and sustain them is not a cause but an effect. The real question is *which firms* from *which nations* will reap them. We know that some nations' firms achieve technological superiority, produce more differentiated or higher-quality products, or products which are more attuned to customer needs than others. The question we must answer is why.

DETERMINANTS OF NATIONAL ADVANTAGE

Why does a nation achieve international success in a particular industry? The answer lies in four broad attributes of a nation that shape the environment in which local firms compete that promote or impede the creation of competitive advantage (see Figure 3–1):

1. *Factor conditions*. The nation's position in factors of production, such as skilled labor or infrastructure, necessary to compete in a given industry.
2. *Demand conditions*. The nature of home demand for the industry's product or service.
3. *Related and supporting industries*. The presence or absence in the nation of supplier industries and related industries[4] that are internationally competitive.
4. *Firm strategy, structure, and rivalry*. The conditions in the nation governing how companies are created, organized, and managed, and the nature of domestic rivalry.

The determinants, individually and as a system, create the context in which a nation's firms are born and compete: the availability of resources and skills necessary for competitive advantage in an industry; the information that shapes what opportunities are perceived and the directions in which resources and skills are deployed; the goals of the owners, managers, and employees that are involved in or carry out competition; and most importantly, the *pressures* on firms to invest and innovate.[5]

科目：321 商管文獻評述
系組：國企系乙組

考生注意：1. 依次序作答，只要標明題號，不必抄題。
2. 答案必須寫在答案卷上，否則不予計分。
3. 試題隨卷繳回。

Firms gain competitive advantage where their home base allows and supports the most rapid accumulation of specialized assets and skills, sometimes due solely to greater commitment. Firms gain competitive advantage in industries when their home base affords better ongoing information and insight into product and process needs.[6] Firms gain competitive advantage when the goals of owners, managers, and employees support intense commitment and sustained investment. Ultimately, nations succeed in particular industries because their home environment is the most dynamic and the most challenging, and stimulates and prods firms to upgrade and widen their advantages over time.

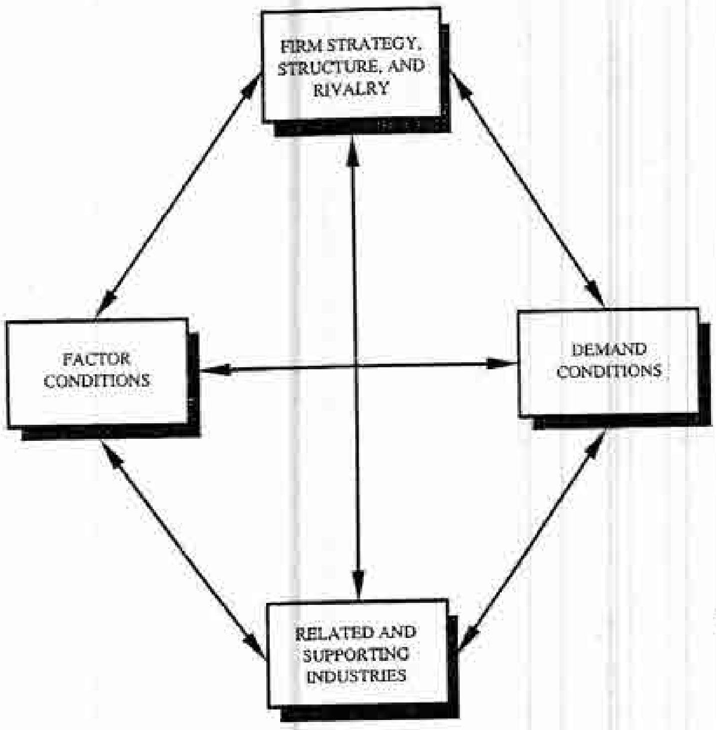

FIGURE 3–1 The Determinants of National Advantage

Nations are most likely to succeed in industries or industry segments where the national "diamond," a term I will use to refer to the determinants as a system, is the most favorable. This is not to say that all a nation's firms will achieve competitive advantage in an industry. In fact, the most dynamic the national environment, the more likely it is that some firms will fail, because not all have equal skills and resources nor do they exploit the national environment equally well. Yet those companies that emerge from such an environment will prosper in international competition.

The "diamond" is a mutually reinforcing system. The effect of one determinant is contingent on the state of others. Favorable demand conditions, for example, will not lead to competitive advantage unless the state of rivalry is sufficient to cause firms to respond to them. Advantages in one determinant can also create or upgrade advantages in others.[7]

Competitive advantage based on only one or two determinants is possible in natural resource-dependent industries or industries involving little sophisticated technology or skills. Such advantage usually proves unsustainable, however, because it shifts rapidly and global competitors can easily circumvent it. Advantages throughout the "diamond" are necessary for achieving and sustaining competitive success in the knowledge-intensive industries that form the backbone of advanced economies. Advantage in every determinant is not a prerequisite for competitive advantage in an industry. The interplay of advantage in many determinants yields self-reinforcing benefits that are extremely hard for foreign rivals to nullify or replicate.

Two additional variables can influence the national system in important ways, and are necessary to complete the theory. These are chance and government. Chance events are developments outside the control of firms (and usually the nation's government), such as pure inventions, breakthroughs in basic technologies, wars, external political developments, and major shifts in foreign market demand. They create discontinuities that can unfreeze or reshape industry structure and provide the opportunity for one nation's firms to supplant another's. They have played an important role in shifting competitive advantage in many industries.

The final element necessary to complete the picture is government. Government, at all levels, can improve or detract from the national advantage. This role is seen most clearly by examining how policies influence each of the determinants. Antitrust policy affects domestic rivalry. Regulation can alter home demand conditions. Investments in education can change factor conditions. Government purchases can stimulate related and supporting industries. Policies implemented without consideration of how they influence the entire system of determinants are as likely to undermine national advantage as enhance it.

The balance of this chapter will explore the influence of the determinants individually and jointly on the ability of a nation's firms to achieve competitive advantage in a particular industry. In the next chapter, I will turn to the way the determinants affect each other as a dynamic and evolving system.[8]

The basic unit of analysis for understanding national advantage is the industry. Nations succeed not in isolated industries, however, but in *clusters* of industries connected through vertical and horizontal relationships. A nation's economy contains a mix of clusters, whose makeup and sources of competitive advantage (or disadvantage) reflect the state of the economy's development. How entire national economies develop in international competitive terms will be a subject I will return to later.

THE ROLE OF CHANCE

The determinants of national advantage shape the environment for competing in particular industries. In the histories of most of the successful industries we studied, however, chance events also played a role. Chance events are occurrences that have little to do with circumstances in a nation and are often largely outside the power of firms (and often the national government) to influence. Some examples which are particularly important in influencing competitive advantage are the following:

- Acts of pure invention
- Major technological discontinuities (for example, biotechnology, microelectronics)[65]
- Discontinuities in input costs such as the oil shocks
- Significant shifts in world financial markets or exchange rates
- Surges of world or regional demand
- Political decisions by foreign governments
- Wars

Chance events are important because they create discontinuities that allow shifts in competitive position. They can nullify the advantages of previously established competitors and create the potential that a new nation's firms can supplant them to achieve competitive advantage in response to new and different conditions. The advent of microelectronics, for example, was enormously important in neutralizing American and German dominance in numerous electromechanically based industries. It provided an opportunity for Japanese firms (and others) to gain position. Similarly, a surge in demand for ships gave Korea the opportunity to enter the shipbuilding industry against Japan. The apparel industry developed in Singapore after Western nations placed quotas on apparel imports from Hong Kong and Japan, while the world-leading Korean wig industry prospered only after America banned imports from China during the cold war.

The determinants of national advantage work together as a powerful system for sustaining advantage. However, this system is to some extent specialized to a particular industry structure. A discontinuity is necessary to alter the bases of advantage enough to allow a new specialized national "diamond" to supplant another.

Chance events play their role partly by altering conditions in the "diamond." Major shifts in input costs or exchange rates, for example, create selective factor disadvantages that catalyze periods of significant innovation. Wars viewed from this perspective can raise the level and urgency of local scientific investments (factor creation) and disrupt customer relationships (demand conditions). World War I caused the loss of foreign assets and trademarks (including Bayer aspirin) of German chemical companies. It also provided a dramatic stimulus for the chemical industries in the United States, the United Kingdom, and Switzerland. Because of their neutrality in World War II, Switzerland and Sweden benefited enormously in many industries.

Chance events have asymmetric impacts on different nations. The two oil shocks hit energy-dependent nations earlier and harder. Wars often have very different effects on winners and losers. It is interesting that the defeated powers, Germany, Japan, and Italy, are perhaps the three most successful nations in the postwar period in terms of broadly based success in international competition.[66] Nations that feel the effect of a chance event first, or most severely, may move early to deal with it. The oil shocks ultimately helped upgrade Japanese industry, because Japan was especially vulnerable to energy costs and took aggressive steps toward energy conservation.

While chance events can allow shifts in competitive advantage in an industry, national attributes play an important role in *what nation exploits them*. The nation with the most favorable "diamond" will be most likely to convert chance events into competitive advantage. This will reflect an environment aligned to the new sources of advantage and firms pressured to move most aggressively to seize them.

Invention, Entrepreneurship, and Chance

Invention and entrepreneurship are at the heart of national advantage. Some believe these acts are largely random; a visionary or inventor might be located in any nation, which means that the birth of a world-class industry can take place anywhere. If we accept this view, the determinants become important in developing an industry but its initial formation is a chance event.

Our research shows that neither entrepreneurship nor invention is random; assigning a role to chance does not mean that industry success is wholly unpredictable. For example, the United States is such a favorable environment for commercializing medical innovations that dozens of American entrepreneurs sprang up in most new product and service areas. In fact, foreign entrepreneurs have come to the United States to start their medical products companies because it is such a hospitable environment for this particular sector.

The determinants play a major role in locating where invention and entrepreneurship are most likely to occur in a particular industry. Demand conditions signal needs better in some nations than others. National factor creation mechanisms affect the pool of knowledge and talent. Supplier industries provide crucial help or are the source of new entrants. And so on. What looks like chance is actually the result of differences in national environments. The particular firm or individual that will do the innovating is less predictable, though, than the nation or nations in which they are likely to be located.

Sometimes the act of invention is indeed wholly decoupled from other national characteristics. For example, insulin was first isolated in Canada despite the lack of particularly favorable demand, scientific infrastructure, or other national circumstances bearing on insulin. Whether such pure inventions, or isolated acts of entrepreneurship, develop into a competitive industry, however, is again not random. The "diamond" has a major influence on the ability to convert an invention or insight into an internationally competitive industry. If a nation has only the invention, other nations' firms will be likely to appropriate it. Insulin, for example, was turned into an international commercial success by companies based in Denmark and the United States, not in Canada. Both Denmark and the United States possessed favorable demand conditions, specialized factor pools, and other advantages. Therefore, the invention, once the basic technology was known, took root and prospered elsewhere.

THE ROLE OF GOVERNMENT

Having described the determinants of national competitive advantage, a final variable is the role of government. Government is prominently discussed in treatments of international competitiveness. Many see it as a vital, if not the most important, influence on modern international competition. Government policy in Japan and Korea is particularly associated with the success these nations' firms have enjoyed.

It is tempting to make government the fifth determinant. Yet this is neither correct nor the most useful way to understand government's role in international competition. Government's real role in national competitive advantage is in influencing the four determinants. This is illustrated schematically in Figure 3-5, which now reflects the complete system.

Government can influence (and be influenced by) each of the four determinants either positively or negatively, as should be evident from some of my earlier examples. Factor conditions are affected through subsidies, policies toward the capital markets, policies toward education, and the like. Government's role in shaping local demand conditions is often more subtle. Government bodies establish local product standards or regulations that mandate or influence buyer needs. Government is also often a major buyer of many products in a nation, among them defense goods, telecommunications equipment, aircraft for the national airline, and so on. The way this role as a buyer is played can either help or hurt the nation's industry.

Government can shape the circumstances of related and supporting indus-

科目：321 商管文獻評述

系組：國企系乙組

考生注意：1. 依次序作答，只要標明題號，不必抄題。
2. 答案必須寫在答案卷上，否則不予計分。
3. 試題隨卷繳回。

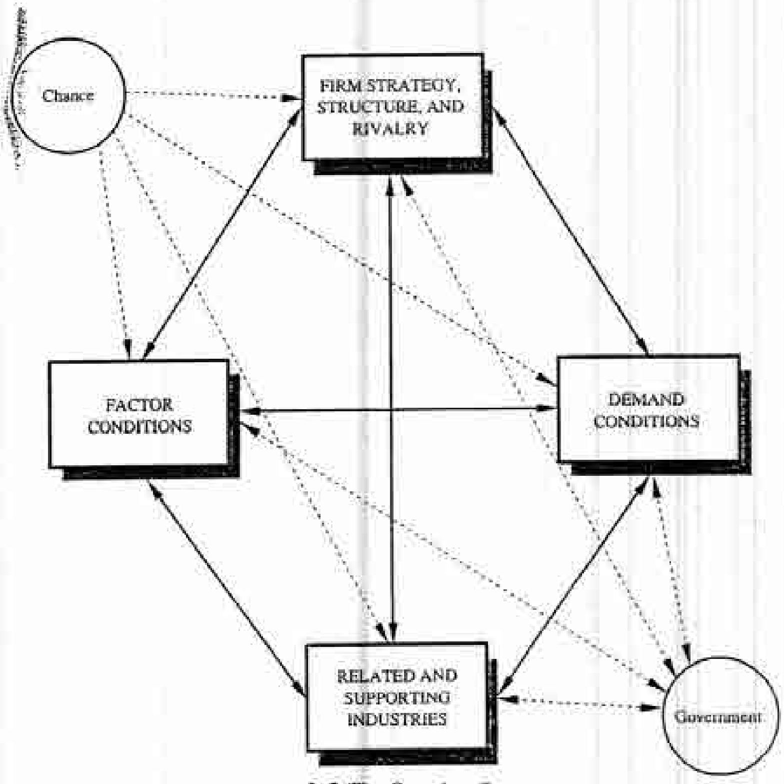

FIGURE 3–5 The Complete System

tries in countless other ways, such as control of advertising media or regulation of supporting services. Government policy also influences firm strategy, structure, and rivalry, through such devices as capital market regulations, tax policy, and antitrust laws.

Government policy, in turn, can be influenced by the determinants. Choices about where educational investments are made, for example, are affected by the number of local competitors (see Chapter 4). Strong home demand for a product may lead to early introduction of government safety standards.

It is evident that the influence of government on the underlying determinants of national competitive advantage can be positive or negative. By stimulating early demand for facsimile machines, for example, the Japanese government aided competitive advantage. Facsimile documents were approved as legal documents by the Japanese Ministry of Justice, and Japan was among the first nations to allow the connection of facsimile machines to normal telephone lines. Yet if government regulation or purchases lead to unusual or anachronistic early demand that distracts local firms from serving international markets, the role of government is negative. For example, the highly restrictive Italian regulation of local financial markets has contributed to the inability of Italian financial institutions to compete internationally.

科目：321 商管文獻評述

系組：國企系乙組

考生注意：1. 依次序作答，只要標明題號，不必抄題。
2. 答案必須寫在答案卷上，否則不予計分。
3. 試題隨卷繳回。

The positive and negative roles of government in the process of creating competitive advantage are highlighted and clarified by viewing government as an influencer of the national "diamond." A far broader array of public policy options and outcomes is possible than is normally explored. The determinants suggest government policies that are starkly different in some cases from those suggested by a less holistic conception of national advantage. Attempting to hold down the value of a nation's currency, for example, appears desirable if factor costs are seen as the dominant determinant of national advantage in a static world in which technology and skills are constant. My theory emphasizes that market pressures and resulting innovations can overcome factor costs, however, so that undervaluation can slow the upgrading of competitive advantage and direct firms to less sustainable, price-sensitive market segments. The result is a long-term loss of competitive advantage. Government "help" that removes the pressures on firms to improve and upgrade is counterproductive.

Government has an important influence on national competitive advantage, though its role is inevitably *partial*.[67] Government policy will fail if it remains the only source of national competitive advantage. Successful policies work in those industries where underlying determinants of national advantage are present and where government reinforces them. Government, it seems, can hasten or raise the odds of gaining competitive advantage (and vice versa) but lacks the power to create advantage itself. I will return to all these issues when I discuss government policy (Chapter 12).

THE DETERMINANTS IN PERSPECTIVE

In this chapter I have described the determinants of national advantage in an industry and the role of chance and government in affecting them. The determinants measure the extent to which the national environment is a fertile one for competing in an industry. I described earlier the forces that lead firms to create and sustain competitive advantage. The "diamond," reflecting many diverse elements of a nation, measures how well the nation creates and transmits these forces to its firms, as well as the presence of the insight and tools needed for competitive advantage.

The individual determinants that define the national environment are mutually dependent because the effect of one often depends on the state of others. Sophisticated buyers will not translate into advanced products unless, for example, the quality of human resources is sufficient to act on meeting buyer needs. Selective factor disadvantages will not motivate innovation unless rivalry is healthy and company goals support sustained investment. At the broadest level, weaknesses in any one determinant will constrain an industry's potential for advancement and upgrading.

As I have described the "diamond," I have touched on many examples of the role of social and political history and values in influencing competitive success. Social norms and values affect the nature of home demand, for example, as well as the goals of managers and the way firms are organized. Social and political history influence the skills that have been accumulated in a nation and the institutional structure within which competition operates. These aspects of a nation, which some called cultural, cannot be separated from economic outcomes. Also, "cultural factors" are, upon close inspection, often closely intertwined with economic factors. For example, Japanese management-labor relations are not particularly cultural but a function of lifetime employment, the nature of incentive systems, and management behavior toward workers. These practices all grew out of bitter labor strife in Japan both before and immediately after World War II.

Cultural factors are important as they shape the environment facing firms; they work through the determinants, not in isolation from them. Such influences are important ones to competitive advantage, however, because they change slowly and are difficult for outsiders to tap or emulate. Social and political history and values create persistent differences among nations that play a role in competitive advantage in many industries. They will be apparent when I turn to individual nations in Part III.

I have had little to say in this chapter about leaders, a popular subject in historical analyses of industrial or national success. This is not to diminish the importance of leaders but to suggest that they too do not work separately from the determinants I have described. Leaders confront problems, challenges, and opportunities that are produced by their national environments. Leaders are attracted to different problems in different nations, a function of the determinants. In Japan, revered leaders such as Akio Morita and Konosuke Matsushita work in consumer electronics. In America, individuals such as Thomas J. Watson, Jr., Seymour Cray, Kenneth Olson, and Steve Jobs work or have worked in computers. These are both instances of industries where the national environment is particularly favorable for competitive advantage. The success of leaders depends on possessing insights into opportunities and the tools to exploit them, about which this chapter has had much to say.

Indeed, one definition of a leader is someone who understands and believes in the determinants more than other individuals. Leaders believe in dynamics and change. They do not accept constraints, and know that they can change the nature of outcomes. They are in a position to perceive something about reality that has escaped others, and have the courage to act. It is often leadership that determines *which* of the firms from a favorably situated nation will succeed and fail.

So far, I have described the determinants of national advantage singly and jointly. But the "diamond" is an interactive system in which the parts reinforce each other. These dynamics will be the subject of the next chapter, along with their implications for the emergence and development of competitive industries and their eventual loss of competitive advantage.

Source: Michael E. Porter, The Competitive Advantage of Nations, The Free Press, ch. 3, 1990.