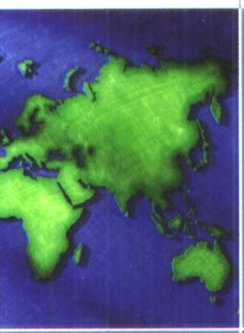
国际金融案例



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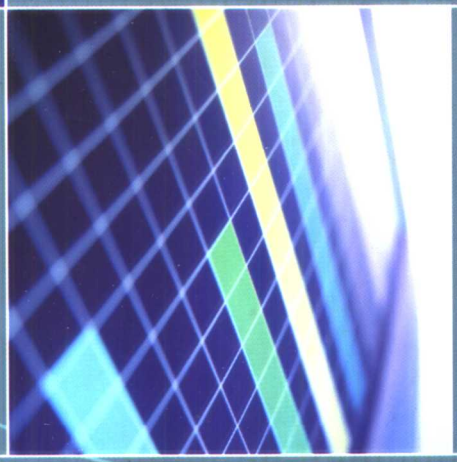

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出 版 前 言

为适应经济社会发展的需要，以高质量的高等教育迎接经济全球化和新科技革命的挑战，培养数以千万计的高质量专门人才，教育部明确要求各高等院校创造条件使用英语等外语进行公共课和专业课教学，从而缩短我国在有关专业教学上与国际先进水平的差距，同时不断提升我国大学生的外语水平。其中一个重要的措施是在高等学校推动使用外语优秀教材。

为使高校学生能够及时使用世界先进水平的经济管理类新教材，高等教育出版社受教育部高教司委托，聘请熟悉国内外教学和学科发展水平的专家，从欧美现行教材中遴选、引进了这批具有国际领先水准的英文版教材，以影印形式出版，供开设相应课程的高等学校选用。

引进这批教材时，遴选和评定的依据主要有以下几个方面：（1）引进的教材与 1998 年教育部颁行的专业目录及后来批准的目录外专业所规定的主要课程相对应，内容符合专业培养目标和教学要求。（2）版本要新。国外的大学教科书一般三年左右即修订再版一次，增补新的内容。这批教材选择的都是国外权威教科书的最新版本，内容涵盖了相应学科最新进展的介绍和现实案例的分析。（3）内容规范简明，适合教学。由于这批影印教材主要是针对我国大学本科层次经济管理类专业的基础课程和主干课程的，专家们在选择时充分考虑了内容的严谨、规范以及表述的准确性，同时考虑了使用外语教材可能遇到的课时限制问题，在内容相同的几种流行版本中选择相对简明的薄本。另外，按照教育部的要求，这批教材的定价采取了与国内版教材相同的标准。

由于这批教材的作者所在国家的经济、政治、社会文化等与我国均有所不同，书中内容和观点难免有偏颇和错误之处，希望读者在阅读时注意鉴别。

我们希望这批影印教材的出版，对各高等院校的经济管理类专业的教学有所促进和帮助。

高等教育出版社

2002 年 9 月

"Well, in *our* country," said Alice, still panting a little, "you'd generally get to somewhere else—if you ran very fast for a long time as we've been doing."

"A slow sort of country!" said the Queen. "Now, *here*, you see, it takes all the running you can do, to keep in the same place. If you want to get to somewhere else, you must run at least twice as fast as that."

Through the Looking Glass, And What Alice Found There
Lewis Carroll, 1871

CASES IN INTERNATIONAL FINANCE

Preface

The growth of international business continues to know no bounds. With the coming of the year 2000, the world's access to information technology—and to capital—has reaffirmed the need to explore and expand our understanding of international finance. Finance is integral to the conduct of global business, and the increasing access to capital by enterprises and institutions from Bangalore to Beijing, is giving rise to competitors which many multinational firms in traditional industrial markets have not yet seen on their radar screens. As a recent slogan on the Internet noted, "The future is here, it is simply not evenly distributed."

This collection of cases in international finance is intended to provide current material for the exploration of these global financial challenges and trends. These cases are the product of academics from some of the leading educational institutions in the world in the fields of international business, generally, and international finance, specifically. Many of the cases have benefitted from extensive co-authorship with the practitioners in the field, the professional financial managers who are on the front lines of global business. Many of these same professionals are our former students, who (thankfully for us) continue to reeducate us, the educators.

The key words in the selection of cases for this collection were *currency* (timing of case events, not money) and diversity (geographic, not ethnic). Twenty-seven of the 30 cases involve events occurring in the 1990s, with ten cases in the period of time between 1997 and 2000 alone. To our knowledge, this is also the first major financial case collection in which the majority of the case events occur outside of the United States. This geographic diversity includes Pakistan, Italy, Honduras, China, Denmark, Brazil, Germany, Malaysia, and Ecuador to name but a few. As the leaders in international business and finance have reiterated time and time again over the past 30 years, global business and financial practices reflect much of the culture and history of the geographic environments. It is hoped that this case collection provides an opportunity for students of international finance to understand the differences and complexity of international financial management on a truly global landscape.

Topical coverage is wide. In addition to the traditional international financial issues of currency exposure and global funding, topics of contemporary managerial concern such as international performance evaluation, valuation and recapitalization, mergers and acquisitions, global tax management, remittance and repatriation, pricing, project financing, ratio analysis, and multinational capital budgeting are also covered. Few if any of the cases are confined to a single topic; most cases present the complexity of financial decision-making within a competitive business environment. The challenges presented by these cases are intended to go far beyond simple exercises in financial mathematics, to real world financial issues faced by real world managers in real world companies.

The organization of the collection follows that of *Multinational Business Finance* (MBF), ninth edition, 2001, Addison-Wesley Longman Publishing, coauthored by

David Eiteman, Arthur Stonehill, and myself. It is intended that the casebook be used as a supplement to MBF, but also as a supplement to a traditional financial management text, or independently on a stand-alone basis. Although the title of the collection is *International Finance*, each case could be viewed as focusing on a variety of financial dimensions of global business in general. The selection of cases for the volume was intended to expand the scope of international finance, not narrow it.

These cases have been extensively field-tested in both undergraduate and graduate level degree programs at a variety of educational institutions around the globe, as well as within a variety of executive education programs, including here at Thunderbird. I wish to thank all the authors for allowing me to use their cases, several of whom have revised in their cases specifically for this volume. Thank you. And of course, any remaining errors of content or omission are mine alone.

M.H.M., *Flagstaff, Arizona*

CONTENTS

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BENECOL: RAISIO'S GLOBAL NUTRICEUTICAL

The discovery and launch of a revolutionary new margarine—Benecol—scientifically proven to cut cholesterol without known side-effects, has transformed Raisio into the hottest stock on the Finnish stock exchange. When Benecol was launched in Finland early in 1996, it sold out quickly, even though it cost seven times more than ordinary margarine. As talk of "miracle margarine" began to filter out of Finland, Raisio's slumbering share price jumped. It has risen 16-fold since Benecol's launch, helped by a surge in foreign ownership. Overseas investors held 10 percent of the shares at the start of 1996. Today the proportion is 63 percent.

"Benecol's Spread of Riches," *The Financial Times*, July 9, 1998.

The share price of Raisio Oy, a Finnish grain and chemicals company, had recently exhibited all the characteristics of a roller-coaster ride. The ride up had been on the back of Benecol, a *nutriceutical*, a human nutrient-based product with pharmaceutical qualities. The firm had rolled-out its new margarine product in Finland under the patented Benecol name in November 1995 with enormous success and fanfare. Sales had grown rapidly, but global interest in both Raisio and Benecol had grown even faster. The share price had skyrocketed, rising from 6.2 Finnish marks (FIM) in December 1995 to 64.7 in December 1997. Kenza Medici, food and pharmaceutical analyst for Sinagua Capital, had picked and promoted Raisio.

But 1998 had proved difficult for both Raisio and Kenza. The share price continued upward in the spring with the signing of an international licensing agreement with the U.S. consumer and pharmaceutical conglomerate, Johnson & Johnson (J&J). But forces out of Raisio's control inflicted severe damage to the firm's earnings potential in late summer and early fall. First, two of Raisio's four major business units had been seriously hit by the Russian economic and financial collapse in August. Both the margarine and grain divisions were expected to end the year at a loss. The second hit was worse: the U.S. Food and Drug Administration (FDA) blocked J&J's McNeil Consumer Products Group from test-marketing Benecol in the United States. All bets on earnings for Benecol-based products were off. As 1998 drew to a close, Kenza revisited her valuation of Raisio.

Raisio Oy

The Raisio Group was a Finnish foodstuffs, animal feeds, paper, and chemicals conglomerate. Founded in 1939, Raisio had grown from a single flour mill to a

EXHIBIT 1 Selected Financial Results, the Raisio Group (million Finnish marks)

	1992	*1993*	*1994*	*1995*	*1996*	*1997*
Turnover (sales)	3,070	3,549	3,518	3,224	3,928	4,947
Percent change	33%	16%	-1%	-8%	22%	26%
Profit before extraordinary item	158	199	165	141	166	209
Percent of sales	5.1%	5.6%	4.7%	4.4%	4.2%	4.2%
Return on Equity (ROE)	14.6%	19.7%	10.8%	7.5%	4.5%	7.8%
Return on Investment	15.5%	13.5%	11.1%	9.2%	9.2%	10.1%
Share price (eoy), FIM	40.3	83.9	70.2	61.9	280.0	647.0
Earning per share (EPS)	8.0	11.0	9.4	6.2	6.0	10.0
Price/EPS ratio	5.0	7.6	7.5	10.0	46.7	64.7

Source: The Raisio Group and Handelsbanken. Share price and EPS on a pre-split basis. The Raisio Group approved a 10 to 1 split in June 1998.
eoy = end-of-year.

FIM 4.9 billion firm in 1997 ($912 million at FIM5.37/$) with more than 2,800 employees working in 17 countries. Raisio characterized its various business lines as being linked by their common input—renewable natural resources, and took pride in its continued investment in research, innovation, and development. Raisio's strategy was to improve the quality, reduce the cost, increase the availability, and expand the uses of all products in its value chain.

Sales growth and profitability at Raisio had been quite volatile in the 1990s. As illustrated by Exhibit 1, the turnover of the traditional business lines of Raisio, heavily chemical and foodstuff in composition, had grown rapidly in 1992 and 1993, falling dramatically in 1994 and 1995, only to resume a rapid growth path in 1996 and 1997. Sales growth for 1998 was expected to be flat. That was, however, before Benecol. Although Benecol's actual sales were not yet significant, contributing only 2% of total Group sales in 1997, the earnings potential for the product globally was thought to be enormous. The growth in corporate earnings and prospects in 1996 and 1997 had led the share price to increase ten-fold.

Raisio first listed on the Helsinki Stock Exchange in 1989. Raisio's free shares of the parent company (Series V) are quoted on the Helsinki Exchanges (RAIVV) and the firm's restricted shares (Series K) on the brokers' list (RAIKV). Restricted shares of the company, limited to qualified buyers according to the firm's Articles of Association, possess 20 votes per share, while the free shares, sold to all buyers (both domestic and foreign), possess one vote per share. Acquisition of restricted shares must be approved by the firm's Board of Directors with the exception of that by Finnish citizens. Both kinds of shares were entitled to equal amounts of profits.

Benecol

Raisio's scientists had started searching for a cholesterol-decomposing food product in the late 1980s. The firm's knowledge and background in wood- and plant-based

sterols led it to believe it could be found (the potential for plant sterols to inhibit cholesterol absorption was known as early as 1950). Raisio became the first to successfully isolate and manufacture *stanol ester*, a by-product of wood and vegetable pulping. *Stanol ester* had been shown in clinical trials in Finland to reduce total blood serum cholesterol in the human blood stream by up to 15%. Benecol could be ingested from within a product like margarine and actually inhibit cholesterol absorption.

Fats (lipids) are generally insoluble in water. Lipids are therefore transported through the human blood stream via proteins—lipoproteins—which are water soluble. Water-soluble lipoproteins are classified according to density, and fall into three primary categories: very low-density lipoproteins (VLDL), a relatively rare complex; low-density lipoproteins (LDL), often termed "bad cholesterol," making up roughly 60% of the average cholesterol in the human blood stream; and high-density lipoproteins (HDL), "good cholesterol," which transport excess cholesterol from the body's cells to the liver for excretion. It was Benecol's impact on LDL which was of value.

EXHIBIT 2 Margarine Prices in Finland (August 1998, per 250 gm container)

Margarine Brand	FIM	US$
Benecol	24.90	4.61
Becel (reduced cholesterol)	4.94	0.91
Keiju (table margarine)	3.33	0.62
Flora (table margarine	4.06	0.75
Soila (table margarine)	2.88	0.53

Note: U.S. dollar prices at FIM5.40/US$.

The human digestive tract receives cholesterol from two sources, ingested food and from the body itself. Once cholesterol enters the digestive tract, roughly half is eliminated and half absorbed by the body. *Stanol ester*, the active ingredient in Benecol, inhibits the body's ability to absorb this cholesterol. Specifically, it reduces the body's absorption of LDL, which the body compensates for by increasing its own production of cholesterol. The net result is a reduction in LDL, a reduction in VLDL (a precursor to some LDL), leaving the levels of good cholesterol (HDL) unchanged. Clinical studies in Finland indicated that total blood serum cholesterol was reduced by 10% and LDL reduced by 15%.[1]

Benecol—the margarine product—was launched in November 1995 in Finland. Though the product was initially priced at about seven times the average margarine product, store shelves were emptied in days. Although hoping for such success, Raisio had not anticipated the level of demand. Nearly a year passed before sufficient quantities of stanol ester could be produced to meet the Benecol product demands simply within Finland itself.

[1] A study published in the *New England Journal of Medicine* (T.A. Miettinen, H. Gylling, H. Vanhanen, and E. Vartiainen, "Reduction of serum cholesterol with sitostanol-ester margarine in a mildly hypercholesterolemic population," *New England Journal of Medicine*, 1995, 333, 1308-1312), documented a 10% reduction in total blood-serum cholesterol levels and a 14% reduction in low-density lipoprotein (LDL) levels among Finnish consumers who used Benecol margarine regularly.

Developing a Global Strategy

Time was the critical element. Raisio had a unique product with enormous market potential, but, if it could not be brought to the global market quickly, competitors would succeed in reaping many of the gains from Raisio's long and expensive research and development process.[2] Unilever already was thought to be nearing a very similar product. Time to penetrate the global market was running short. Tor Bergman, Director of the Benecol Division, estimated Raisio had an 18- to 24-month lead on the competition. The problem, however, was that Raisio had little experience with a business line like that of Benecol.

In late 1996, Raisio had formed a 12-person panel to aid in formulating a five-year development plan for Benecol. The panel, comprising current and former executives from Nestlé, Kraft, and Heinz, among others, provided valuable insights into food products that Raisio did not possess. Together, they worked to develop an understanding of the potential Benecol value-chain, and where Raisio should position itself in the chain. The resulting strategy focused on international licensing, requiring Raisio to find a global partner for market penetration. Raisio itself, however, would maintain the control of stanol ester production, which was consistent with the company's traditional core businesses.

Raisio, as a result of its determination to maintain productive control over stanol ester, launched a global effort both to increase production of stanol ester (esterification) and to secure increasing supplies of stanol ester's primary component, plant sterol. In addition to the existing production facility in Finland, four new sterol production facilities were now under construction: in France with a joint-venture partner, DRT; in Chile via a joint venture (named Detsa S.A.) with one of Chile's largest private companies, Harting S.A.; in the United States via a joint venture with Westvaco Corporation in Charleston, South Carolina; and a second facility in Finland itself. Even with this build-up in production capacity, if the global distribution of Benecol was anywhere near as successful as thought possible, there would be insufficient production capacity of stanol ester.

The J&J Agreements

Johnson & Johnson's McNeil Consumer Products group had proposed a comprehensive production, promotion, and distribution strategy. Kenza, like all segment analysts, had pieced together what she could find out (neither Raisio nor McNeil was talking). First, J&J would purchase all stanol ester from Raisio. Second, it would make a number of lump-sum payments to Raisio, *milestone* payments, based on unspecified product or sales goals. Third, J&J would pay Raisio a royalty on sales of all products containing Benecol. Kenza was unsure of the exact royalty rate; it was also unclear

[2] Raisio's U.S. patent for stanol ester, Benecol7, was initiated in 1992 and awarded in March 1996. The patent will expire in the year 2008, 17 years after the initiation of patent request protection.

whether the milestone payments were payable only upon specific stanol ester capacity or production goals. Kenza did know that royalties were to be based on the final product retail price, not on the cost or internal transfer price associated with the stanol ester input. Although the milestone payments were thought to be substantial in 1998 and 1999, they were expected to quickly become minor in magnitude relative to the royalty payments arising from J&J's prospective global sales (see Appendix 2 for additional detail).

McNeil's proposed product strategy included the introduction of two different varieties of Benecol margarine and a line of four Benecol-based salad dressings, all to be introduced by March of 1999.[3] In January of 1999, McNeil would introduce boxes of 21 individually wrapped servings of light and regular margarine containing Benecol. The four Benecol-based salad dressings, 8-ounce bottles of French, Creamy Italian, Russian, and Thousand Islands, would retail for $5.99 per bottle.[4] This was a significant price increase over normal salad dressings, and reflected the underlying product strategy shared by Raisio and McNeil: low population penetration rates with high margin product sales. Raisio estimated that approximately 40% of the Finnish population had tried Benecol, and 3.5% of the population continued to use the product on a regular basis. The product-packaging and marketing strategy was to use the green coloration of *better-for-you products* to help rationalize the higher prices.

In addition to the product commitment was the promotional commitment: McNeil had slated over US$80 million in national television, print, radio, and free-standing inserts (FSIs) to promote the new product lines, in addition to substantial educational promotions for doctors and pharmacists. Saatchi & Saatchi had been retained to handle the advertising campaign. The promotional campaign would combine the general health benefits of Benecol usage with an explicit recommendation to use Benecol three times per day to lower cholesterol (hence the individually wrapped servings). McNeil, a firm with extensive experience in healthcare-based product promotion and distribution, planned to use retail brokers to get the products into supermarket and grocery chains.

Raisio signed an exclusive North American marketing rights agreement with J&J in July of 1997 (the United States, Canada, and Mexico), and a similar global marketing agreement in March 1998.[5] In June 1998, the share price reached its peak at just over FIM1,000 (pre-split basis). The strategic plan was to introduce Benecol in the United States and Continental Europe in 1999, followed by Japan in 2000. Raisio moved quickly to assure adequate production capacity of stanol ester was available in the United States and Europe for 1999.

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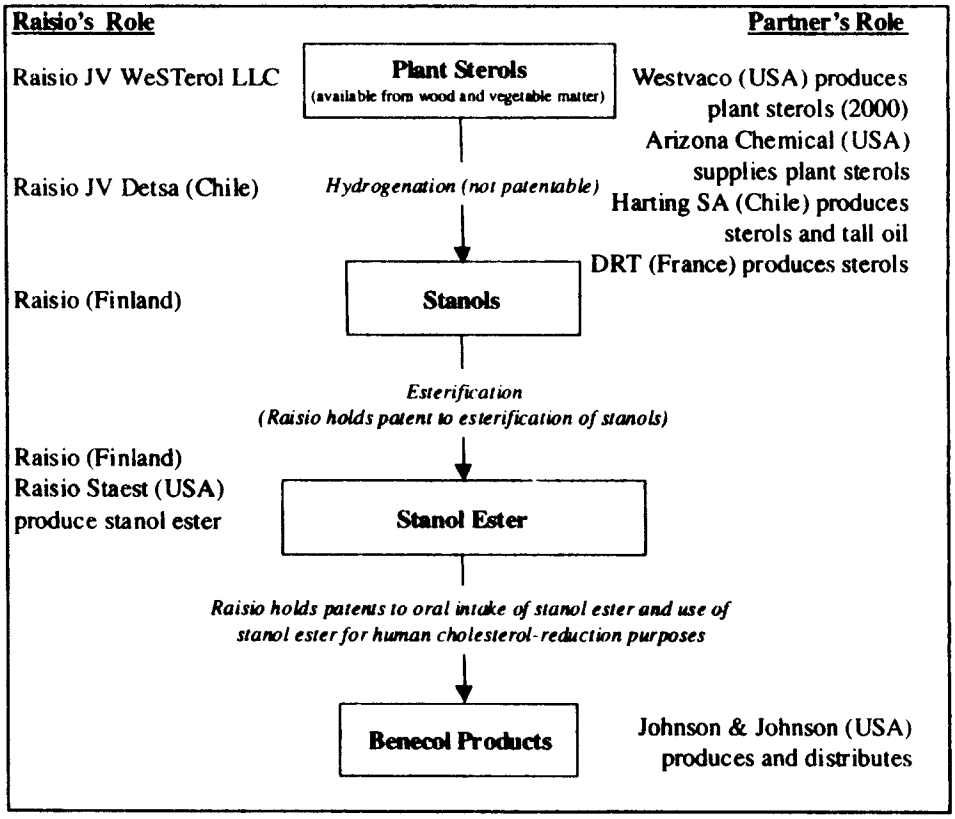
[3] McNeil planned to introduce a slightly altered form of Benecol which contained even more cholesterol-lowering mono-unsaturated fats and less cholesterol-raising saturated fats than the original Finnish version. Additional product deliveries of Benecol currently under study by J&J included mayonnaise and ice cream.

[4] "McNeil Loads Up $80M Warchest for Benecol," *Brandweek*, New York, October 5, 1998.

[5] Although the J&J agreement provided specific detail over individual responsibilities, the partners agreed to share joint responsibilities on continuing clinical studies and product development.

Exhibit 3 depicts the Benecol value-chain and Raisio's now assembled corporate partners. Raisio wished to focus the majority of its actual equity interest and control in the middle phase, the production of stanol esters, and partner with those possessing existing capabilities and resources for the initial sterol supply and final Benecol production and distribution.

EXHIBIT 3 The Benecol Value-Chain and Raisio's Corporate Partners



Potential Competitors

One potential competitive product was under development by Unilever, trade-named *New Flora*, but slated for U.S. distribution by Unilever's Lipton subsidiary as *Take Control*. Although Unilever planned to introduce *Take Control* as a cholesterol-reducing margarine, it was actually a *sterol ester*, not a *stanol ester*. Sterol esters are also colorless, odorless, and fat-soluble, but clinical studies indicated LDL cholesterol reduction of only 7-8%. This was only half of that thought achievable by Benecol. A second, but potentially more serious concern for Unilever, was the possibility that some human bodies absorb sterol esters. Absorption could possibly lead to the

development of arteriosclerosis. Benecol, a stanol ester, was not subject to absorption. Analysts expected Unilever to introduce *New Flora* to the European Union's (EU) regulatory process sometime in early 1999, but given its potential side-effects of absorption, the timing of regulatory approval was uncertain. The primary advantage to Unilever was its well-established brand name in Europe.

A number of other competitive products were also on the horizon. Forbes Medi-Tech, a Vancouver-listed firm, was studying the possibility of marketing *CardioRex*, a blend of plant sterols derived from wood pulp. Novartis, a Swiss-based pharmaceutical firm, had taken an equity stake of C$7 million in Forbes in early 1998 to aid in the product's development and to position itself for potential global marketing. While *CardioRex* was thought to have some LDL cholesterol-reducing benefits and was relatively cheap to produce, its efficacy was still much less than Benecol. Like *New Flora*, it was based on sterol esters which could be absorbed. Very limited clinical tests had been completed.

Monsanto Life Sciences (U.S.) was studying the possibility of extracting sterols from maize products, but the development process was still in its infancy. An added complexity for Monsanto in 1998 had been its preoccupation with its attempted merger with American Home Products (which failed). Fytokem (Canada) was rumored to be investigating extracting sterols from rapeseed oil, but no information was currently available on their success. Nabisco (U.S.) was similarly experimenting with sterol derivation from wheat.

Kenza and other analysts had concluded that Unilever posed the greatest competitive threat. Tor Bergman, Director of the Benecol Division, was quoted in the *Financial Times* as saying "Benecol patents will run 15-20 years. We are sleeping well at night."[6]

Regulatory Hurdles

There were, however, substantial regulatory hurdles facing Benecol in both Europe and the United States.

Europe. In Europe, functional foods like Raisio's Benecol and Unilever's *New Flora* were regulated by the Novel Foods Regulation. In effect since May of 1997, it specified that ***functional foods*** must follow one of two potential regulatory development paths prior to commercial sale, a ***fast-track process*** or a ***full-assessment track. Fast-track approval*** was available to new functional foods which were "substantially equivalent to a counter-party," meaning that if the food was similar to other food products already in the marketplace, it could enter the EU market immediately. The local food authority of the member state in which the functional food's firm is established was still required to forward its opinion and relevant data to the central Novel Foods Commission in Brussels for approval. This would not likely apply to Benecol simply because it was the first nutriceutical of its kind. Benecol had been registered

[6] "Benecol's Spread of Riches," *The Financial Times*, July 9, 1998.

in Finland as a *dietary product*, according to both Finnish and European Union (EU) legislation.

Full-assessment track approval was a much more complex and time-consuming process. The representative member-state food authority must file an application with the Novel Foods Commission and submit a detailed report within 90 days of the application filing. This report was then distributed to all other 15 member states for evaluation, the results of which must be returned to the Commission within 60 days. If there were no substantial queries or objections, the Standing Committee of the Novel Commission could issue a permit for the food to be sold within the EU immediately. If, however, there were objections arising from the member states, the questions were referred back to the member state authority and the individual firm for evaluation and potential testing or explanation. The firm then re-submitted to the same permit process until all concerns were resolved.

Benecol might, however, might fit through a regulatory loop-hole. Benecol had been sold in Finland since November 1995, meeting the food authority regulatory needs in Finland, an EU member state, prior to the inception of the Novel Foods Commission. It was possible that the Commission's authority did not apply, and Benecol would only need apply to each individual member state's food authority for commercial approval.

United States. The regulatory process was different in the United States, and arguably more difficult. Benecol or McNeil Consumer Products had three basic paths: 1) *food-additive path*; 2) *pharmaceutical path*; and 3) *dietary-supplement path.*

1. **Food-additive path.** Acquiring approval directly from the Food and Drug Administration (FDA) for commercial sale of a food additive was a lengthy and costly process.[7] This process could, however, be superceded if the food was *generally regarded as safe* (GRAS). This standing could be acquired through the firm's own self-affirmation, in which it assembles a panel of independent experts that declares the product safe, and then informs the FDA of its findings. Baring any exceptional objections to submitted data and clinical studies, the product may be introduced commercially in 60 days.

2. **Pharmaceutical path.** Once approved as a pharmaceutical, Benecol could potentially be marketed in a variety of ways (as a drug, a food additive or a dietary-supplement), giving substantial flexibility to exploiting its profit potential. It required, however, an arduous, costly, and time-consuming process of clinical testing. This would take several years.

3. **Dietary-supplement path.** This was by far the easiest and fastest of the three approval paths, although it represented a significant level of risk if questions arose over product properties or claims. To register Benecol as a dietary-supplement,

[7] For example, Johnson & Johnson received FDA approval in early 1998 for a product first submitted for direct FDA approval in 1987, 11 years earlier.

the sponsoring firm must simply file a notification letter with the FDA 60 days prior to commercial rollout.[8] Firms would typically file complete data and clinical studies following the notification letter. The dietary supplement was not considered either a drug or a food under this path.

McNeil had chosen the third alternative, to introduce Benecol as a dietary supplement. This would allow the fastest route to market in order to maximize profit and market-growth opportunities. (Introduction of Benecol as a dietary supplement would not preclude a subsequent application as a pharmaceutical.) Although clearly the cheapest and most expeditious, this approach posed significant additional risks to Benecol's profit potential. Marketers would have to walk a fine line in outlining and promoting Benecol. Dietary supplements had traditionally been sold as pills, powders, and tonics. As a dietary supplement, it was unclear whether McNeil could promote Benecol's cholesterol-reducing effects or its added benefits in reducing heart disease.

What troubled Kenza was the possibility that the dietary-supplement/food approach was leaving too much money on the table. If Raisio or Raisio's agent was able to guide Benecol through the troubled waters of FDA approval as a pharmaceutical, it was possible that the value-margins could be substantially larger. On-going clinical tests were not only showing stronger and stronger cholesterol-reducing benefits, but also the clear competitiveness of Benecol with the cholesterol-reducing pharmaceuticals on the market.

The second question was whether Benecol could be promoted for the reduction of coronary heart disease (CHD). CHD, considered one of the top two or three causes of death in most industrialized countries, is principally caused by arteriosclerosis.[9] Arteriosclerosis is the condition in which *fibrous plaques*, fatty streaks, adhere to the walls of blood vessels. This reduces blood flow to the brain and heart. These fibrous plaques are created when free radicals (chemical compounds) cause LDL cholesterols to peroxidize (a process called *lipid peroxidization*). If the LDL levels in the blood serum are reduced, so are the probable levels of fibrous plaques.

The medical profession has tended to focus on three ways to reduce the risk of CHD: 1) reduction of serum cholesterol, via diet or medication; 2) stopping smoking; and 3) increased exercise, which not only encourages HDL cholesterol production but also reduces weight and stress. Reduction of serum cholesterol is considered fundamental to true risk-reduction. Benecol could potentially fall into a very discrete but valuable niche between a low cholesterol diet (the cheapest alternative) and prescribed pharmaceuticals (the most expensive).

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[8] Although the U.S. Congress largely exempted dietary supplements from FDA regulation in 1994, the FDA still retained the right to pursue additional investigation and study at future dates if health questions arose.

[9] The risk factors for coronary heart disease, in rank-order, are: 1. smoking; 2. serum cholesterol (LDL-based); 3. high blood pressure; 4. obesity; 5. lack of exercise; 6. stress; 7. sex at advancing age; 8. genetics.