

The Tax-Efficient Supply Chain: Considerations for Multinationals

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Many multinational enterprises are restructuring supply chains to reduce their cost structures. As trade barriers fall and communications technologies improve, it has become easier and more cost-effective to manage business operations across international borders. This has motivated businesses to centralize, reorganize, and relocate many business processes to perform them in the most efficient manner. While they do this, many businesses are shifting business activities from high-tax to low-tax jurisdictions. This trend has not escaped tax authorities in high-tax jurisdictions, who are concerned with the lost tax revenue.

Schwarz and Castro (2006) write, “The globalization of markets and products and the development of technology have created an impetus for specialization within multinational groups. The co-existence of low-cost and high-cost jurisdictions drives cost reduction strategies, including transportation costs as well as those associated with labor-intensive activities.” They write, “Whether motivated by commercial or tax reasons, some countries have observed a reduction in tax revenues when modern business models are adopted compared with more traditional models” (p. 187), a trend observed by tax practitioners in France, South Africa, Switzerland, Mexico, Argentina, and the United States. Companies are restructuring their supply chains and simultaneously reducing their income tax obligations.

This article demonstrates that MNEs should link income tax and supply chain considerations when restructuring their supply chains, and they should endeavor to maximize net income when doing so. This recommendation differs from the great majority of

supply chain literature, which has generally recommended that businesses seek to minimize pretax costs. One of the most important activities for both supply chain and tax organizations is determining where to locate business operations, so these organizations should collaborate to make optimal decisions. This article explains how linking supply chain and income tax analysis can lead to better decisions and improve net income. It evaluates the MNE’s international tax model — specifically a variety of legal organizations within the MNE — to determine the best opportunities for integrated supply chain and income tax planning. This article also identifies a number of tax issues firms need to consider when making these important decisions.

Background

For the most part, supply chain literature and tax articles have been strictly separated, and little scholarship has attempted to link the supply chain with tax considerations. Experts in these activities have traditionally focused on either the supply chain or income taxes, and published their work in their respective journals. However, some recent articles have demonstrated that these activities are becoming increasingly linked.

From a supply chain perspective, Beamon (1998) reviewed supply chain literature to identify the best measures of supply chain performance. One of Beamon’s conclusions was that firms were frequently encouraged to reduce pretax costs, not maximize net income. Skjett-Larsen, Schary, Mikkola, and Kotzab (2006) identified six measures of supply chain success, and only one measure employed net income. Most of

the recommended measures of supply chain success have not included income taxes, presumably because they are outside a supply chain manager's control.

Cohen and Mallik (1997) explicitly recognized that supply chain restructurings created opportunities to reduce taxes simultaneously, but they acknowledged at that time that integrating supply chain and tax decisions was a relatively new concept.

Irving, Kilponen, Marakaian, and Klitgaard (2005) suggested that supply chain management decisions should include tax considerations, which they proposed could improve net income for many large enterprises.

Schwarz and Castro (2006) summarized a discussion held to discuss the tax impact of supply chain restructurings at a tax conference in 2005. Their article demonstrated that supply chain restructurings were eroding the tax base in many high-tax countries and creating many new issues for tax authorities and businesses, not all of which could be immediately answered. One key concern was how supply chain restructurings were changing the risks and responsibilities of subsidiaries, and whether these changes merited transfer pricing changes. These discussions led the OECD to form a working group to study the issues further (p. 187).

The *International Transfer Pricing Journal* recently featured six articles focusing on the tax consequences of supply chain restructurings in Belgium, France, the Netherlands, Spain, the United Kingdom, and the United States.¹ Tax authorities in these high-income-tax countries are concerned that supply chain restructurings are reducing their tax revenue. The articles emphasized recent developments in those countries, and what actions tax authorities were contemplating or taking to preserve their tax base.

Romalis (2007) analyzed the impact of low income taxes and falling trade costs on Ireland's economy. He argued that while low income taxes were important, they were not the only factor that contributed to the growth of the Irish economy in the 1990s. He noted that the reduction in income tax rates did not immediately trigger an increase in investments and exports there. He argued that "an important trigger for the rapid growth of international trade and FDI has been a decline in technological and policy barriers to international trade in the 1990s" (p. 460). Romalis argued that Ireland's economic growth was "explained by an interaction of low taxation of capital and declining international trade costs" (p. 468). Romalis's article provides further support for the position that income taxes and supply chain costs can work together to stimulate investment in low-tax countries.

Anderson, Murphy, and Reeve (2002) also focused on the important role taxes play in supply chain deci-

sions. Their focus was specifically on U.S. state income, franchise, employment, and property taxes. Lewis (2009) also examined the impact of supply chain decisions on taxes but specifically addressed VAT issues. Both articles again provided support for the position that tax and supply chain decisions are merging, but they did not address national income tax issues.

Tax-Efficient Supply Chain Planning

Transferring operations abroad can frequently draw scrutiny from tax authorities. When tax planning, MNEs must comply with international tax laws and not cross the line that distinguishes tax minimization from tax evasion.

Two important standards are the arm's-length standard and the business purpose doctrine. The arm's-length standard governs how related parties value product sales and services between entities while the business purpose doctrine says a business transaction should have some purpose other than tax reduction.

MNEs can generally find a legitimate business purpose for transferring operations elsewhere. Companies seeking to maximize profits by relocating must balance tax savings against other important factors, including supply chain costs. Income taxes may be reduced by operating in a low-tax jurisdiction, but transferring operations to another location will affect supply chain costs. Because income tax and supply chain costs may simultaneously change when business activities are moved from one country to another, they should be analyzed jointly.

The Tax-Efficient Supply Chain

International tax and supply chain planning are frequently viewed as unrelated activities. Supply chain managers and tax directors have different proficiencies, and their reporting relationships differ. As a result, these departments may not collaborate, at least historically, and supply chain and income tax decisions are often made by different organizations operating independently. Also, tax and supply chain organizations often attempt to achieve different objectives, which discourages collaboration.

Despite this separation, one of the most important activities for both supply chain organizations and tax departments is recommending where to locate business processes. Supply chain departments determine where to procure materials, manufacture products, and distribute finished goods; these decisions can have a substantial impact on income tax obligations. The evidence suggests that in many cases, these effects were analyzed independently, but in recent years, it has become more common to link supply chain and income tax planning.

This is because decisions made to reduce income taxes can also have a major impact on supply chain costs. If an MNE decides to manufacture or distribute goods in one country for tax purposes, that decision will affect supply chain costs, including duties, tariffs,

¹See "Comparative Survey: Supply Chain Management," *International Transfer Pricing Journal*, No. 4, July/August 2006.

and distribution costs. For this reason, supply chain organizations and tax departments should collaborate to achieve a common goal of maximizing net income. When supply chain organizations attempt to minimize pretax supply chain costs, they ignore income tax consequences. Tax departments limit their potential to increase net income when they do not contribute to supply chain decisions. It appears that in recent years, this reality has become clearer to many firms, which are beginning to link these activities.

Describing the rising use of supply chain management structures by MNEs in the United States, Wright (2006) says:

Such business activities give rise to transfer pricing opportunities that, many times, result in a reduction of taxable income in high-tax jurisdictions. The tax authorities in high-tax jurisdictions have, as a result of the changes in taxable income in their jurisdictions, become very interested in auditing these structures. [P. 202.]

Tax revenue lost due to supply chain restructurings is also a major concern to tax authorities in France and the Netherlands.

Low tax rates become particularly attractive when products are profitable and the tax savings are not offset by supply chain costs.

Some authors argue that supply chain restructurings are driven primarily by operational objectives, rather than tax considerations. Casley, Pope, and Hohtoulas (2006) examined developments in the United Kingdom. They write, “The impact of the supply chain model on tax is probably not always at the forefront of the managers’ minds” (p. 194). However, they acknowledge tax considerations are equally important. They write, “Whether the decisions made increase or decrease the MNE’s effective tax rate is often a secondary consideration, but no less important” (p. 194). Whether motivated primarily or secondarily by tax considerations, some MNEs are simultaneously restructuring their supply chain and reducing their income tax obligations.

Romalis (2007) took a different approach from the other articles cited. Romalis focused specifically on the rapid growth of Ireland’s economy in the 1990s and tried to determine what triggered it. Romalis writes that “an economy that is characterized by low taxation of capital (and that has no other flaws that implicitly

tax capital) becomes an ideal location for export-based capital intensive industries when trade costs are low” (p. 460).

Romalis argued that low income tax rates were not solely responsible for the growth of the Irish economy. He writes, “Because the Irish tax rate on foreign capital has been low for decades it alone cannot explain why the most impressive growth performance occurred in the mid- to late 1990s. This was a period where measured international trade costs for so many goods and services became very small” (p. 465-466). Romalis says that a variety of trade-policy and technology improvements contributed to Ireland’s growth. These include worldwide reductions in tariffs, the Single Market Program, and improved computer and communications technologies that made it easier to manage business processes cost-effectively across international borders. However, Romalis’s observations were not limited to Ireland. Romalis writes:

The tax advantage is enough to attract capital from large countries, and as a result per-capita GDP in small countries rises. But large trade costs still result in large countries preserving most of their capital intensive-industries. As trade costs fall the advantage of locating in large markets diminishes, so the location of capital is mostly driven by favorable taxation. [P. 464.]

Romalis’s conclusions have been supported by several studies that have focused on the Puerto Rican economy. In particular, they have sought to explain the growth of the pharmaceutical industry there. Bram, Martinez, and Steindel (2008) argued that the growth of that industry in Puerto Rico was the result of both low tax rates, enacted in section 936 of the U.S. tax code, and low supply chain costs. Referring to the low tax rates, they write, “In practice, the provision appeared to encourage siting in Puerto Rico of plants producing high-profit, easily transportable items such as pharmaceuticals and electronic components” (p. 3). Scherer (1993) reached the same conclusion, writing:

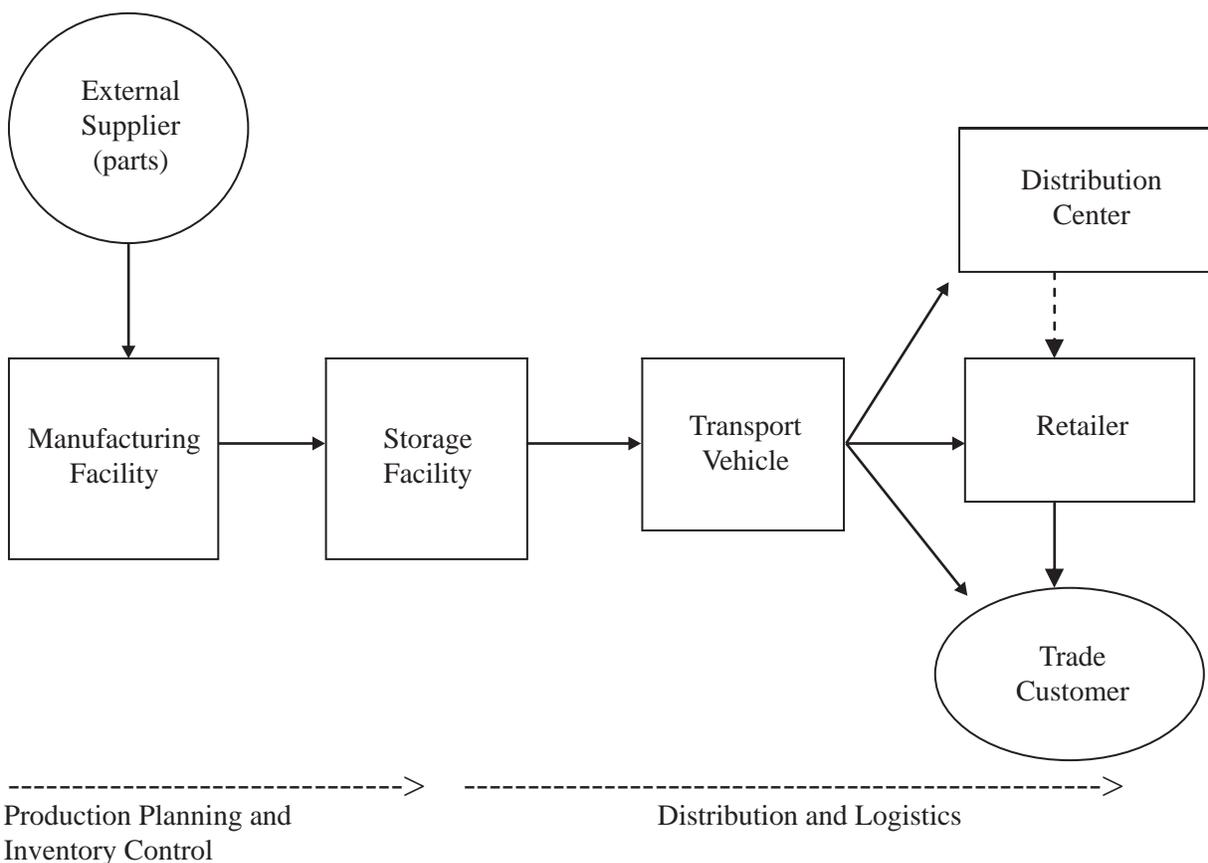
Because drug manufacturing and transportation costs are modest in relation to product prices and because the geographic locus of patent rights ownership is easily transferred, the pharmaceutical companies have been particularly aggressive in obtaining U.S. federal income tax credits by locating their production operations in Puerto Rico. [P. 107.]

To summarize, low tax rates become particularly attractive when products are profitable and the tax savings are not offset by high distribution and other supply chain costs.

Restructuring the Supply Chain

According to Beamon (1998), the supply chain is an integrated process in which a number of business entities, including materials suppliers, manufacturers, distributors, and retailers, work together to acquire raw

Figure 1. The Supply Chain Process



Source: B. Beamon, "Supply chain design and analysis: models and methods," *International Journal of Production Economics* 55 (1998).

materials, convert materials into finished goods, and deliver products to customers (p. 281). Skjett-Larsen, Schary, Mikkola, and Kotzab (2006) write, "It is propelled by the realization that no organization can be good at all things, and by the expanding reach and ease of access to information and communication technology" (p. 17). In recent years, optimizing the supply chain has received considerable attention in business and academia, driven by the desire to reduce cost structures, improve customer satisfaction, and increase operating efficiency.

The supply chain includes two subprocesses. The first, production planning and inventory control, includes manufacturing and inventory storage policies. The second, distribution and logistics, delivers finished goods to customers. Distribution costs can include shipping expenses, tariffs, and all other costs related to delivering finished goods to customers. An overview is shown in Figure 1.

As mentioned, MNEs are changing the way they manage the supply chain. Reduced barriers to trade, agreements to reduce tariffs and duties, outsourcing alternatives, and increased focus on core competencies have all generated interest in supply chain management. Reducing trade barriers has driven trade costs down, and lower trade costs have enabled companies to locate business operations where they can be performed most efficiently. Kuppens and Oosterhoff (2006) write:

The competitive environment in a global economy has accelerated change among MNEs. Companies are increasingly focused on product specialization and optimization of their entire value chain. Business restructuring is often geared towards centralizing key functions and decision making, and this is enabled by more transparency and availability of data through information technology. Such changes typically entail a transfer of

functions and risks from a local-country level to one central location. [P. 183.]

Improved communications technologies have also enabled supply chain process improvements. Cost-effective communications technologies, such as the Internet and Enterprise Resource Planning information system, make it easier to manage business processes across international boundaries. Both enable rapid and cost-effective information flows across national borders, enabling centralized management and removing redundant processes.

Cohen and Mallik (1997) write there has been “a movement away from the classic multinational style of operating relatively autonomous domestic firms in each country of operation. The global supply chain is characterized by the linkage of decision making at all levels of the firm’s supply chain, i.e., across regional, functional and even interfirm boundaries” (p. 193). For example, IBM’s CEO told *The Economist* (Apr. 7, 2007) that IBM is dramatically altering the roles and responsibilities of its subsidiaries:

Sam Palmisano, IBM’s boss, foresees nothing less than the redesign of the multinational company. In his scheme, multinationals began when 19th-century firms set up sales offices abroad for goods shipped from factories at home. Firms later created smaller “Mini Me” versions of the parent company across the world. Now Mr. Palmisano wants to piece together worldwide operations, putting together different activities wherever they are done best, paying no heed to arbitrary geographic boundaries. That is why, for example, IBM now has over 50,000 employees in India, and ambitious plans for further expansion there. Even as India has become the company’s second-biggest operation outside America, it has moved the head of procurement from New York to Shenzhen in China. [P. 11.]

In short, supply chain management has become a key business process. Corporations are centralizing business processes to perform activities where they can be done most efficiently, frequently ignoring national boundaries. Improved information systems, trade agreements, and tariff reductions have reduced trade costs and enabled supply chain restructurings.

At the same time, tax issues permeate supply chain decisions. Supply chain decisions determine in what location a business operates, which determines both the types of taxes levied and the income rates. These operational decisions can also change the roles and responsibilities of a subsidiary, which may also have transfer pricing implications. Supply chain decisions can affect income taxes, property taxes, VAT, and sales taxes. Although this article’s focus is on income taxes, these other taxes can also be important considerations and should not be ignored.

Measuring the Supply Chain

An effective supply chain must achieve many objectives. To satisfy customers, the supply chain must deliver products to customers where and when they want them. Minimizing inventory levels and obsolescence are important operating efficiency objectives. Firms want to minimize supply chain risks, such as unreliable suppliers and operating in unstable locations. Also, cost containment is generally a key business objective. Effective supply chains must balance these goals, improve profits, and ultimately add shareholder value.

Beamon (1998) surveyed significant supply chain management literature (pp. 281-294). Beamon’s article reviewed 29 supply chain management articles and identified 10 supply chain performance measures, shown in Table 1.

Table 1. Supply Chain Performance Measures

Objective	Performance Measure	Number of Articles
Financial Goals	Minimize cost	13
	Maximize net profit	1
Inventory Management	Minimize average inventory	2
	Minimize obsolete inventory	1
Customer Satisfaction	Minimize product demand variance	4
	Maximize on time delivery	3
	Minimize stockout probability	2
	Maximize available system capacity	1
Multiple Goals	Maximize buyer-supplier benefits	1
	Minimize activity days and total cost	1
Total		29

Data source: B. Beamon, “Supply chain design and analysis: models and methods,” *International Journal of Production Economics* 55 (1998).

Only one of the 29 articles recommended that supply chain managers should try to maximize net income. Similarly, Skjett-Larsen, Schary, Mikkola, and Kotzab (2006) identified six frameworks to evaluate the supply chain (p. 322). Four emphasize cost management, and two stress business process success. Only one of the six measures, “Return on Assets,” employs net income, which is affected by income taxes. And while that measure uses net income to measure supply chain efficiency, the authors’ work does not discuss the

trade-offs that may exist between income tax and supply chain objectives, or explain how focusing on net income can change traditional supply chain management.

However, net income is a primary driver of shareholder value. In recent years, many have debated whether net income or cash flow is a better measure of shareholder value, but proponents of both measures agree the figures should be calculated net of income taxes. A study by Bartov, Goldberg, and Kim (2001) analyzed the value of net income versus free cash flow in a number of countries, with different financial reporting rules. They believed previous studies had demonstrated that in the U.S., “the explanatory power of earnings is superior to cash flows” (p. 108). They attempted to determine if this result could be extended to other countries, and they found “support for earnings having greater relative explanatory power over cash flows in the Anglo-Saxon countries, but not in Germany and Japan” (p. 129). In the latter countries, net income was not necessarily superior to cash flow; cash flow was determined to be equally good in many situations. Given that net income is considered the best measure of firm performance in many countries, and of equivalent value with free cash flow in other countries, this article will emphasize measuring and improving net income.

The other supply chain measures proposed generally support maximizing net income. These metrics focus on activities controllable by supply chain managers and are justifiable when they contribute to profit maximization. At first glance, all of these measures appear to support maximizing net income. However, in some instances, the most popular metric — pretax cost minimization — may actually conflict with net income maximization. Also, cost minimization, while an important business metric, is not the most important driver of shareholder value.

Minimizing Cost, Maximizing Profit

Consider the following example. A supply chain manager must decide between two manufacturing locations. The first location minimizes supply chain costs and is closer to suppliers and customers. The second location is farther from suppliers and customers, and wages are higher there. Per unit manufacturing costs are shown in Table 2.

If a supply chain manager’s goal is to minimize supply chain costs, the first location is superior. Wages and logistics costs (for both inbound and outbound logistics) are lower. But reducing supply chain cost does not necessarily maximize net income. The income tax impact may outweigh supply chain savings. If income taxes are considered, the second location may be superior. Suppose a transfer price of \$200 from both locations and a lower income tax rate in the second location. (See Table 3.)

Table 2. Supply Chain Costs

Cost Per Unit	Option One: Lower Supply Chain Costs	Option Two: Higher Supply Chain Costs
Inbound Logistics	\$2	\$4
Materials	\$30	\$30
Labor	\$10	\$20
Shipping/Outbound Logistics	\$2	\$4
Total Supply Chain Costs	\$44	\$58

While option one minimizes supply chain costs, option two maximizes net income.

This is not merely a theoretical concern; it has practical consequences. Businesses regularly reshape their supply chains, looking for ways to reduce their cost structure and improve inventory management and customer satisfaction. MNEs now regularly transfer business operations from one country to another. Supply chain decisions that ignore tax consequences may actually reduce net income and shareholder value. Businesses should consider tax consequences to make optimal supply chain decisions, and the evidence indicates that many have begun to do so. Tax authorities in a variety of countries have observed this activity and are concerned with the implications on their revenue.

The previous example assumes the same \$200 transfer price from either location. IRC section 482 identifies five acceptable transfer pricing methods for transfers of tangible products. Three of the five methods specified in U.S. transfer pricing law should generate the same transfer price. The comparable uncontrolled price method, resale price method, and comparable profit method should each achieve this result.

The Treasury regulations state:

The comparable uncontrolled price method evaluates whether the amount charged in a controlled transaction is arm’s length by reference to the amount charged in comparable uncontrolled transaction.²

In this approach, transfer prices should be determined by evaluating external prices for comparable sales, which serve as the same reference point for transfer price calculation.

Concerning the second method, the regulations state:

The resale price method measures the value of functions performed, and is ordinarily used in

²Treas. reg. section 1.482-3(b)(1).

Table 3. Net Profit Comparison

	Option One: Lower Supply Chain Costs	Option Two: Higher Supply Chain Costs	Difference (1-2)
Transfer Price	\$200	\$200	—
Total Supply Chain Costs	\$44	\$58	(\$14)
Operating Profit	\$156	\$142	\$14
Tax Rate	35%	25%	10%
Taxes	\$54.60	\$35.50	\$19.10
Net Profit	\$101.40	\$106.50	(\$5.10)

cases involving the purchase and resale of tangible goods in which the reseller has not added substantial value to the tangible goods by physically altering the goods before resale.³

The regulations also say:

If an applicable resale price (in the uncontrolled transaction) of the property involved in the controlled transaction is \$100 and the appropriate gross margin is 20 percent, then an arm's-length result of the controlled sale is \$80 (\$100 minus (20 percent x \$100)).⁴

This would be the appropriate transfer price from all internal suppliers. The third approach, the comparable profit method, is similar to the resale price method, but the organization's operating profit is evaluated instead of gross profit:

Under the comparable profits method, the determination of an arm's-length result is based on the amount of operating profit that the tested party would have earned on related party transactions if its profit level indicator were equal to that of an uncontrolled comparable, and applying the profit level indicator to the financial data related to the tested party's most narrowly identifiable business activity for which data incorporating the controlled transaction is available.⁵

Under each of these three methods, the purchaser's transfer price should be the same, without regard to which internal supplier provided the product. Further, the IRC does not permit taxpayers to pick and choose from the five methods when determining transfer pricing policies. The firm is bound by the best method rule, which says:

The arm's length result of a controlled transaction must be determined under the method that,

under the facts and circumstances, provides the most reliable measure of an arm's length result.⁶

The IRS directs taxpayers to select the method that best supports the arm's-length principle, not the most advantageous method. If one of the three methods above is the most reliable basis for determining arm's-length results, it must be used. As Gresik (2001) writes, "The 'best method' provisions legally obligate the transnational to prove its method best approximates an arm's-length price" (p. 810).

Within the U.S., the IRS imposes substantial penalties for not complying with transfer pricing laws. It can adjust transfer prices to bring them in compliance with the arm's-length standard.⁷ It can also impose substantial penalties on top of the adjustment. These penalties are not tax-deductible.⁸ Many believe these penalties have motivated U.S.-based firms to comply more carefully with transfer pricing laws. Skinner (2005) writes:

Procedural changes have made it less attractive to litigate transfer pricing disputes. First, Congress provided for transfer pricing penalties equal to 20 percent and 40 percent of the ultimate section 482 adjustment. The trigger for penalties is \$5 million of aggregate misstatements. For a multinational corporation with billions of dollars of inter-company transactions, this threshold is easily reached. [P. 186.]

The 20 percent penalty is for "accuracy-related" issues, and the 40 percent penalty is assessed for "gross misstatement."⁹ On top of the transfer pricing adjustment and the nondeductible penalty, firms must also pay accrued interest.¹⁰ In a well-known transfer pricing

³*Id.*

⁴*Id.*

⁵Treas. reg. section 1.482-5(b).

⁶Treas. reg. section 1.482-1(c)(1).

⁷IRC section 482.

⁸IRC section 6662(e), (h).

⁹IRC section 6662.

¹⁰*Id.*

case, the IRS reached a \$3.4 billion transfer pricing settlement with GlaxoSmithKline in 2006.¹¹

International Tax Planning

International businesses frequently transfer inventory and fixed assets from one country to another. MNEs must calculate income in each locale to comply with local tax laws, and transfer prices for inventory, assets, and services must be calculated based on the arm's-length standard.

Determining an arm's-length transfer price is not always easy to do. Comparable trade prices are usually the starting point to determine a transfer price, but it may be challenging to find these prices. This is particularly true when the MNE is vertically integrated and transfers work-in-process inventory between business entities. Firms may not sell similar partially completed goods to external customers, making external price comparisons difficult to obtain. Centralized supply chain planning may increase work-in-process inventory transfers, as businesses shift manufacturing processes to the most efficient location.

MNEs frequently form subsidiaries to perform a specific business purpose; this facilitates functional-based tax planning. According to Irving, Kilponen, Markarian, and Klitgaard (2005), this approach supports:

[a] principle that underlies many of the world's taxing regimes: The income on which a company is taxed should reflect the functions the company performs, the risks the company takes on, and the assets the company has at its disposal. More specifically, companies earn separately identifiable economic returns on the functions they perform, the risks they take, and the assets they own or have developed. These distinctions are muted when an enterprise operates worldwide on a vertically integrated basis. However, they become significant once a company begins to isolate functions, risk, or assets in specific entities within the corporate group and ultimately deploys them in certain jurisdictions. [P. 59.]

Creating entities for specific purposes facilitates transfer price determination. If external price comparisons are not available, one alternative is to determine an arm's-length return for a specific business activity. For example, suppose a U.S.-based business decides to sell products in Canada. It plans to continue inventing and manufacturing products in the United States, and to sell them in the United States and Canada. It forms a Canadian sales subsidiary to sell products there. Its products are unique, and comparable trade prices are difficult to establish. However, it can determine profit margins for comparable sales companies. Transfer

prices could be calculated so the Canadian subsidiary could achieve a gross margin or a return on sales figure comparable to similar trade businesses.

To facilitate these profit comparisons, MNEs may create several entities in the same country, if they are formed for different business purposes. If a firm conducted manufacturing and sales in the same country, it might be organized into separate entities to support transfer pricing analysis. At a minimum, financial results for these activities would have to be calculated separately. Combining manufacturing and sales activities into one financial statement would make it difficult to determine if the firm's profits were appropriate for the activities performed or risks borne there.

Creating entities for specific purposes facilitates transfer price determination.

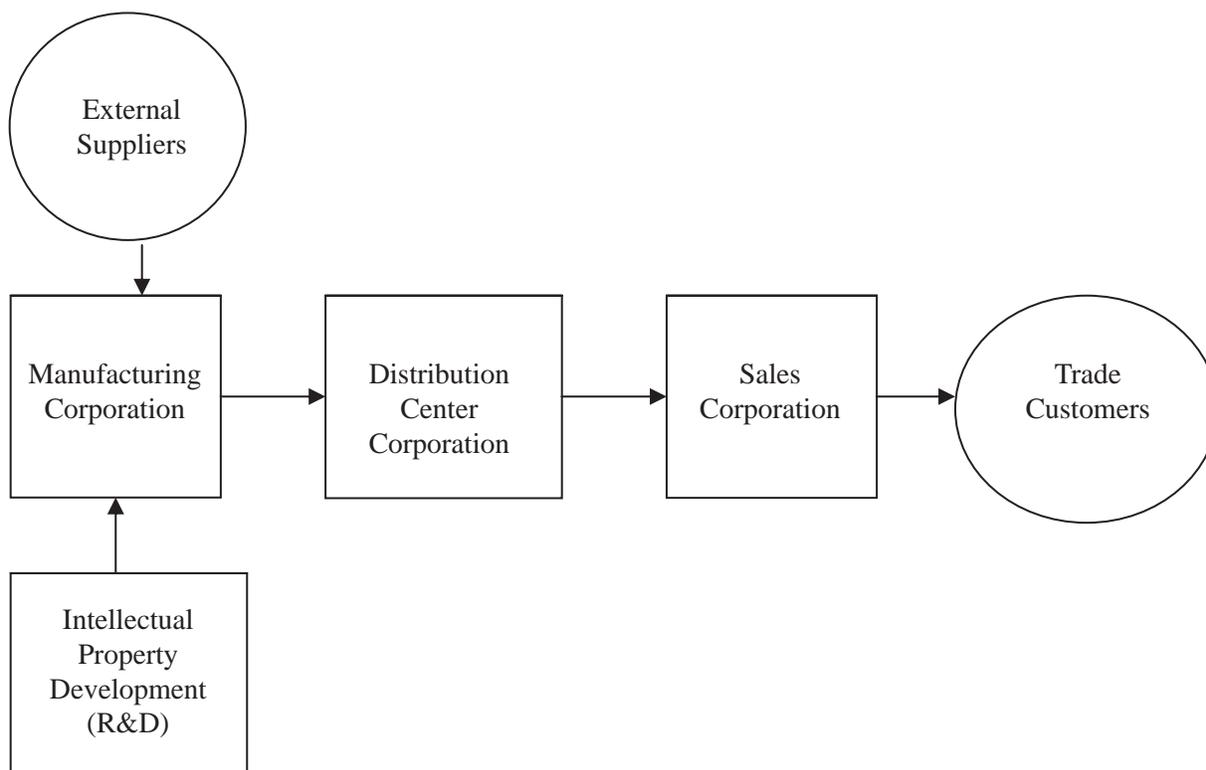
Larger MNEs may have elaborate value chains. These activities might include research and development, manufacturing, distribution, and sales. In Figure 2, the MNE's arm's-length transfer pricing policies must apportion profit between legal entities.

In this model, the intellectual property owner invents products and transfers the right to build them to the manufacturing corporation. After production is complete, the manufacturing corporation ships products to the distribution center, which stores them until they are sold. The sales corporation makes the trade customer sale. As the MNE operates in four different countries, it must pay income taxes in each. Tax rates may differ, so the MNE will want to structure its operations to minimize tax obligations while complying with tax laws and the arm's-length standard.

As Irving, Kilponen, Markarian, and Klitgaard (2005) write, "Because income, and therefore income taxation, typically follows functions performed, risks assumed and assets deployed, companies often achieve tax savings by locating various aspects of their business processes in tax favored jurisdictions" (p. 58). For example, the firms could assign some risks, such as warranty obligations, to the legal corporation that has the highest profit potential, located in a low-tax jurisdiction. Because it absorbs the most risk, it should earn the highest profit. At the same time, organizations that accept less risk, often in high-tax jurisdictions, merit less profit.

This approach increases total business risk. If profitable, the MNE lowers its tax rate. But if the MNE records losses, they are absorbed in the low-tax jurisdiction, and its worldwide tax rate increases. However, this is the risk the firm knowingly takes to reduce its

¹¹ *Tax Notes Int'l*, Sept. 18, 2006, p. 956, *Doc 2006-19054*, or 2006 *WTD 176-1*.

Figure 2. Income Tax Planning

Note: Intellectual property development, the manufacturing corporation, the distribution center, and the sales corporation are all part of the same MNE, and transfer prices need to be determined to apportion profits (or losses) between them.

worldwide tax rate. If a firm believes it can consistently earn high profit margins, it is a risk worth taking.

Exemption vs. Tax Credits

In general, parent countries tax business earnings using one of two methods. Most of them tax only domestic earnings while several countries tax worldwide earnings.

Taxing only domestic earnings is the simplest and most popular approach. In other words, the parent country levies income taxes only on the domestic entity and ignores income earned by foreign subsidiaries. Overseas subsidiary profits are taxed by those jurisdictions. The following example illustrates that approach. For clarity, all figures will be presented in dollars.

Suppose a German-based corporation owns a Mexican subsidiary. The company earns \$200,000 in Germany and \$100,000 in Mexico. If the German tax rate is 39 percent and the Mexican tax rate is 50 percent, it would owe \$78,000 German income tax and \$50,000 in Mexico. Income earned in Mexico would have no impact on taxes owed in Germany, and the company's worldwide tax rate would be 42.7 percent. (See Table 4.)

In contrast to the exemption system, several countries — including the United States — tax the worldwide earnings of businesses headquartered within their borders. Because taxing profits twice would put their firms at a competitive disadvantage, these countries allow companies to take a credit for taxes paid abroad.¹² The following example shows how tax credits work and illustrates some problems the U.S. Congress decided to rectify.

Suppose a U.S.-based company earned \$200,000 in the United States and \$100,000 in Mexico. The U.S. tax rate is 35 percent. The firm owes \$105,000 in worldwide taxes on its \$300,000 pretax earnings. If the company paid \$50,000 in Mexican taxes, it could take a credit for that amount on its U.S. tax return. This would reduce its U.S. tax obligation to \$55,000. (See Table 5.)

In the above example, Mexico's high tax rates reduced the firm's U.S. tax obligations and domestic tax

¹²IRC section 901(a) explains foreign tax credits, and section 901(b) explains eligibility requirements.

Table 4. International Tax Exemption System

German-Based Firm	German Parent	Mexican Subsidiary	Worldwide Results
Earnings	\$200,000	\$100,000	\$300,000
Tax Expense	\$78,000	\$50,000	\$128,000
Tax Rate	39%	50%	42.7%

Table 5. Foreign Tax Credits

U.S.-Based Firm	Worldwide Earnings	Mexican Subsidiary	Foreign Tax Credit	U.S. Tax Obligation
Pre-Tax Earnings	\$300,000	\$100,000	—	\$200,000
Tax Expense/(Credit)	\$105,000	\$50,000	(\$50,000)	\$55,000
Tax Rate	35%	50%		27.5%

Table 6. Foreign Tax Credits Limited by Share of Foreign-Source Income

U.S.-Based Firm	Pre-Credit Obligation (1)	Mexican Subsidiary (2)	Foreign Tax Credit (3)	U.S. Tax Obligation (4)	Consolidated Taxes (2) + (4)
Earnings	\$300,000	\$100,000	—	\$200,000	\$300,000
Tax Expense/(Credit)	\$105,000 ^a	\$50,000	(\$35,000) ^b	\$70,000 ^c	\$120,000 ^d
Tax Rate	35%	50%		35%	40%

^a35 percent of \$300,000 is the pre-credit tax obligation.

^bAs foreign-source earnings are one-third of total earnings, the tax credit is limited to one-third of \$105,000.

^cThe \$105,000 in pre-credit worldwide tax obligation in column 1, less the \$35,000 tax credit in column 3.

^d\$50,000 in Mexican income taxes in column 2 plus \$70,000 in U.S. taxes in column 4.

rate. This type of situation prompted the U.S. Congress to place limitations on foreign tax credits. One law limits foreign tax credits to the percentage of foreign-source income.¹³ Using the example above, a U.S.-based corporation would first calculate a pre-credit tax obligation of \$105,000, or 35 percent of its \$300,000 in worldwide earnings. Its foreign tax credit is limited to \$35,000, which is one-third of its worldwide earnings, reflecting its foreign-source income share of the total. Its U.S. tax obligation is determined by subtracting the foreign tax credit of \$35,000 from the \$105,000 figure. It owes \$70,000 in U.S. income tax, and its worldwide tax expense would be \$120,000, shown in Table 6.

This limitation created an incentive to earn foreign-source income and increase the foreign tax credit. Creative tax departments have found ways to do this, such as transferring cash offshore to earn interest in-

come abroad. To limit this, a second U.S. tax credit law requires MNEs to separate earnings into several "baskets of income."¹⁴ Foreign tax credits earned in one basket cannot offset tax obligations from another basket. This prevents the company from increasing foreign tax credits by shifting passive income overseas. The passive interest income may not be used to generate a tax credit for the active income, which is earned from the sale of products or services.

Thus foreign tax credits are valuable and must be earned in the correct basket. In the absence of sufficient foreign tax credits, a company's worldwide tax rate can increase. U.S.-based firms must monitor foreign tax credits to determine if they can defer all income taxes on foreign earnings.

MNEs based in tax credit countries do not permanently reduce taxes by operating in tax havens, at least

¹³For an explanation of foreign-source income, see IRC section 904(a).

¹⁴IRC section 904(d).

in theory. As Gresik (2001) writes, “The main advantage of deferral to transnationals is the ability to avoid paying home taxes that are reinvested in the foreign operations” (p. 803). Firms defer U.S. tax obligations until the subsidiary repatriates cash to the parent company. Nonetheless, due to the time value of money, deferring taxes is valuable. Also, tax authorities sometimes temporarily reduce income tax rates on repatriated funds. This encourages cash transfers and generates tax revenue, though at a reduced rate. Knowing this, many companies defer repatriation until tax rates are temporarily reduced. For example, the American Jobs Creation Act of 2004 reduced the tax rate on repatriated funds to 5.25 percent for that year, which motivated MNEs to transfer funds to their U.S.-based parents.¹⁵ Thus, in many cases, firms do not merely defer tax obligations — they permanently reduce their worldwide tax rate. For these reasons, MNEs frequently organize their business activities to defer tax obligations, even if the parent country taxes worldwide earnings.

Planning Opportunities

While tax-efficient supply chain management has received some attention in academic journals, pretax cost minimization has been analyzed in much more detail. Cohen and Mallik (1997) write, “Finally, the global supply chain can take advantage of diversity in the international environment by recognizing and exploiting regional differences, i.e., in the level of product and process technology expertise, labor force capabilities, input factor costs, local tax rates, and the capabilities of off-shore vendors” (p. 194). However, the article did not explain how firms can pursue these opportunities. The authors said: “Effective management of the activities dispersed throughout the global supply chain can result in lower production and distribution costs via the allocation of value-adding activities to facilities, tax minimization via transfer pricing between entities operating in different tax jurisdictions, financial arbitrage via international cash flow management” (p. 201). In 1997 modeling of these opportunities was just beginning. By 2006 a number of articles had demonstrated that tax authorities in many high-tax jurisdictions had noticed supply chain restructurings were reducing their tax revenue.

Some businesses today prefer to ignore geographic boundaries when restructuring supply chains. While these boundaries may appear arbitrary, they can have a material impact on income tax obligations. Thus, it is a mistake to ignore taxes. For many companies, it is their largest single expense. Supply chain analysis should explicitly consider international boundaries when they affect income tax obligations, and net income should be a key measure of supply chain success.

To determine where the best tax and supply chain planning opportunities exist, the MNE’s functional and legal model will be analyzed. The sales corporation, the distribution center, the manufacturing corporation, procurement organizations, and shared service providers will be analyzed in turn to determine the optimal alternatives for income-tax-efficient supply chain planning.

Sales Corporations and PE

When international sales are minimal, businesses frequently sell their products to trade customers through other firms. The firm can sell products to a locally based business that imports the goods and resells them to trade customers. In this situation, the MNE has no legal presence in that nation, earns no money within its borders, and thus pays no income taxes there.

As sales increase abroad, MNEs frequently hire their own employees. Salaried staff becomes more cost-effective than selling through a third party. Businesses can also achieve greater business process control managing their own employees, so they may choose to establish a foreign branch or subsidiary.

Crossing international boundaries requires firms to address international tax complexities. Tax treaties simplify this process. The U.S., United Nations, and OECD have created model treaties that countries use to negotiate agreements. Each treaty has merits, but some believe the OECD model treaty is becoming the most influential. According to Streng (2009), “Because the OECD Model is under regular review this model treaty has become the real ‘yardstick’ for constructing and revising bilateral income tax treaties around the world.” As Streng writes, “Consequently, even the U.S. Treasury Department representatives are often influenced by the OECD Model, more than their traditional perspective of starting negotiations from the U.S. Model Treaty” (pp. 13-14). For this reason, this article will focus on the OECD model treaty.

The OECD model treaty is frequently used to define the term “permanent establishment.” According to the treaty, permanent establishment refers to “a fixed place of business through which the business of an enterprise is wholly or partly carried on.”¹⁶ A fixed place of business specifically includes a place of management, branch, office, factory, workshop, or any site developed to extract natural resources.¹⁷ The OECD model treaty provides a number of exceptions, generally permitting organizations to conduct limited support and auxiliary activities without triggering PE and local income tax obligations. Examples cited include permitting “the use

¹⁵H.R. 4520, The American Jobs Creation Act of 2004.

¹⁶OECD Articles of the Model Convention With Respect to Taxes on Income and on Capital, article 5, section 1.

¹⁷*Id.* at article 5, section 2.

of facilities for the purpose of storage, display or delivery of goods or merchandise”¹⁸ or “solely for the processing by another enterprise”¹⁹ or “any other activity of a preparatory or auxiliary character.”²⁰ The treaty identifies a number of similar support examples that do not constitute permanent establishment.²¹

Permanent establishment can also be created when significant business activities are conducted locally. For example, negotiating contracts triggers permanent establishment. Specifically, the OECD model treaty states when a person “in a Contracting State [has] an authority to conclude contracts in the name of the enterprise, that enterprise shall be deemed to have permanent establishment in that State with respect of any activities which that person undertakes for the enterprise.”²² This does not apply to contracts negotiated for the support and auxiliary activities cited in the previous paragraph.

There are no simple ways to expand into large, prosperous markets and keep taxes low.

PE definitions can differ from country to country. Verlinden and Costermans (2006) write that when conflicts arise, “[t]he treaty definition (based upon the OECD Model Treaty) prevails over the definition under domestic law” (p. 175), at least according to Belgian law. However, PE rules are being reviewed in some countries, in large part due to supply chain restructurings. To illustrate this, developments in the United Kingdom will be reviewed.

Within the United Kingdom, two key issues are examined. According to Casley, Pope, and Hohtoulas (2006), the first is “if the principal is carrying on a business through a fixed base in the United Kingdom” (p. 200). The second is “if the UK Company is a dependent agent of the principal” (p. 200). The second issue is drawing more scrutiny within the United Kingdom. If the U.K. company “habitually exercises an authority to conclude contracts in the name of the principal” (p. 200), it can be viewed as a dependent agent, and permanent establishment may be suspected. A number of issues must be examined closely to determine the outcome. If customer credit decisions are made in the U.K., this suggests permanent establish-

ment. Companies sometimes employ a non-contracting disclosed arrangement to avoid permanent establishment, but tax authorities may go beyond legal agreements and examine how business is actually conducted:

In practice, drawing the dividing line between contracting and non-contracting is not always simple. HMRC is likely to argue that having the principal actually “sign” the contracts with customers may not be sufficient if all they do in reality is rubber stamp the terms and conditions including price, discounts etc. that have already been ostensibly agreed to by the local agent. [P. 200.]

Ultimately, the key issues are whether the U.K. organization is accepting risk and making key business decisions, not only contractually, but also in practice. When risk is assumed or business decisions are made within the United Kingdom, it is more likely that U.K. tax authorities will assert permanent establishment. But all of the facts and circumstances are evaluated by tax authorities, and judgment is applied, especially in light of supply chain restructurings that test the law’s limits. Developments in other countries should be investigated separately.

Tax impact is more difficult to determine when bilateral tax treaties do not exist. Jones (2006) says, “If a U.S. firm conducts any business in a country that does not have an income tax treaty with the United States, the host country’s jurisdiction depends on its unique tax laws” (p. 324). In the absence of a tax treaty, the firm needs to research the local tax laws. Jones says, “This determination is often subjective and results in considerable uncertainty for the firm. Moreover, the requisite level of business activity in non-treaty countries is often much less than the maintenance of a permanent establishment in the country” (p. 324). For these reasons, firms find it is easier to expand into countries in which bilateral tax treaties exist.

Whether or not they form overseas branches or sales corporations, MNEs frequently expand into new markets to increase sales and profits. For technologically advanced products, demand is strongest in the most industrialized countries. Developed countries also impose relatively high corporate income tax rates. As a result, sales corporations are poor opportunities to improve profits through an income-tax-efficient supply chain. There are no simple ways to expand into large, prosperous markets and keep taxes low.

To demonstrate this, consider the populations, GDPs, and income tax rates of the G-7 countries. While these are some of the world’s largest markets, the tax rates are substantially higher than in many tax havens. Table 7 shows these figures for each G-7 country.

High tax rates rarely discourage companies from selling products in these populous and wealthy countries. For example, if strong Japanese demand exists for

¹⁸*Id.* at article 5, section 4(a).

¹⁹*Id.* at article 5, section 4(c).

²⁰*Id.* at article 5, section 4(e).

²¹*Id.* at article 5, section 4(a-f).

²²*Id.* at article 5, section 5.

Table 7. G-7 Population, GDP, and Corporate Income Tax Rates

Country	Population	GDP (in \$ millions)	Per Capita GDP	Maximum Corporate Tax Rate (2007)
United States	301,110,000	\$10,320.6	\$34,275	39.3% ^a
United Kingdom	60,776,000	\$1,530.27	\$25,179	30.0%
Canada	33,390,000	\$767.14	\$22,975	36.1%
France	63,713,000	\$1,382.76	\$21,703	34.4%
Germany	82,401,000	\$1,925.87	\$23,272	38.9%
Italy	58,148,000	\$1,100.71	\$18,929	33.0%
Japan	127,433,000 ^b	\$4,803.20 ^c	\$37,692	39.54% ^d

^aOECD Tax Database, 2007 (<http://www.oecd.org/ctp/taxdatabase>), Table II.1, Combined Corporate Income Tax Rate, 2007. Note that the U.S. rate includes both federal taxes (35.0 percent) and an average state tax rate.

^b“World Population Statistics” (<http://www.geohive.com/default.aspx>), July 1, 2007.

^c“Historical Gross Domestic Product,” World Bank Development Indicators, Dec. 19, 2006.

^dOECD Tax Database, 2007 (<http://www.oecd.org/ctp/taxdatabase>), Table II.1, Combined Corporate Income Tax Rate, 2007.

a company's products, a 40 percent tax rate is unlikely to prevent market entry. As long as marginal revenue exceeds marginal cost, the sales are profitable, despite the relatively high share due the Japanese government. Avoiding the large Japanese market or selling through Japanese companies may be financially unattractive alternatives.

A few companies have successfully bypassed local sales corporations and sold products from another jurisdiction. They need to avoid permanent establishment to do this. In most industries, this is not possible, because it is essential to have local sales and service organizations in a given country to provide customer support. But other business models are possible. Simpson (2005) writes:

Microsoft and others are now going further. Microsoft delivers its Windows products to European customers straight from Ireland, and the profits go straight back to Ireland. Since most of the profits from Microsoft programs are in the form of copyright licensing fees, “it is likely that low or nil taxes are payable in the other EU states,” says John Ward, a tax professor at the University of Ulster in Belfast, Northern Ireland. [P. 1.]

To keep its tax rate low, Microsoft Corp. must avoid PE issues associated with these sales. Microsoft has structured its tax model to locate revenue recognition and risk with its Irish subsidiary. In some cases, software firms can distribute products and provide support over the Internet, creating opportunities not available in other industries. To achieve its tax objectives, sales into Europe must be conducted from Ireland.

Organizations within an MNE must collaborate to make this strategy work. Software firms may be able to

do this more successfully than others, in large part because of the ease of Internet distribution and overseas product support. But if the selling agent can avoid permanent establishment, the approach above should be considered. To accomplish this, product marketing must determine whether the organization can sell and support products successfully without a local presence. Legal departments must do an in-depth examination of PE laws. The tax department can analyze the tax impact, and supply chain organizations can quantify manufacturing and distribution costs.

Distribution Centers

Distribution centers receive finished goods from manufacturing corporations, and later deliver products to sales corporations. They add value by reducing the number of delivery nodes between manufacturing organizations and retail customers, by consolidating storage, and by efficiently and promptly delivering customer goods.

Companies do not need distribution centers in each country in which the firm sells products. The enterprise can determine how many are needed by focusing on customer requirements and cost management. Companies frequently centralize distribution activities to achieve economies of scale. Many MNEs create regional distribution centers to service several countries. Centralization strategies may create an opportunity to design an income-tax-efficient supply chain.

If the parent country exempts foreign earnings from domestic taxation, distribution centers may be good opportunities to create a tax-efficient supply chain. MNEs can permanently avoid domestic income taxes, and parent country tax laws do not restrict distribution centers. Economic efficiency can determine the number

of distribution centers, not legal requirements. To analyze the opportunity, the supply chain organization can calculate operational and distribution costs. The tax department can project transfer prices and calculate tax benefits. Together they can project distribution center net income in various locations and recommend the best location.

However, when the parent country taxes worldwide earnings, tax laws should be reviewed closely. For example, U.S. tax laws limit distribution center opportunities. As mentioned, the U.S. taxes worldwide earnings, permits tax credits, and defers domestic taxation until the subsidiary repatriates funds to the parent. However, tax laws deny deferral in some situations. U.S. subpart F requires immediate taxation of overseas entities in some situations.²³

Manufacturing corporations may be the best opportunity to integrate supply chain and tax planning.

Subpart F applies to distribution centers in some situations. Suppose an MNE formed a distribution center in a low-tax jurisdiction in which it neither manufactured nor sold goods. The income earned by this distribution center would be subject to subpart F and would be immediately taxable in the United States.²⁴ If the U.S. tax rate is higher than the local tax rate, the difference between the two cannot be deferred, and it is owed to the U.S. Treasury. According to Lemein, McDonald, and Lipeles (2007), when subpart F applies, “Shareholders have to recognize the income *regardless* whether the U.S. Shareholders receive an actual dividend from the CFC or not” (p. 5, emphasis added). Thus, a U.S.-headquartered firm would not be able to defer U.S. tax obligations in this situation.

However, not all distribution centers are subject to subpart F. It does not apply when a distribution center is located in the same country in which the company either builds or sells products. As an example, suppose a firm manufactures products in Singapore and needs to form a Southeast Asia distribution center. Subpart F would not apply to a Singapore-based distribution center, because the company manufactures goods there. The low Singaporean tax rate would apply. Locating the distribution center in a third country could increase the tax rate from 18 percent (Singapore’s rate) to 35

percent (the U.S. federal rate). In this case, the MNE would reduce income taxes if it located the distribution center in Singapore. The MNE should weigh these savings against supply chain costs and other business objectives.

Similar laws in other tax credit countries should be investigated separately. However, the issues posed by U.S. tax law demonstrate that to maximize net income, supply chain and tax organizations should collaborate.

Manufacturing Corporations

As demonstrated, sales companies show limited potential to create a tax-efficient supply chain. Most businesses need a local presence to sell their goods and services, which triggers permanent establishment and local income tax obligations. Tax rates are comparatively high in the developed countries. While Microsoft’s Irish sales strategy has been successful, few businesses can sell and support products without a local presence.

Distribution centers can be attractive opportunities to integrate supply chain and tax planning, particularly if the parent country exempts earnings from domestic taxation. However, in some tax credit countries, such as the United States, tax laws do not permit deferral in many situations. Close attention to international tax laws is required when the parent country taxes worldwide earnings.

Manufacturing corporations may be the best opportunity to integrate supply chain and tax planning. To achieve economies of scale, most businesses prefer to concentrate manufacturing resources and limit the number of manufacturing sites. This makes the selection of manufacturing sites a particularly important task. Many factors motivate manufacturing site location, including local wage rates, employee skill sets, inbound and outbound logistics costs, access to materials and parts, proximity to customers, transportation services, the local regulatory environment, political stability, and income tax rates. From a tax perspective, manufacturing corporations do not face the subpart F tax laws facing distribution centers. Manufacturing products requires technology, skills, and fixed assets, thus creating business substance that international tax laws generally support. As a result, MNEs frequently designate the manufacturing corporation as the profit center for residual or superior earnings. It may also be assigned some risks, such as the cost of product failure or warranty costs. One organization often takes the most risk in an MNE; it earns superior rates of return when the business does well and absorbs losses when the business performs poorly. Other entities frequently accept less risk and earn modest but consistent returns for services performed, whether the entire business succeeds or struggles.

To illustrate this, suppose an MNE manufactures products in one country, distributes them in a second, and sells products in a third. Further, this business consistently earns superior rates of return, akin to the high

²³Subpart F is found in IRC sections 951-964.

²⁴IRC section 941.

Table 8. Population, GDP, and Tax Rates in Selected Tax Havens

Location	Population	GDP (in \$ billions)	Per Capita GDP	Corporate Tax Rate
Ireland	4,109,000	\$110.74	\$26,951	12.5% ^a
Puerto Rico	3,944,000	\$67.71	\$17,168	2%-7% ^b
Singapore	4,533,000 ^c	\$94.51 ^d	\$20,849	18% ^e

^aOECD Tax Database, 2006 (<http://www.oecd.org/ctp/taxdatabase>), Table II.1, Combined Corporate Income Tax Rate, 2006.

^b13 L.P.R.A. 10101, Puerto Rico Tax Laws.

^c"World Population Statistics" (<http://www.geohive.com/default.aspx>), July 1, 2007.

^d"Historical Gross Domestic Product," World Bank Development Indicators, Dec. 19, 2006.

^eSingapore Income Tax Act, (CAP 134) Part XI, section 43.

earnings earned by Microsoft's operating system business. The business must establish transfer prices to achieve arm's-length results. The MNE can structure its transfer pricing so the sales corporation and distribution centers earn adequate profits. The earnings must be sufficient to satisfy tax authorities, who compare results with many trade businesses performing similar functions, few of which are so successful. The income need not be above average, simply because the entire business is profitable. The manufacturing corporation realizes the superior profits and also accepts the risk of loss, should the business perform poorly.

Describing a similar structure, Irving, Kilponen, Markarian, and Klitgaard (2005) commented:

Similarly, a foreign affiliate engaged in manufacturing often will earn returns not only for the underlying manufacturing activity — which is essentially a service — but also for the risks associated with owning raw materials, work-in-process, and other inventory. It will also earn returns for its manufacturing know-how in the form of proprietary processes. Here again, the economic returns ascribed to the assumption of risks and ownership of assets and intangibles can result in the foreign affiliate earning a significant level of income. [P. 60.]

Some countries seek to attract manufacturing, and offer low tax rates to draw businesses. Often these countries are relatively small, and low tax rates attract jobs that spill over into the local economy. Singapore, Ireland, and Puerto Rico are all small jurisdictions offering low income tax rates to attract manufacturing activities. Lowering tax rates can actually increase government revenue, as the additional taxes paid by a few major employers can offset broad tax reductions. Moreover, lower tax rates generate jobs with a multiplier effect, as support activities increase to supply necessary services. Table 8 shows the population, GDP, and tax rates in those popular tax havens.

While the rates shown in Table 8 are the published income tax rates in those jurisdictions, some countries also negotiate even lower tax rates when they want to

attract desirable businesses. Businesses that have excellent growth prospects and contribute to an educated workforce can sometimes negotiate lower tax rates.

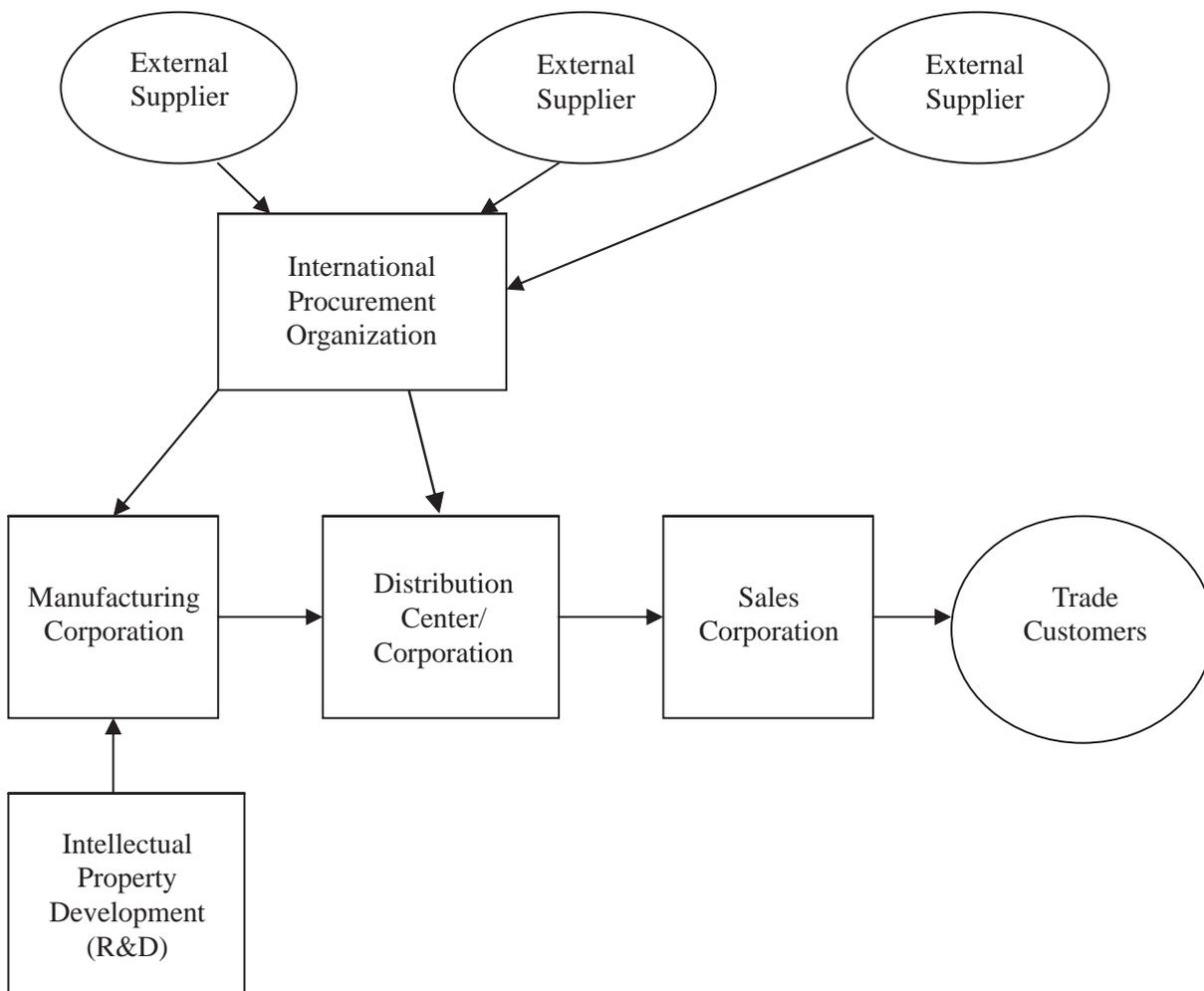
The MNE and tax haven may both benefit. The business can substantially reduce its tax obligations by shifting operations to a country with low tax rates. The tax haven attracts jobs, develops the local economy, and may actually increase tax revenue. When the country's population is small, the tax revenue can be significant. Simpson (2005) reports that Microsoft's taxes paid one year in Ireland amounted to \$77 for each citizen (p. 1).

Thus, MNEs frequently organize their business to locate their most profitable organization in tax havens, such as Singapore, Ireland, and Puerto Rico. The manufacturing corporation and/or intellectual property owner is frequently the most profitable organization of an MNE. To align risk and reward and support their tax strategy, the more profitable legal organization accepts the most business risk.

This structure creates an opportunity to earn superior rates of return in low-tax locations. The high returns earned by the manufacturing corporation or intellectual property owner are not visible to tax authorities in other jurisdictions. Further, their governments have no legal claim to profits recognized by the risk-taking organization. Tax authorities in the residual profit center enjoy the earnings recognized and taxes paid there.

Procurement Organizations

Historically, MNEs created autonomous overseas subsidiaries responsible for many business processes, but more recently they have begun restructuring supply chains to centralize business processes where they can be performed most efficiently. Trent and Monczka (2003) found that MNEs are shifting from purchasing materials domestically to sourcing materials globally, and that the purchasing function increasingly crosses international borders (p. 26). According to Casley, Pope, and Hohtoulas (2006), in the United Kingdom "there has been an increased tendency for groups to centralize their purchasing activity and pool a group's purchasing power. Potential procurement savings often

Figure 3. International Procurement Organizations

The IPO leverages its purchasing power to reduce costs of parts and materials from external suppliers.

quoted can range from 5 to 20 percent, depending on industries and a group's starting point" (p. 196). They write that cost savings are achieved through "better negotiations, volume, improved relationships with suppliers and well coordinated logistics from better order and delivery processes" (p. 196). According to Verlinden and Costermans (2006), Belgium has also attracted international procurement organizations (p. 173).

Centralization strategies differ from company to company, depending upon unique business needs. Frequently, however, procurement organizations manage this activity for several international sites. As an example, a company could have one procurement organization for the U.S., another for Europe, and a third for Southeast Asia. The international procurement organization (IPO) can produce cost savings while supporting local needs.

IPOs are an opportunity to link supply chain and tax planning. They need to recover their costs and operate profitably, so IPOs sell goods and services to related parties at arm's-length prices. Firms should consider tax ramifications when locating that activity. Irving, Kilponen, Markarian, and Klitgaard (2005) noted:

Linking these two concepts, it is possible for companies to centralize their procurement functions, proprietary procurement processes, and know-how into specific corporate entities in low-tax jurisdictions. These "procurement companies" are entitled, from a tax perspective, to charge other corporate entities an arm's length amount for the value-added procurement activities undertaken on their behalf. [P. 59.]

Once again, MNEs must investigate the parent country's relevant tax laws. If the parent country exempts foreign subsidiaries from domestic taxation, the procurement offices can reduce the enterprise's worldwide tax rate. But this may not be possible if the parent country taxes worldwide earnings. Within the United States, subpart F governs IPO tax obligations in some situations. If the IPO is located in the same country in which it purchases or sells goods, the local income tax rate applies.²⁵ But if the IPO is located in a third country in which the firm neither buys nor sells goods, the U.S. rate applies. This is relevant if the MNE operates in a tax haven. For example, if a U.S. parent company manufactured goods in Ireland and formed an IPO there, the local 12.5 percent income tax rate would apply. Locating the IPO in a country where it had no operations could trigger subpart F and the 35 percent U.S. federal tax rate. The 22.5 percent difference between the worldwide and local tax rate would be owed to the U.S. Treasury.²⁶

Compensation for centralized purchasing is likely to be a cost-plus markup. It may be difficult to obtain comparable prices for these procurement services. While independent parties procure goods for clients, they frequently assume more risk than internal purchasing organizations. Verlinden and Costermans (2006) write, "Group central purchasers will . . . often not perform functions or assume risks that are similar to many independent parties, as for example, commercial risks may differ" (p. 173). OECD guidelines suggest cost-plus compensation is most appropriate when comparable transactions cannot be identified. Verlinden and Costermans write, "In the absence of uncontrolled comparables and assuming that the central purchaser's involvement is that of order centralization without an entrepreneurial role, it is likely to receive remuneration based on a cost-plus methodology" (p. 173).

Shared Service Providers

In addition to IPOs, MNEs have centralized other activities to provide support across international boundaries. Wright (2006) states, "This occurs for a variety of reasons, e.g. cost reduction strategies that result in centralization of regional support functions" (p. 202). Wright says centralized business processes include "various regional support functions such as finance, marketing, information technology (IT) and human resources (HR)" (p. 202). Verlinden and Costermans (2006) have also observed the growth of shared service providers in Belgium (p. 172). For example, the MNE might centralize some accounting functions, such as payroll, accounts receivable collections, or accounts payable. Or it might create a regional information technology center to meet the IT needs in a number of countries. These organizations should also consider

local tax rates when making location decisions. Also, because they are not involved in the buying and selling of goods, they do not face subpart F restrictions. According to Wright, "a cost-plus markup is ordinarily used to bill both manufacturing and reselling affiliates for the services they have received" (p. 202). It can be difficult to find comparable organizations providing similar services and assuming comparable business risks.

Defending Supply Chains

As explained earlier, tax authorities are becoming concerned with the tax impact of supply chain restructurings. High-income tax jurisdictions, such as the United States, the United Kingdom, France, the Netherlands, Spain, and Belgium, believe supply chain restructurings are reducing their tax revenue, so they are paying more attention to this activity. According to Casley, Pope, and Hohtoulas (2006), "In the United Kingdom, the level of attention from the tax authorities has increased to match the greater flexibility with which MNEs approach their supply chain" (p. 194). As tax practitioners frequently have to defend these restructurings to tax auditors, what actions can they take to support their position?

First, tax practitioners must explain the business rationale for the supply chain restructuring, to satisfy the business purpose doctrine. They should be able to identify clearly how the restructuring improves the supply chain, customer satisfaction, or the pretax cost structure. Reduced trade barriers and improved communication technologies have created many opportunities to restructure and improve supply chains, and to eliminate overhead by centralizing many processes, so in most cases this should not be difficult to do. Restructuring the supply chain once, considering both operational and tax consequences, helps to satisfy the business purpose doctrine. Reengineering the business process first, and later moving an activity solely for tax purposes, increases audit risk. Tax authorities can argue that the latter action was done solely to reduce taxes and that the business purpose doctrine may not be satisfied. This is one more reason why tax departments and supply chain organizations should collaborate when making location decisions.

Second, it is essential to comply with the arm's-length principle. As Casley, Pope, and Hohtoulas (2006) write, "A primary requirement for tax purposes is to price the transactions arising from the supply chain model on an arm's length basis" (p. 194). This may seem obvious, but when an MNE restructures its supply chain and changes responsibilities and risk within the enterprise, it may neglect to review its transfer pricing policies. When the supply chain is restructured, the risks and responsibilities of a subsidiary may materially change, and transfer pricing policies should be evaluated. If the tax department does not participate in the restructuring, it may incorrectly assume their transfer pricing policies need no modification.

²⁵Subpart F is found in IRC sections 951-964.

²⁶*Id.*

Schwarz and Castro (2006) write, “In the context of multinational enterprises, these changes lead to changes in the risk profile of the entities within the group and consequently in the profitability of operations in countries where activities take place. The changes may result in overall changes in the group’s profitability or a shift in the jurisdiction where profits arise — away from the place where activities are undertaken to the place where risks are assumed or functions are moved” (p. 187). Restructuring the international supply chain necessitates reviewing transfer pricing policies, and this may not happen if the tax department is not at least aware of supply chain changes.

Tax practitioners must explain the business rationale for the supply chain restructuring, to satisfy the business purpose doctrine.

Third, it is important to ensure that documentation is current, legal agreements between business entities are still valid, and the impact on transfer pricing policies is documented. As Casley, Pope, and Hohtoulas (2006) write, “As ever, the answer is also to ensure that the transfer pricing model adopted is solidly and competently implemented, namely that legal contracts reflect functional reality; that intercompany transactions are properly priced; that appropriate documentation and controls are in place; and that PE risks have been addressed” (p. 201). Concerning the French perspective, Douvier (2006) writes, “However, if (1) the taxpayer has prepared adequate documentation in anticipation of a tax audit and if that documentation supports the new methodology, (2) comparables have been gathered and (3) the functions have been modified and the risks shifted out of France, the risk that the tax authorities will be successful in their challenge is technically remote” (p. 182).

Tax authorities in Europe and the U.S. may use different approaches to challenge restructurings. In Europe, tax authorities frequently first question whether PE laws have been breached. In the 2006 issue of *International Transfer Pricing Journal*, five articles written from a European perspective (the United Kingdom, Belgium, France, Spain, and the Netherlands) said local tax authorities looked closely at this issue. Referring to a meeting of the OECD’s Center for Tax Policy Administration (CTPA), one article said, “One of the key questions of the CTPA Roundtable pertained to the notion of a deemed PE created by activities of a limited function for the foreign related parties for which a

local entity is acting.”²⁷ Thus, it is important for tax practitioners in Europe to be aware of the PE rules and developments in these countries.

Within the United States, tax authorities do not focus often on permanent establishment. According to Wright (2006), “In many countries, the permanent establishment . . . rules are used to attack these structures. Such is not the case in the United States, however, as the Internal Revenue Service . . . typically uses the transfer pricing rules to evaluate whether the supply chain restructuring is acceptable. . . . In virtually all cases, the IRS moves immediately to the transfer pricing question, without alleging the existence of a PE” (p. 202). According to that author, the IRS prefers to use other code sections or regulations to attack the tax consequences of the restructuring. The IRS lost a PE case, *Tasei Fire & Machine Insurance*, which may make it reluctant to litigate permanent establishment.²⁸ Wright (2006) says that “it is important, from a U.S. perspective, to obtain professional international tax assistance when planning a supply chain restructuring” (p. 202).

Some believe tax authorities must provide more guidance on these issues. However, business process changes frequently proceed more rapidly than tax law, so it is likely that tax practitioners will need to defend restructurings without the benefit of detailed guidelines from tax authorities.

Conclusion

MNEs around the world are restructuring their supply chains to achieve operational objectives. These restructurings may also shift business operations to low-tax jurisdictions. Tax authorities in many high-income tax countries are aware of these restructurings, and they are concerned with lost tax revenue. For this reason alone, tax departments must understand supply chain developments. They have to document these activities and defend the firm’s actions to tax authorities.

Although historically supply chain papers have emphasized pretax cost minimization, there is evidence in recent years that firms are explicitly considering income taxes when they make supply chain decisions. For many firms, it is one of their largest expenses, and ignoring its impact is a mistake. Most studies suggest that net income is the single best measure of firm performance, so emphasizing pretax cost minimization is a mistake.

Encouraging supply organizations and tax departments to collaborate has many advantages. Through collaboration, firms can make better supply chain decisions that endeavor to improve net income, the key

²⁷ See *International Transfer Pricing Journal*, July/Aug. 2006, p. 189.

²⁸ *Tasei Fire & Machine Insurance Co., Ltd. et al. v. Commissioner*, 104 T.C. No. 27 (1995).

driver of shareholder value. Beyond this, tax departments must be informed about supply chain restructurings to satisfy tax authorities. Tax departments must document these changes. Legal agreements between business entities may need to be rewritten, and transfer pricing policies may need to be altered, to reflect changes in risk and responsibility. Tax departments will have to prepare documentation for tax authorities demonstrating that the restructuring satisfies the business purpose doctrine. Ignoring these responsibilities increases the risk of an unsatisfactory tax audit and related penalties.

The corporation's functional and legal model has also been analyzed to determine where the best opportunities exist to link supply chain and tax planning and to improve a firm's net income. In most situations, the sales company is not a good opportunity, due to high tax rates in developed countries as well as the need to provide local sales and service support. In some cases, it may be possible to make sales from a third country located in a low-tax location. However, this may not be possible for most businesses to do. The seller has to be careful not to create a PE in the local country it is trying to bypass, and most businesses may not be able to sell and support products without a local presence.

Distribution centers and international procurement offices have potential, but applicable tax laws should be examined to determine if parent country tax laws limit this opportunity, as subpart F does in the U.S.

Shared service providers are another good opportunity. As mentioned, many MNEs are forming centralized IT services, accounting functions, or human resource organizations that support a number of countries. In many cases, these activities are funded through cost-plus markups on services provided. It makes sense to consider income tax rates when determining where to locate these activities.

Manufacturing companies may present the best opportunity for many firms. Manufacturing products creates business substance that is supported by international tax laws. Employees must be hired and trained; manufacturing know-how must be transferred; and assets must be purchased, installed, and used. The manufacturing organization often assumes the most business risk and earns superior profits when the business is successful. Because tax havens often seek to attract manufacturing activities, income tax rates are frequently low in these locations.

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