

The MNE in Figure 6.3 initially sets  $MR_x = MC_x$  at point a with intrafirm trade of  $X_0$ . The ad valorem tax effects are shown by the downward rotation of each of these curves. We assume that  $t_2$  exceeds  $t_1$  so that the intersection of the after-tax curves (point b) lies to the left of  $X_0$ . The specific tax effect causes the after-tax  $MR_2$  curve to shift upwards by the tax differential times the transfer price. If the MNE keeps its transfer price at the shadow price, the new equilibrium at point c lies directly below point a and the volume of intrafirm trade remains at  $X_0$ . After-tax MNE profit is the triangular area dce.

The MNE, however, would prefer to overinvoice firm 1's exports to firm 2 since these are tax-deductible expenses and jurisdiction 2 is the high-tax jurisdiction. We show overinvoicing as a further upward shift in the  $MR_x$  curve. The new equilibrium is at point f with  $X_1$  traded. The new after-tax MNE profit is the triangle dfh. There are two effects on MNE profits from overinvoicing: the gain in profit from the tax saving on the transfer price represented by the parallelogram ehfg, and the fall in profit from the misallocation of resources caused by the expansion in the trade volume, equal to triangle cfg. The net gain to the MNE from overinvoicing is the shaded area ehfc.

With the penalty rules in place, equation (68) can be rewritten, like equation (70), as:

$$(1 - t_1)MC_x = (1 - t_2)MR_x + [(t_2 - t_1)p - \alpha t_2(p - \hat{W})] \quad (71)$$

We now have a third factor influencing the MNE: the *specific penalty effect*, which acts so as to offset the specific tax effect. If the transfer price  $p$  differs from the regulated price  $\hat{W}$ , the MNE pays an additional tax to the government if the differential exceeds the stated percentage.

The profit-maximizing transfer price can be found by partially differentiating (64) with respect to  $p$  and using the envelope theorem, as follows:

$$\partial\pi^*/\partial p = [(t_2 - t_1) - \alpha t_2]X = [(1 - \alpha)t_2 - t_1]X \quad (72)$$

According to (72), in the absence of the tax penalty ( $\alpha = 0$ ), the MNE would simply overinvoice its transfer price when  $t_2 > t_1$ , or underinvoice if  $t_2 < t_1$ . With the penalty, however, the incentive to manipulate the transfer price is reduced if the manipulation moves  $p$  sufficiently (higher or lower than  $\hat{W}$  so as to trigger the penalty. For example, suppose  $t_2$  is 40 per cent,  $t_1$  is 34 per cent, and  $\alpha$  is 20 per cent. Since  $t_2$  exceeds  $t_1$ , the MNE would like to overinvoice  $p$ , in the sense of charging a transfer price higher than the free trade marginal cost of the exporting firm (the shadow price  $\lambda$ ). However, if doing this triggers the penalty, the MNE must pay an additional eight per cent tax (20 per cent times 40 per

cent). Thus the gain from transfer price manipulation is reduced by the amount of the additional tax.

We show this in Figure 6.3 by shifting the after-tax  $MR_x$  curve downward to reflect the smaller (or possibly zero) net gain to the MNE from transfer price manipulation. Thus the penalty can be an effective way to reduce incentives to over- and underinvoicing.

We turn now to another proposal that would reduce the multinational's incentive to manipulate transfer prices: unitary taxation.

### Transfer Pricing and Unitary Taxation

Unitary taxation is taxation of the worldwide income of a *unitary business*. A unitary business consists of all the related affiliates of an enterprise that do business within the taxing jurisdiction. For example, if the jurisdiction is California, and one affiliate of IBM is located in California, all the related affiliates of IBM could be considered as a unitary business and the worldwide income of IBM taxed by the state of California. Normally, unitary taxation is based on a *formula apportionment or worldwide combined reporting* method whereby California IBM's share of certain factors (e.g., employment, sales, capital stock – the so-called 'apportionment factors') as a percentage of the worldwide IBM amount of these factors, however weighted, multiplied by the total worldwide income of IBM, is used to compute the tax to be paid by IBM to the state of California.

*Separate accounting*, on the other hand, defines the borders of a firm (a permanent establishment) according to national boundaries, the so-called 'water's edge.' Domestic affiliates are consolidated with the parent for tax purposes (as are foreign branches), but foreign subsidiaries and other affiliates of the MNE are treated as separate firms. Transfer price rules are used to ensure that such transactions approximate arm's length prices.

In this section we investigate the implications of unitary taxation for transfer pricing. We concentrate on the case in which one jurisdiction adopts a formula apportionment approach, and the other jurisdiction does not, and examine the resulting distortions and opportunities for transfer price manipulation.<sup>33</sup>

### Setting Up the Model

Assume the MNE is a horizontally integrated multinational consisting of two firms that share joint overhead costs, where firm 2 exports an intrafirm traded good to firm 1. The pre-tax global profit function of the MNE is:

$$\pi = (R_1(Y_1) - W_1L_1 - pX) + (R_2(Y_2) - W_2L_2 + pX) - F \quad (73)$$

where  $\pi$  is pre-tax global MNE profit,  $R_i(Y_i)$  is total revenue of firm  $i$  from sales  $Y_i$ ,  $pX$  is the value of intrafirm trade,  $W_iL_i$  is the wage bill in firm  $i$ , and  $F$  is overhead costs ( $i = 1, 2$ ). We assume, for simplicity, that all costs are labour costs; therefore, total cost  $C_i$  equals  $W_iL_i$  for each firm  $i$ .

Assume country 2 follows the water's-edge principle and taxes only profits arising in its jurisdiction, whereas country 1 applies formula apportionment to the worldwide income of its residents. Assume the ratio used to determine the share of MNE profits taxable in country 1 is firm 1's share of worldwide labour costs of the MNE.<sup>34</sup> The MNE's objective is to maximize its after-tax global profit function:

$$\begin{aligned} \pi^* &= (R_1(Y_1) - W_1L_1 - pX) + (R_2(Y_2) - W_2L_2 + pX) - F \\ &\quad - t_1\{\beta[(R_1(Y_1) - W_1L_1 - pX) + (R_2(Y_2) - W_2L_2 + pX) - F]\} \\ &\quad - t_2[(R_2(Y_2) - W_2L_2 + pX) - \alpha_2F] \end{aligned} \quad (74)$$

where  $\pi^*$  is post-tax MNE global profit and  $\alpha_i$  is the tax-deductible share of overhead costs allocated to jurisdiction  $i$  where  $\alpha_1 + \alpha_2 = 1$ . Firm 1's taxable income is calculated as worldwide MNE income, net of expenses, multiplied by the labour factor ratio  $\beta$ ,<sup>35</sup> the weighting factor used to determine firm 1's taxes in country 1, where:

$$\beta = (W_1L_1)/(W_1L_1 + W_2L_2) \quad (75)$$

Thus the first line in (74) represents pre-tax global profits of the MNE ( $\pi$ ), the second line the taxes paid by firm 1, and the third line the taxes paid by firm 2.

#### The Various Transfer Pricing Choices

What should the MNE do to maximize its after-tax global profits in these circumstances? It is sufficient to look at  $L_1$ ,  $L_2$ , and  $X$  in order to determine optimal output, sales, and trade volumes. Looking first at the national factor markets, where the two firms hire units of labour, we differentiate (74) with respect to  $L_1$ , recalling that  $Y_1 = Q_1 + X$  and  $Y_2 = Q_2 - X$ :

$$\partial\pi^*/\partial L_1 = (1 - \beta t_1)(MR_1 \partial Q_1 / \partial L_1 - W_1) = 0 \quad (76)$$

$$\partial\pi^*/\partial L_2 = (1 - \beta t_1 - t_2)(MR_2 \partial Q_2 / \partial L_2 - W_2) = 0 \quad (77)$$

Each firm should hire units of labour up to the point where the marginal reve-

nue product of labour<sup>36</sup> ( $MRP_{L_i}$ ) equals the wage rate  $W_i$ , both measured on an after-tax basis. Putting the two equations together, we have:

$$(1 - \beta t_1)(MRP_{L_1} - W_1) = (1 - \beta t_1 - t_2)(MRP_{L_2} - W_2) \quad (78)$$

Equations (76, 77) say that the MNE as a whole should allocate labour between the two firms such that the after-tax marginal revenue product, net of the wage rate, is equalized between the two firms.

Note that the tax rate for firm 1 is  $\beta t_1$ , whereas the tax rate on firm 2's profits is  $t_2 + \beta t_1$ . The reason for this is straightforward. All profits wherever earned are taxed at  $\beta t_1$  in country 1; in addition, profits earned by firm 2 are taxed in country 2 at rate  $t_2$ . Unless country 2 credits country 1's tax, or vice versa, this double taxation of MNE profits on intrafirm trade persists as long as  $\beta > 0$ . Therefore the effective tax rate is higher on firm 2's profits, by the amount  $t_2$ , as long as country 1 practises unitary taxation.

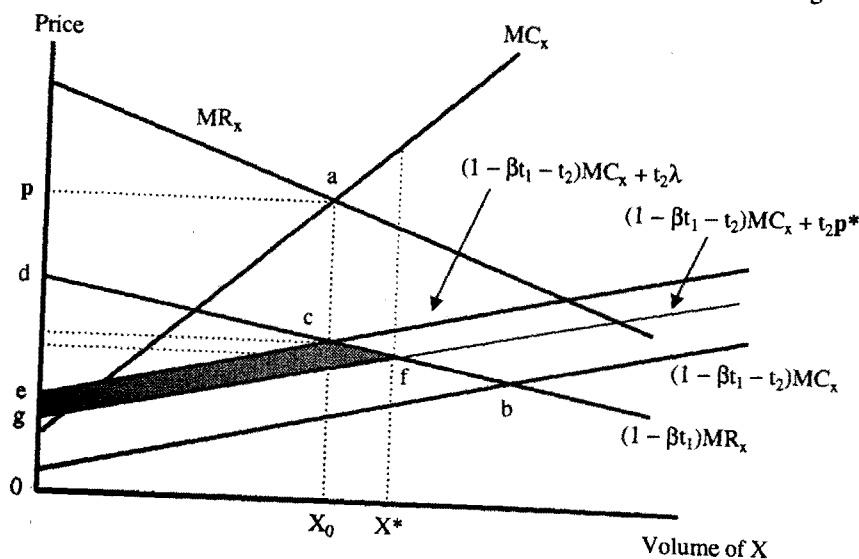
Since  $\beta$  is a fraction, it can lie either above or below  $t_1$ , depending on firm 1's share of total MNE labour income. Under separate accounting, the MNE would have paid taxes of  $t_1\pi_1$  to country 1; under unitary taxation the MNE pays  $t_1\beta(\pi_1 + \pi_2)$ . Thus, when country 1 moves from separate accounting to unitary taxation, the tax rate on firm 1's profits falls (as long as  $\beta < 1$ ), but country 1 now taxes firm 2's profits at the rate  $t_1\beta$ , which is positive as long as  $\beta > 0$ . Whether the effective tax rate on firm 1's profits (i.e., the total tax divided by firm 1's profits) rises or falls depends on whether  $\beta$ , the apportionment factor, is larger or smaller than  $\pi_1/(\pi_1 + \pi_2)$ .<sup>37</sup>

This situation has two effects. First, as long as the MNE has the choice between locating in country 1 or country 2, the firm will not choose to locate in the unitary tax jurisdiction because doing so in effect opens its other MNE affiliates up to taxation by that jurisdiction, since the 'water's edge' is ignored. Unless either taxing authority is willing to provide a full foreign tax credit for the double taxation of firm 2's profits, the MNE's overall tax costs rise. Second, if the MNE is already located in country 1, and therefore is paying unitary taxes, the enterprise will shift activities out of the other jurisdictions to avoid the additional taxation by country 1 unless country 2 credits the unitary taxes or country 1 credits the taxes already paid in country 2 on  $\pi_2$ .<sup>38</sup>

Turning to the effects on intrafirm trade, we differentiate (74) with respect to  $X$ , the volume of intrafirm trade:

$$\begin{aligned} \partial\pi^*/\partial X &= (1 - \beta t_1)(MR_1 - p) - (1 - \beta t_1 - t_2)(MR_2 - p) \\ &= (1 - \beta t_1)MR_1 - (1 - \beta t_1 - t_2)MR_2 - t_2p = 0 \end{aligned} \quad (79)$$

FIGURE 6.4  
Transfer Pricing under Mixed Systems: Unitary Taxation and Separate Accounting



which says the MNE should balance firm 1's after-tax net marginal revenue from imports,  $(1 - \beta_{t_1})MR_x$ , against firm 2's after-tax net marginal cost of exports  $(1 - \beta_{t_1} - t_2)MC_x - t_2p$ , or:

$$(1 - \beta_{t_1})MR_x = (1 - \beta_{t_1} - t_2)MC_x + t_2p$$

$$= (1 - \beta_{t_1})MC_x - t_2(MC_x - p) \quad (80)$$

If  $MC_x = \lambda$  (the transfer price is set equal to the shadow price on intrafirm trade), equation (80) collapses to  $MR_x = MC_x$  and the volume of intrafirm trade does not change from its pre-tax level. We illustrate the impact of setting the transfer price in Figure 6.4, which is based on the middle graph in Figure 5.1.

In the pre-tax situation, the MNE chooses the volume of intrafirm trade where  $MR_x = MC_x = p$  at point **a** in Figure 6.4 (also labelled as point **v** in Figure 5.1). When unitary taxes are levied on firm 1, and separate accounting on firm 2, the MNE reacts by setting the after-tax marginal cost of exports to the after-tax marginal revenue from imports, as in equation (70). The  $MR_x$  curve rotates downward to  $(1 - \beta_{t_1})MR_x$ , and the  $MC_x$  curve rotates downward to  $(1 - \beta_{t_1} - t_2)MC_x$ ; these are the *ad valorem tax effects*. This intersection is labelled point **b**. The marginal cost curve then shifts upward by  $t_2p$ ; this is the *specific tax effect*.

Assume initially that  $p$  is set equal to  $MC_x = \lambda$  so the MNE absorbs the tax. The new equilibrium is at point **c** with the same output as before,  $X_0$ . The after-tax global MNE profits are the triangle **dce**.<sup>39</sup>

These are the first-order conditions for an after-tax profit maximum; however, the MNE can affect its overall tax payments in three ways: changes to (1)  $\beta$ , the weighting factor in the unitary tax formula, (2)  $\alpha_2$ , the share of overhead costs allocated to the country using the separate accounting approach, and (3)  $p$ , the transfer price.

First, if the MNE can affect  $\beta$ , the weighting factor should be set as low as possible, as can be seen from the equation below, where we differentiate (74) with respect to  $\beta$  and use the envelope theorem:<sup>40</sup>

$$\partial \pi^* / \partial \beta = -t_1 \pi < 0 \quad (81)$$

Therefore, if the MNE can reduce the factor ratio used to determine its effective tax rate, overall MNE profits are higher.<sup>41</sup>

If the MNE can affect the allocation of the fixed costs  $F$  between the two countries, the MNE should set  $\alpha_2$  as high as possible:

$$\partial \pi^* / \partial \alpha_2 = t_2 F > 0 \quad (82)$$

When one government gives a tax deduction for an affiliate's share of overhead expenses and the other government does not, it makes sense to maximize the affiliate share in the country with the deduction.

Lastly, the MNE should set its transfer price  $p$  as low as possible:

$$\partial \pi^* / \partial p = -t_2 X < 0 \quad (83)$$

Manipulation of the transfer price  $p$  no longer affects the taxes paid in country 1 (since  $\beta_{t_1}$  applies to pre-tax profits for the MNE as a whole), but still affects the taxes paid in country 2. Since firm 2 is the exporter, any income it makes from intrafirm trade is taxable. Therefore the MNE should minimize the transfer price to reduce its overall tax bill. This is clear from Figure 6.4, where the lower is  $p$  the lower the effective tax on the MNE and the greater the after-tax profits. Underinvoicing is shown as the new price  $p^* < \lambda$ , causing a downward shift in the after-tax marginal cost of exports curve; this causes an expansion of  $X$  to  $X^*$ , and an increase in after-tax profits represented by the shaded area **ecfg**.

Thus, where one country taxes on the basis of formula apportionment, while the other country or countries follow traditional separate accounting methods, there are still ways in which transfer price manipulation can be used to reduce

MNE tax payments. Would unitary taxation work if all countries used this approach? Our immediate reaction is to say 'yes.' We show below, however, that there is still at least one 'slip between the cup and the lip' that allows MNEs to avoid paying taxes under a global unitary tax system.

### Global Unitary Taxation

Assume both governments follow a unitary tax approach and that they define and measure the MNE's global pre-tax income identically and accurately as  $\pi$ , and each government taxes a share  $\beta_i$  of the worldwide income of the MNE where the country allocation factors sum to unity so that  $\beta_1 + \beta_2 = 1$ .<sup>42</sup> Assume initially that the tax rates  $t_1$  and  $t_2$  differ. The MNE's after-tax global profit function is:

$$\pi^* = (1 - t_1\beta_1 - t_2\beta_2)\pi \quad (84)$$

Since  $\beta_2 = 1 - \beta_1$ , we can rewrite (84) as follows:

$$\pi^* = [1 - \beta_1(t_1 - t_2) - t_2]\pi \quad (85)$$

The first-order conditions are straightforward (and are left to the reader). With all profits wherever earned taxed at the same rate, the MNE simply absorbs the tax and does not change its output, sales, or trade volumes. As a result, there are no resource allocation effects, or deadweight losses, imposed on the MNE; the tax is completely neutral. This is one of the key benefits argued by the proponents of unitary taxation (see Chapter 12).

The MNE, however, still has some ability to manipulate its tax payments. Differentiating (85) with respect to  $\beta_1$ ,  $p$ , and  $\alpha_i$ , we have:

$$\partial\pi^*/\partial\beta_1 = (t_2 - t_1)\pi \quad (86)$$

which is positive (negative) if  $t_2$  exceeds (is less than)  $t_1$ , thus, the MNE should raise (lower)  $\beta_1$  whenever country 1's tax rate is less (greater) than country 2's rate. Therefore differences in tax rates can still be exploited by manipulating the factor allocation ratio at the national level, reducing it in high-tax countries and raising it in low-tax countries.

The allocation of fixed costs between the two countries however makes no difference to the total tax paid, as long as the costs are deductible in both countries; see equation (87) below:

$$\partial\pi^*/\partial\alpha_2 = 0 \quad (87)$$

Lastly, the transfer price  $p$  also no longer affects total tax payments:

$$\partial\pi^*/\partial p = 0 \quad (88)$$

The MNE therefore has its degrees of freedom significantly reduced, but not eliminated. In practice, where formula apportionment is applied, generally a three-factor formula is used. That is, the multi-factor ratio for country  $i$  ( $F_i$ ) is an arithmetic average of all the factors from 1 through  $n$ , defined by:

$$F_i = (w_{1i}F_{1i} + w_{2i}F_{2i} + w_{3i}F_{3i} + \dots + w_{ni}F_{ni})/n \quad (89)$$

where  $F_{ni}$  is factor  $n$  in country  $i$  and  $w_{ni}$  is the weight ( $0 < w_{ni} < 1$ ) attached to  $F_{ni}$ . Once  $F_i$  is calculated, the MNE's pre-tax profit in jurisdiction  $i$  is estimated as  $F_i$  times total MNE profit, or  $\Pi_i = F_i \pi$ . The taxes paid in jurisdiction  $i$  are then determined as the actual tax rate multiplied by the estimated MNE profit. As before,  $\Pi_i$ , the estimated profit, may be greater or less than  $\pi_i$ , the profit actually declared by firm  $i$ .

The  $F_i$  formula makes it clear that MNEs can manipulate their taxes in several ways, such as: (1) misrepresenting the size of variables that carry a high weight in the formula, (2) physically moving high-weight activities out of high-tax jurisdictions, and (3) lobbying governments to reduce the weights and/or change the factors in the formula. The only way to eliminate transfer price manipulation is for all governments to use exactly the same formula, applied to all global income sources, at the same tax rate – an unlikely occurrence at best.

### Conclusions

This concludes Chapter 6 on the theory of taxing multinationals. The chapter developed a general microeconomic theory of transfer pricing behaviour by multinational enterprises in response to taxes and trade barriers. We showed that a profit-maximizing MNE will attempt to arbitrage the imperfections in product and factor markets induced by government regulations, such as tariffs, profit and corporate income taxes, and minority shareholder requirements. The models explained the MNE's choice of transfer pricing policy, both for intrafirm trade in tangibles and for financial manoeuvres such as dividend repatriation and head office fees. We now turn to the empirical work that has been done on taxing multinationals, focusing in particular on the tax treatment of MNEs in North America. We will see that there is some evidence supporting the theoretical predictions of the above model, but that the data are, for the most part, inconclusive.

since it provides a comparative overview of the actual regulations (the prescriptive norm) in over two dozen, mostly OECD, countries, and allows us to update Langbein's study to the early 1990s.

The IFA report states that in most of the 26 nations studied, tax transfer pricing is governed by special legislative provisions that apply to all transactions between a resident taxpayer and foreign related parties (e.g., Austria, Belgium, Denmark, Finland, France, Germany, Italy, Japan, Korea, Norway, Sweden, United Kingdom, and United States).<sup>6</sup> In the case of the CIT, the transfer pricing rules generally apply to all transactions between related entities regardless of where the controlling firm resides and the form of the foreign entity.<sup>7</sup> In other countries, there are specific rules for different types of transactions (e.g., sale of goods in Argentina and Brazil). A few countries do not have special rules for transfer pricing adjustments (Netherlands, Switzerland). This is a significant increase in the number of countries with transfer pricing laws on the books, compared with the situation outlined by Langbein (1986). In addition, most countries now supplement or 'back up' their transfer pricing legislation with legislation designed to attack tax avoidance, hidden profits, sham transactions, and thin capitalization.

In some jurisdictions, special transfer pricing rules apply at the subfederal level. For example, in Canada, seven of the provinces use the federal tax base to determine their provincial CITs, while Alberta and Ontario use, by statutory cross-reference and incorporation, the federal law relating to transfer pricing (section 69). The province of Quebec is the only province with its own separate transfer pricing statute, which is more or less equivalent to section 69. Formula apportionment is used to allocate overall profit for purposes of allocating the tax base among the provinces. Many U.S. states, as part of a state compact, use formula apportionment to allocate state CIT revenues. Some states, notably California, have adopted a global method that taxes corporations in California on a portion of their MNE's worldwide income.

In most countries, the statutory legislation regarding transfer pricing is written in very broad, general terms that do not provide much guidance to MNEs and tax authorities. In terms of the arm's length standard vis-à-vis the statutory legislation, some countries expressly refer to the arm's length standard and define it (e.g., Italy, the United Kingdom); others refer to the ALS but do not define it (Argentina, Columbia, Mexico, Austria, Denmark, Finland, Sweden); still others do not refer to the ALS but apply a 'developed doctrine' incorporating the standard (Canada, Netherlands, France, Germany, Belgium, Luxembourg); and lastly, some countries simply authorize the tax authority to make a profit adjustment to reflect taxable income (United States, Norway).

Guidance is provided primarily through administrative guidelines, Treasury

regulations, and case law. Guidelines do not exist in five countries (Colombia, Finland, New Zealand, Singapore, and South Africa), but do exist in the other 21 responding countries. This is a significant growth rate, from two countries (United States and Germany) in 1983 to 21 out of the 26 reporting countries in 1991. Most guidelines are very consistent with the 1979 OECD transfer pricing report; the 1984 report, however, has not been so incorporated. Most countries accept the primary of the trio of basic transfer pricing methods outlined in the 1979 OECD report (CUP, RP, C+). The price comparison method (CUP) is the primary comparison in almost all countries. Where CUP cannot be applied, supplementary methods must be used, and generally, RP and/or C+ are recommended.

Therefore, at least within the IFA group of countries, one can draw the conclusion that the arm's length standard is not only the prescriptive norm of the OECD, it has also become the descriptive norm in the 1990s.<sup>8</sup>

### Replacing the Norm: Unitary Taxation

In spite of the widespread adherence, at least in terms of regulations, to the arm's length standard as the norm underlying the TTP regime, there are many critics who would prefer to see tax authorities reject the ALS and substitute some form of global method for allocating MNE income among taxing jurisdictions.

Stanley Langbein, for example, in 'The Unitary Method and the Myth of Arm's Length' (1986), argues:

While I share generally held perceptions of the problems of the arm's length method, I do not believe that they are merely practical difficulties of a theoretically sound idea. Rather, I think the problems are theoretically predictable, and hence inevitable, consequences of any effort to use an 'arm's length' system to allocate the profits of any unified international corporate group – that is, I believe the method is unsound in theory. (Langbein 1986, 627)

Richard Bird, another proponent of formula apportionment, criticizes the arm's length standard as follows:

To attempt ... to treat such intrafirm transactions as loans, management fees, and sales of intermediate products as if they took place between independent, competitive firms flies in the face of reality. Moreover, to expect tax administrators to construct such a mythical world out of figures for which they must depend almost entirely on the firms they are trying to tax is to expect too much. At best, the result in developed countries is to turn the

taxation of multinational enterprises into a game of bargaining and negotiation. At worst, the result in some developing countries is to leave the amount of tax paid up to either the conscience of the company or the arbitrary decisions of the authorities. (Bird 1988, 294)

If the arm's length standard were to be replaced, what could be used as an alternative norm for the TTP regime? The standard could be replaced either for all MNE activities or for particular activities and/or regions; that is, the norm could:

- *Move from a transactions-based approach to an income-based approach:* The OECD could change the norm to an income-based approach such as unitary taxation. This would be a radical change, but one that has been recommended by many economists and lawyers as best suited for dealing with the MNE as an integrated business.<sup>9</sup>
- *Move from a transactions-based approach to an income-based approach for certain MNE activities and/or jurisdictions:* The transactional approach could be kept for certain types of activities while a formulary approach could be used for others. This is already happening in the global trading area (see Pagan and Wilkie 1993, ch. 5). This could also be done on a geographic basis, for example, with formula apportionment on a regional basis, say, within the NAFTA countries.

First, we need to clarify the terms 'unitary taxation' and 'formula appointment' and differentiate them from the arm's length standard. *Unitary taxation* is defined here as taxation of the worldwide income of a unitary business, that is, all the related affiliates of a multinational enterprise that do business within the taxing jurisdiction. Unitary taxation is normally based on a *formula apportionment method* whereby one affiliate's share of certain factors, as a percentage of the worldwide MNE amount of these factors however weighted, is multiplied by the total worldwide income to compute the tax to be paid in that jurisdiction.

The *arm's length standard*, on the other hand, is based on the *separate accounting* or *separate entity approach*, which defines the borders of a firm according to national boundaries – the so-called 'water's edge.' Domestic affiliates are consolidated with the parent for tax purposes (as are foreign branches) but foreign subsidiaries and other affiliates of the MNE are treated as separate firms. Domestic source income is measured as if transactions with these related affiliates are market transactions at arm's length, that is, using the arm's length standard. Transfer price rules (CUP, C+, RP) are used to ensure that such transactions approximate arm's length prices.

In Chapter 2 we discussed the OECD's distaste for global formulary methods on the grounds that they were arbitrary and did not satisfy the norm of the arm's

length standard. In Chapter 6 we outlined the economic effects of unitary taxation. We found that if all countries use the same tax base, tax rates, and weighting formulas that reflect economic activity of the units of the integrated enterprise, unitary taxation can provide a nondistortionary way to tax multinationals and to share the tax revenues among countries. However, where some countries follow a unitary tax approach and other countries use separate accounting, the MNE's ability to manipulate transfer prices, broadly defined, continues to exist. Therefore mixed tax systems have potential distortionary effects and may cause double taxation of income.

Unitary taxation has been little used in practice. The U.S. states and the Canadian provinces use this approach, based on a three-factor formula, to allocate domestic subfederal corporate tax revenues among themselves. In addition, a few U.S. states, in particular California, have taxed firms located in their jurisdiction, not on the profits reported in that jurisdiction, but on a *pro rata* share of the worldwide income generated by the MNE corporate group.

In the sections below, we look first at the theoretical benefits and costs of using unitary taxation as opposed to separate accounting. We then turn to its use in practice, focusing on two actual cases: the corporate franchise tax levied by the state of California and its legality as shown in the recently concluded *Barclays Bank* case and formula apportionment as applied to global trading APAs, and one alternative place where unitary taxation might be used: within North America as part of NAFTA.

### *Unitary Taxation in Theory*<sup>10</sup>

In this section we compare the benefits and costs of separate accounting and unitary taxation, and attempt to weigh the benefits against the costs.

#### Benefits and Costs of the Unitary Tax Approach

There are several theoretical benefits from using a unitary tax approach. First, unitary taxation reduces tax evasion and avoidance by MNEs. MNEs with substantial worldwide income can misrepresent this income to national governments and/or shift the income to lower-taxed jurisdictions and thus reduce or eliminate MNE tax bills. The incentives to use transfer pricing as a method of reducing taxable income are lessened under unitary taxation. Second, home countries see little tax revenue from foreign affiliates since foreign income is only taxed when repatriated and foreign taxes are creditable against the home tax. Thus foreign affiliates of MNEs contribute little tax revenue to the home country; most revenues come from the parent's activities. The unitary approach may result in more tax revenues going to the home government, depending on



the relative shares of the parent versus its affiliates in the apportionment factors. In addition, small developing countries may not have the tax administration to enforce transfer pricing regulations or to prevent tax evasion or avoidance by large foreign MNEs. Thus a third reason for unitary taxation is that it can raise the share of global MNE rents received by the poorest countries.

However, there are also costs involved in using a unitary taxation method. First, unitary taxation is not internationally accepted. Unitary taxation violates international principles and can alienate our major trading partners. Given that an OECD Model Tax Convention exists that specifies tax harmonization principles for home and host countries, and that bilateral tax treaties also harmonize taxes, a unilateral move to unitary taxation violates these international agreements and would be unwelcome. In addition, unitary taxation can expose MNEs to double taxation. If some countries follow unitary tax methods and others follow separate accounting, double taxation is likely to occur. When one country moves to unitary tax, if that country has a large share of the tax bases that go into the unitary formula, then its tax level rises; if the other countries do not reduce their tax takes, the total tax bill for the MNE increases. If double taxation occurs, real investment is discouraged in that jurisdiction; worldwide investment may fall.

A third problem is that there are higher administrative burdens for MNEs under unitary taxation. Bookkeeping requirements are likely to be greater since the volume of data necessary to compute the unitary tax is higher – for example, profit and loss statements for all affiliates, balance sheets, and foreign documents must be translated, and foreign accounting rules must be translated into local accounting terms. All of these may be more difficult for foreign MNEs both in terms of willingness to supply this data to a local government and in terms of the need for adjusting the data to meet local standards. Foreign currency translation may be an especially difficult problem.

Also, the definition of a unitary business is arbitrary and has been inconsistently defined – for example, where is the ‘water’s edge’? The global allocation of tax revenues can be capricious since it depends on the factors in the formula and the weights of each factor. For example, an apportionment method that heavily relies on capital stocks taxes capital-intensive firms more heavily than labour-intensive ones, manufacturing more heavily than sales. Formulas related to wages vary with differences in international wage and exchange rates. The formulas themselves can also be manipulated by over- or understating data that enter the formula (e.g., shifting employment and capital into lower-tax-rate jurisdictions can still be used to reduce total tax payments). If a global or regional formula is designed, the largest countries can be expected to use political clout to ensure a formula which distributes taxable income in their favour.

Unitary taxation at a subfederal level (i.e., province or state) creates additional problems. It exposes that state to severe interstate competition with states that use water’s-edge rules since firms are more mobile between states than between countries. There may also be problems in terms of constitutional responsibilities if the federal government signs tax treaties and individual states apply different tax rules than does the federal government. States following unitary taxation also get involved with foreign governments, which the federal government may discourage.

Lastly, the U.S. states and the Canadian provinces use formula apportionment to allocate domestic corporate tax revenues. States and provinces regularly attempt to change the formula in their favour. A federal government can, however, act as an arbitrator and final decision maker. How would such a system work at the international level, where no such supragovernment exists? The zero-sum game aspect of unitary taxation would cause international disputes and eventual double taxation of MNE incomes.

#### Benefits and Costs of the Separate Accounting Approach

There are also benefits to separate accounting. First, the arm’s length standard is the accepted international norm. Thus, using a separate entity approach avoids double taxation, facilitates the signing of international tax treaties, and preserves good relations with a country’s treaty partners. Second, separate accounting can ensure that a firm pays the same total rate of tax on foreign as on domestic operations (if the foreign tax credit mechanism is fully applied by the home country). This ensures that capital export neutrality is met. Thus national tax systems do not interfere with global efficiency.

The costs associated with separate accounting also have to be considered. First, separate accounting ignores the internalization benefits from vertical and horizontal integration. Separate accounting is trying to ‘separate the inseparable.’ Vertical integration reduces transactions costs according to internalization theory so that the profits of an integrated MNE are higher than the profits that would be earned if the affiliates were broken up into unrelated firms. How should the internalization advantage be apportioned between the affiliates? Should it all be allocated to the parent or split among the affiliates? If split, how should this be decided? This problem has many answers but no one clear-cut theoretical solution so far exists. The crux of the problem is that separate accounting focuses on the transaction when the true unit of analysis is the integrated business. To quote Jerome Hellerstein (1983, 726):

Separate accounting operates in a universe of pretence; as in Alice in Wonderland, it turns reality into fancy, and then pretends it’s in the real world. For the essence of the

separate accounting technique of dividing the income of a unitary business is to ignore the interdependence of the operations ... and treat them, instead, as if they were separate, independent, and nonintegrated.

Second, separate accounting can lead to an overall global reduction in the MNE's tax bill since tax evasion and avoidance are easier to practise. Thus taxes have to be higher on other revenue sources to compensate for reduced taxation of corporate income. Treaty shopping can be used by foreign MNEs to reap the benefits of tax treaties even though the foreign government does not provide reciprocal benefits to domestic MNEs. Lack of information about the affiliates of MNEs in other countries make it difficult for tax authorities to enforce domestic legislation and prevent avoidance. The reverse problem is that double taxation can exist under separate accounting if tax bases differ. Some host country taxes are not creditable in the home country (e.g., Ontario mining taxes are not creditable against the U.S. corporate income tax). In such cases double taxation can occur. Thus non-neutralities and inequities are created.

Third, separate accounting is difficult to administer in practice. If comparables among independents do not exist, the arm's length standard is not very useful. As we have seen above, separate accounting also has great difficulty in allocating the income from intangibles. In practice, the IRS has tended to allocate to the parent all returns in excess of easily measurable ones. This reduces the tax base allocated to foreign governments or, alternatively, causes double taxation if foreign tax authorities do not accept IRS allocations. Separate accounting methods are therefore arbitrary allocators of the income from the MNE's firm-specific advantages.

Fourth, separate accounting forces a distinction between branches and subsidiaries that may not exist. Separate accounting treats branches as if they were part of the parent firm – that is, the income earned by the branch is taxed as accrued by the home country tax authority. Losses by the branch are deductible against the parent's income. (This has been restricted in the case of branches of the U.S. oil MNEs.) On the other hand, subsidiaries are treated as separate entities and their profits are taxed only when remitted to the parent firms. The distinction between a branch and a subsidiary may be an artificial one used by the MNE to reduce its overall tax bill.

Size of country is a fifth problem. The largest home country can impose its tax system on smaller players in the global economy – for example, when the United States reduced its corporate income tax rates, many countries followed suit (including Canada) on the grounds that their affiliates of U.S. MNEs would be placed in excess credit positions and therefore FDI would be discouraged (and transfer pricing encouraged) due to this additional tax burden. At the

same time, separate accounting encourages individual states to 'free ride' by setting themselves up as tax havens, encouraging capital inflows. While home country rules can penalize such haven-based income, tax havens continue to flourish and create substantial inequities and inefficiencies in the global tax structure. Tax havens act as pressures to reduce tax rates to the lowest common denominator.

Lastly, separate accounting encourages MNEs to invest in tax avoidance measures (e.g., sophisticated financial manoeuvres). Thus home and host tax authorities must be continually revising the tax laws to plug loopholes. MNEs and tax authorities end up playing a constant game of invention followed by catch-up. Unitary taxation would avoid this.

#### Weighing the Benefits against the Costs

Overall, it is hard to make a theoretical judgment on the relative merits of the two approaches to taxing MNEs. Some economists and lawyers have argued that the unitary tax approach is the only way for governments to deal with integrated global businesses. While this would be true if all, or at least most, nations were to adopt unitary taxation, it is less true if only a few do so.

Given that the current international tax transfer pricing regime is well established, it is even harder to recommend its complete abandonment. On the principle that 'an old tax is a good tax,' firms and governments have adjusted their behaviour to work under the existing structure. Changing that structure would imply enormous adjustment costs. It is therefore difficult to see formula apportionment replacing the arm's length pricing principle in the near future. That is why we find it difficult to agree with Myron Gordon's recommendation that Canada shift unilaterally to unitary taxation (Gordon 1984). If the United States were to shift to formula apportionment the situation would be quite different, since most of Canada's intrafirm trade is U.S.–Canadian trade.<sup>11</sup> In such a case, it would make sense for Canada to follow suit.

#### *Unitary Taxation in Practice*

There are at least two areas where formulary approaches have been used in North America. These experiences provide useful lessons that supplement the theoretical issues we have discussed above. First, at the subfederal level, the U.S. states and the Canadian provinces use formulary methods to allocate CIT revenues among themselves. The controversy has arisen in those states, such as California, that tax firms based on a portion of their worldwide income. A few court cases have been fought over the constitutionality of unitary taxation; in this section we review the most recent case, *Barclays Bank*. Second, where



MNE activities are completely integrated it is impossible to use separate accounting in any meaningful sense. This is clearly true in the global trading of securities. Recently, the IRS has used formulary approaches as part of advance pricing agreements (APAs) negotiated with various financial intermediaries with respect to their global trading activities. As a third example, we also explore the possible use of formula apportionment within North America.

#### Unitary Taxation at the Subfederal Level: The California Case

Both the U.S. states and the Canadian provinces use formula apportionment to allocate domestic corporate tax revenues. In Canada all provinces are under the same formula, which is based on sales and payroll, and the federal government acts as an arbitrator and final decision maker. In the United States, on the other hand, approximately 45 states are part of an apportionment compact for the state corporate income tax. The states can opt in or out of the formula allocation and vary the factors and weights as they choose. The typical state formula gives about one-third the income to the state of sale and two-thirds to the state of production (McIntyre and McIntyre 1993, 856, n. 12), but there is enormous variation around this formula. Clearly, the U.S. system gives more weight to state sovereignty and less to economic neutrality than does the Canadian system. As such, the Canadian system appears preferable.<sup>12</sup>

In addition, some U.S. states use unitary taxation to apportion a share of worldwide MNE income as state income.<sup>13</sup> Brean and Bird (1986, 15–6) note that, as of 1984, there were at least five methods of formula apportionment in practice at the U.S. state level: (1) worldwide combination (six states); (2) domestic worldwide combination for U.S. parents only (five states); (3) domestic combination of income for U.S. incorporated affiliates only (ten states); (4) ‘water’s-edge’ combination under which U.S. source income is combined for all affiliates (one state); and (5) nexus combination applied to affiliated firms deriving income from sources within the state or divided within the state (thirteen states). In addition, ten states did not employ a method of income combination and five states did not have a corporate income tax. As of 1994, only five states (Alaska, California, Idaho, Montana, and North Dakota) have state tax provisions based on the worldwide combination approach (Barrett 1994, A11).

The best known of these unitary tax states is California, which levies a corporate franchise tax, using a worldwide combined reporting (WWCR) method, on foreign-based MNEs located in the state. The WWCR method uses a three-factor formula to calculate the franchise tax; the formula is an arithmetic average of the proportions of MNE worldwide payroll, property, and sales located within the state.<sup>14</sup>

Multinationals with businesses located inside California have long argued

that unitary taxation is unconstitutional; that it effectively taxes profits that are not earned in, and therefore should not be taxed by, the state; and that it results in double taxation. While the MNEs have paid the California tax, they have sued in court to recover the tax payments. Foreign taxing authorities such as the United Kingdom have also lined up behind their firms and threatened retaliatory action. Thus, unitary taxation is a long-standing controversy among state governments, multinationals, the U.S. Congress and the executive branch, the U.S. courts, and foreign governments, and several court cases have been fought over the issue; we look briefly at one, *Barclays Bank versus the Franchise Tax Board*,<sup>15</sup> below.

The *Barclays*<sup>15</sup> case was the key legal test for determining whether California’s version of the unitary method of worldwide combined reporting (WWCR) was constitutional as applied to foreign-based multinationals in California. After several years in court, the U.S. Supreme Court finally decided in June 1994 that WWCR was constitutional as it applied both to domestic MNEs (as in *Colgate*<sup>16</sup> and *Container*<sup>17</sup>) and foreign MNEs (such as Barclays).

In 1977, Barclays Bank International (referred to as BBI), a U.K. company, conducted international banking operations in the United Kingdom and 33 other countries and territories, including California. BBI was a wholly owned subsidiary of Barclays Bank Limited (referred to as the Barclays Group). BBI also owned 70 subsidiaries, and those subsidiaries had banking operations throughout the world. One of those subsidiaries was Barclays Bank of California (referred to as Barcal). For convenience, Barcal and BBI together are referred to as Barclays.

Barcal and BBI both filed 1977 tax returns with the California Franchise Tax Board (the Tax Board). Barcal reported only the income from its own operations; BBI reported the income of itself and its subsidiaries, but not of its parent and its parent’s affiliates. On audit, the Tax Board determined that Barcal and BBI were part of a worldwide unitary business, the Barclays Group. Using a global formula apportionment method applied to the income of Barclays Group, the Tax Board assessed BBI with an additional tax liability of \$US1,678 and Barcal with an additional \$US152,420.<sup>18</sup> Barclays paid the additional taxes, but sued for refunds on a number of grounds, including the argument that California’s unitary system violated the Foreign Commerce Clause of the U.S. Constitution.

The federal government and most other states treat a U.S. subsidiary of a foreign firm as a separate corporation and tax only the income of the affiliate, using a water’s-edge approach. U.S. bilateral income tax treaties with foreign countries bind the federal government to use some form of separate accounting but do not similarly bind the states. U.S. Friendship, Commerce, and Naviga-

tion treaties with foreign countries similarly do not contain any state taxation restrictions. The executive branch has adopted a Model Income Tax Treaty that does not apply to state taxation and has reserved its position on the OECD Model Convention's application to subnational taxes. In addition, Congress has not enacted any legislation prohibiting or restricting the state use of unitary taxation. Lastly, the U.S. Senate refused to give its two-thirds consent to article 9(4) in the U.S.–U.K. Tax Treaty, which would have prohibited the states from applying the worldwide unitary method to U.K. parent unitary corporate groups (Tax Notes International 1992a, 1329).

However, since the 1960s, the U.S. executive branch has taken the position that California should desist from using the unitary method of worldwide combined reporting. The government's most active opposition to the method occurred during the Bush and Reagan administrations. President Bush strongly supported Barclays in its judicial bid to have California's use of the unitary method found unconstitutional as applied to foreign-based MNEs. The Bush administration, as had the Reagan administration before it, received considerable criticism from the British and Canadian governments, as well as the European Community. Both the U.S. Department of Justice and the U.K. and Canadian governments filed amicus briefs in support of Barclays as the case threaded its way through the lower courts (Turro 1993c, 759). The British and Canadian briefs argued that the tax violated widely accepted international standards and could lead to retaliation against U.S. firms operating abroad.

The British government publicly warned that it would retaliate against U.S. multinationals in the United Kingdom by using section 812 of the 1988 U.K. Income and Corporation Taxes Act (Coffill 1993, Godbee 1993). The so-called 'Grylls clause,' adopted in the 1985 Finance Bill but never implemented, would deny U.S. parent companies of U.K. subsidiaries tax refunds on dividend distributions to their U.S. parents. This would also affect the withholding taxes levied on, and deductibility of, interest paid to U.S. parents by their U.K. subsidiaries. The U.K. legislation would deny tax credits payable to U.S. corporations that controlled at least 10 per cent of a U.K. company, either alone or in conjunction with associates – credits that normally would apply to foreign MNEs if they had a 'qualifying presence in a unitary state' (Turro 1993b, 75). British officials indicated that they would likely begin their retaliation with companies based in California (Turro 1993h, 1246).

The case dragged on for several years. In 1987 a California superior court held for Barclays, finding the unitary method unconstitutional as applied to foreign-based multinationals. The court found that California's unitary tax discriminated against foreign commerce and violated due process when it was applied to foreign-based MNE groups. Central to the lower court's decision was

its finding that the unitary method impeded the federal government's ability to 'speak with one voice' in the conduct of foreign affairs (Turro 1993c, 759).

Concerned about the exodus of firms from the state and under pressure from the U.S. government, California backed away from formulary apportionment. In 1986, the state passed Senate Bill (SB) 85, effective for income years beginning in 1988, which gave certain 'qualified taxpayers' the opportunity to elect to be taxed on their separate earnings under the 'water's-edge' method (Coffill 1993). However, in order to qualify for separate accounting, the firms had to pay an annual water's-edge election fee, for the life of the contract, equal to three-hundredths of one per cent of the sum of three factors (the taxpayer's California payroll, property, and sales)<sup>19</sup> and file information in a domestic disclosure spreadsheet. In addition, the Tax Board could disregard an election and require the taxpayer to use WWCR. Some British companies have paid up to \$US2.5 million to make a five-year election out of WWCR (Turro 1993b, 76).

In November 1990, the California court of appeal sustained the superior court's decision on the foreign commerce clause ground. The court applied the 'foreign dormant commerce clause' tests used in *Japan Line Ltd. v. County of Los Angeles* and *Container Corp v. Franchise Tax Board* in finding that California's unitary method violated the U.S. Constitution (Turro 1993c, 759).

In May 1992, the California supreme court reversed the court of appeal decision on the foreign commerce clause issue and remanded the case back to the lower court on a due process argument. The trial court had ruled that the cost to a foreign-based unitary multinational of furnishing financial data required by the Franchise Tax Board (the 'compliance burden') violated due process, as well as unconstitutionally impeding foreign commerce. The California supreme court overturned the state appellate court and held that California's use of formulary apportionment was not unconstitutional under the Foreign Commerce Clause.

Late in 1992, the California court of appeal ruled on the issue of due process. It found that the compliance burden resulting from the state's use of the unitary method did not violate the Foreign Commerce Clause or state or federal due process clauses (Turro 1993c, 759). While the court of appeal agreed that foreign-based corporate groups incurred greater administrative costs to comply with California's system than did domestic counterparts, the court said this distinction did not constitute unconstitutional discrimination.

President Clinton, in his 1992 campaign for the presidency, had promised California officials that, if elected, he would support the state's right to use unitary taxation. In March 1993 the California Supreme Court refused to review the appellate court's decision, paving the way for Barclays' appeal to the U.S. Supreme Court. The U.S. Supreme Court in May 1993 asked the Clinton

administration to file an amicus brief on whether the Court should accept Barclays Bank's petition for a writ of certiorari. The Court's request put the White House on the spot, forcing the administration to formally state its position on California's use of WWCR. If the administration recommended that the Court accept the case for review, the federal government would be seen as implicitly supporting Barclays Bank; however, if the White House urged the Court to decline review, it would be seen as supporting WWCR.

California again backed away from unitary taxation when SB 671, a bill concerning low-income housing credits, was amended in June 1993 to make the water's-edge method a mandatory election for all California taxpayers engaged in a worldwide unitary business.<sup>20</sup> The mandatory approach was soon abandoned after domestic corporations complained that reducing taxes on foreign MNEs would mean their taxes would have to be increased by up to US\$150 million. In August 1993, SB 671 was amended to retain the water's edge election; it passed in September 1993. The bill repealed the state water's-edge election fee and the domestic disclosure sheet requirement, rescinded the Tax Board's authority to revoke a taxpayer's water's-edge election, and extended the election period from five to seven years (Carlson and Briggs 1994, 1687; Coffill 1993, 1055-9).

The Clinton administration filed an amicus brief in October 1993, concluding that Barclays Bank's petition for writ of certiorari should be denied because legislation adopted by California since the case's submission made further review unwarranted. The brief stated that because California had 'abandoned compulsory worldwide combined reporting (WWCR) for foreign corporate groups, the issue presented and decided in the California Supreme Court in this case lacks substantial recurring importance' (Turro 1993d, 958). Since California legislation SB 671 removed all mandatory requirements or economic compulsion for taxpayers to have to report their income under WWCR, the administration argued that California has brought the state's tax laws into acceptable harmony with the arm's length method (Turro 1993d, 958). The authors of the brief also warned the court that 'further review could potentially destabilize the equilibrium reached between state, federal, and international interests on this issue' (Turro 1993d, 958).

No doubt the Clinton administration hoped that the Supreme Court would simply deny Barclays' petition for certiorari, thereby letting stand the California Supreme Court's decision upholding the constitutionality of the state's use of the unitary method. However, on 1 November 1993 the Supreme Court granted certiorari and agreed to hear the *Barclays Bank versus Franchise Tax Board* case along with *Colgate-Palmolive versus Franchise Tax Board*.

On 19 January 1994, the Clinton administration filed an amicus curiae brief

in the Barclays/Colgate consolidated cases, supporting California in the litigation. The brief contradicted the conclusions in a long series of amicus briefs filed by previous administrations. The gist of the new argument was that there was no general federal policy in 1977 (the year at issue in the case) against California's use of the unitary method of WWCR. The brief argued that the executive branch, as of 1977, had expressed a preference for the arm's length method, but that the United States had not 'acceded to any general international understanding regarding the impropriety of the worldwide method' (Turro 1994a, 272). The brief, however, stated that the Barclays case did not address the issue of whether unitary taxation was inconsistent with federal policy after 1977, and conceded that the executive branch has opposed WWCR by the states since 1982 (Turro 1994a, 273).

The brief also laid out several principles the administration believed should apply on the constitutionality question, in terms of whether a state's taxing scheme impedes the federal government's ability to speak with one voice in international trade. The position taken was that threats of foreign retaliation were not sufficient to make a state tax invalid. In applying the one-voice test, the crucial issue was 'whether the state action at issue is incompatible with federal policy as explicated by officials of the political branches' (quoted in Turro 1994a, 273). Where there was neither a treaty nor a statute, the courts should respect the president's judgment either that state compliance with an international norm was necessary or that foreign governments should not be allowed to dictate state policies or take a middle ground. The administration's brief stated that the executive branch has never said that application of WWCR to domestic corporations impaired the government's conduct of foreign relations. The brief concluded that if the Court should find that California's taxing regime violated federal policy in 1977, the state should not be required to issue refunds in light of the 'unusual circumstances presented here' (Turro 1994a, 274).

The majority opinion of the Supreme Court was released in June 1994. The court found that the constitution did not impede California's right to use WWCR on *Barclays* and *Colgate*. In order for the commerce clause of the U.S. constitution to be violated, the court argued that a tax applying to domestic commerce would have to: (1) apply to an activity lacking substantial nexus to the taxing state; (2) not be fairly apportioned; (3) discriminate against interstate commerce; or (4) not be fairly related to the services the state provides. In addition, a tax applying to foreign commerce raised two additional issues: the enhanced risk of double taxation, and the impact on the federal government's ability to speak with one voice when regulating commercial relations with foreign governments.

The court concluded that California's tax met all but the third criterion easily,

and in the case of the third, WWCR did not impose inordinate compliance burdens on foreign MNEs. Therefore Barclays' claim of unconstitutional discrimination against foreign commerce was not upheld. The WWCR method of 'reasonable approximations' was held to be compatible with due process. In addition, WWCR did not expose foreign MNEs to constitutionally intolerable levels of multiple taxation. Lastly, unitary taxation at the state level did not impair the federal government's ability to speak 'with one voice' in international trade. Since Congress had failed to enact any one of numerous bills, or to ratify a treaty provision, that would have prohibited the use of WWCR by the states, 'Executive Branch communications that express federal policy but lack the force of law cannot render unconstitutional California's otherwise valid, constitutionally condoned scheme' (quoted in *Tax Notes International* 1994e, 48). The Supreme Court therefore decided in favour of the Franchise Tax Board.

The outcome of the Barclays case was extremely important to cash-starved California. According to Brad Sherman, chairman of the California State Board of Equalization, a ruling against California could have deprived the state of nearly \$US3.5 billion in tax revenue (Turro 1993c, 759). Thus it appears that formula apportionment is constitutional at the subfederal level, at least within the United States. Given the financial situation of many state governments, it is likely that others will move to adopt some form of WWCR (see the discussion in Weiner 1996).

#### Formula Apportionment Applied to Global Trading<sup>21</sup>

Formula apportionment has been used, not only at the subfederal level within the United States and Canada, but more recently the Internal Revenue Service has approved its use for a particular type of product: global trading.

The term *global* or *24-hour trading* refers to virtually continuous transactions in financial goods and services that take place in the three major financial cities (Tokyo, London, New York). These transactions are conducted by financial intermediaries, security dealers, treasury departments inside multinationals, insurance companies, and commodities brokers (Pagan and Wilkie 1993, 130). Each institution has a team in place in each capital responsible for trading during the hours when that particular financial market is open; then the transactions are turned over to a team in another capital. As Tokyo closes, London opens; as London closes, New York opens – the result is a virtually seamless global market in financial instruments.

Pagan and Wilkie (1993, 131) identify the value chain in global trading as consisting of four definable activities: trading (giving, obtaining, and accepting quotes), management (managing the overall book), sales (marketing and selling

the end product), and support (research, technical systems, and carrying out the accounting, settlement, and payment functions). With four functions, at least three locations, and continuous 24-hour trading, allocating costs and revenues to a particular location is nearly impossible.

For example, assume the Tokyo affiliate has a portfolio valued at the start of the period at \$100 million, which is passed to the London affiliate at the end of the trading day valued at \$110 million, which is passed onto to the New York affiliate valued at \$115 million, which is passed back to the Tokyo affiliate at \$110 million after the trading day closes. The net increase in the book is \$10 million. How should it be apportioned? When should the book be valued in each case, at the close of the old market, or the opening of the new market?<sup>22</sup>

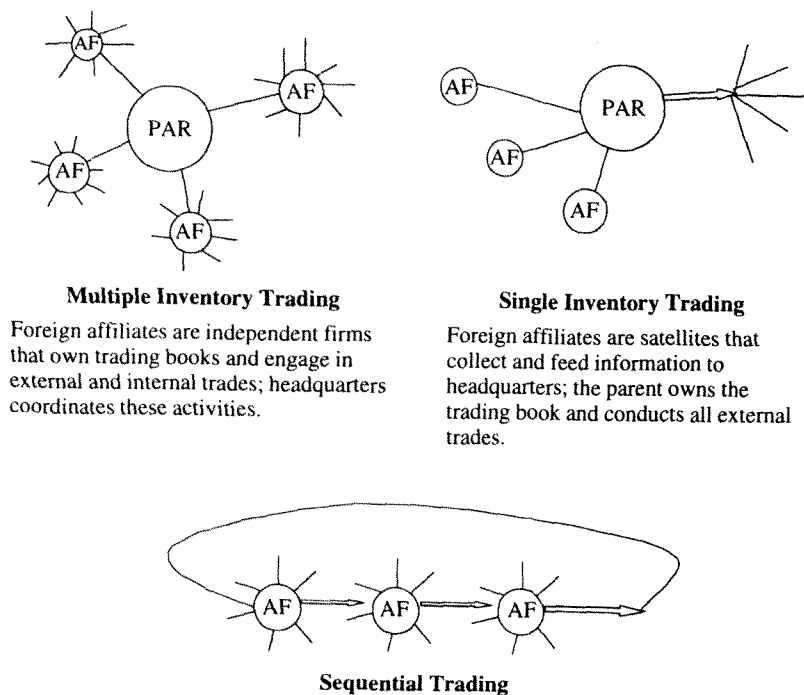
The organizational structure of the MNE is critical to determining the allocation of income among the parties to global trading. We identify three cases, which are illustrated in Figure 12.1 on the next page.

First, in a *polycentric, decentralized multinational* in which the foreign affiliates are miniature replicas with full authority to operate separately in their domestic market, occasionally engaging in intrafirm trade with other affiliates, the role of head office is to oversee and coordinate the activities of its affiliates. Thus each affiliate generally owns its own trading book, which carries both the pricing responsibility and the risk that goes with it. The transfer pricing problems in this *multiple inventory* case of global trading are typical: how to price intrafirm transactions where comparables are unlikely to exist and how to allocate head office expenses among the affiliates (Pagan and Wilkie 1993, 132–3). Given the short-term duration of transactions, exchange rate problems (how to allocate profits or losses between the parties) are also difficult. Lastly, since most foreign affiliates of banks are organized as branches rather than as subsidiaries and intrabrand transactions are generally not recognized for tax purposes (e.g., in the United States), trades within the MNE's domestic affiliates do not generate tax whereas trades with third parties do. Foreign branches are also taxed on an accrual basis and do not qualify for the tax deferral available to foreign subsidiaries.

A second organizational structure is an *ethnocentric, centralized multinational*, in which the foreign affiliates feed market information to the parent firm but do not directly engage in final sales. These are left to the parent firm. These purely satellite units may or may not qualify as a permanent establishment. Questions of the activities undertaken by the unit, the risks involved, the ability to sign contracts, and so on will determine the taxable nexus of the affiliate. Once the jurisdictional question is settled, the allocational questions (what is the arm's length price for the activity?) again arise. Pagan and Wilkie (1993, 133–4) identify this type of global trading as *single inventory* trading.

FIGURE 12.1

Types of Global Trading: Multiple, Single, and Sequential



**Multiple Inventory Trading**  
Foreign affiliates are independent firms that own trading books and engage in external and internal trades; headquarters coordinates these activities.

**Single Inventory Trading**  
Foreign affiliates are satellites that collect and feed information to headquarters; the parent owns the trading book and conducts all external trades.

**Sequential Trading**  
The trading book is owned by headquarters, but the responsibility for trading passes sequentially around the group as each affiliate passes the book "over the wall" to another.

The third case is the true 24-hour *sequential trading*, in which the trading book is 'tossed over the wall' from one trading team to another as the financial markets open and close. While the responsibility for making decisions about the book passes from one team to another, the ownership of the book generally remains with head office. This type of MNE can be considered a true *geocentric, integrated multinational*.

Global trading is clearly an area in which an advance pricing agreement can be helpful to a financial multinational. The products involved are complex and frequently traded in very large volumes, and disagreements can easily arise

between the MNE and national revenue authorities over how to allocate the income between countries.

The IRS has negotiated several APAs for transactions in commodities and derivative financial products sold as long-run contracts by fully integrated banking MNEs engaged in global trading. The APAs also included related hedges used to minimize price risk or interest and currency exchange risk (e.g., interest rate and cross-currency swaps). In each case one book of positions was maintained and the trading authority for the book passed from one affiliate to the next as the trading day closed in each location (i.e., the APAs involved sequential trading).

The APAs were negotiated with U.S. multinationals with foreign affiliates, and with foreign affiliates in the United States. Some of the firms that have been identified include Sumitomo Bank Capital Markets Inc. and Barclays Bank Plc. Foreign banks doing business in the United States in 1994 represented about 22 per cent of all U.S. banking assets, and U.S. rules on interest expense deductions (the largest U.S. tax deduction for foreign banks) are quite arcane, so it is not surprising that these firms have moved to request APAs (Matthews 1994b, 1362).

In April 1994 the Service issued Notice 94-40 to summarize the broad results of these APAs. In each agreement, the IRS attempted to measure the economic activity that each trading team contributed to the overall profits of the global trading operations. Formulary apportionment, based on a three-factor formula, was used to measure the value of the activities and split the profits among the parties. The weights in the formula were based on each MNE's unique facts and circumstances. The three factors were (1) *value* (the relative value of the trading location), (2) *commercial risk* (the risk associated with a trading location), and (3) *activity* (the extent of activity in each location). Different measures of these three factors were used, depending on the specific facts and circumstances. The measures chosen depended on variables such as management structure, management information system capability, functions performed, risks assumed, and capital employed by each unit. The Service noted that the value factor was generally proxied by trader compensation including bonuses.

The steps used in the general APA process are outlined in Box 12.1. There are three basic steps: calculating global net income, determining the formula and the ratios, and calculating the affiliate's net income.

Given the jurisdictional and allocational problems associated with global trading, formula apportionment, perhaps through an advance pricing agreement process, may make the most sense. As the activities of multinationals become more complex and interlinked globally, problems like global trading are likely to arise more frequently.

**BOX 12.1****Formula Apportionment Applied to Global Trading**

Formula apportionment can be used to allocate income from global trading among the units of a financial MNE as follows:

**Calculate global net income:**

- Determine the pool of profits earned on the global trading activity. Typically this includes worldwide profits and losses for a class of financial products and related hedges.
- Subtract expenses directly related to the production of the trading income or loss. Do not subtract expenses specific to a particular location (e.g., office supplies, rent, communications).

**Determine the formula and ratios:**

- Based on the facts and circumstances, determine which factors best measure the economic activity of each affiliate, its contribution to the overall profitability of the MNE, and how those factors should be proxied.
- Calculate the ratio that results from each factor in the formula. The ratio for a factor is generally the value of the factor in one location divided by the total value of the factor in all locations. Where several governments are involved, and the income must be divided among these jurisdictions, this calculation must be done for each location. Where one government is involved and only the income allocated to that jurisdiction need be determined, the calculation can be done for the one location. Each ratio may be multiplied by a weighting factor if desired.

**Calculate the affiliate's net income:**

- Take the sum of the three factors and divide them by the sum of the weights given to each factor. This determines the percentage of worldwide net income due to a particular location.
- Multiply worldwide net income by the appropriate percentage to determine income in each location.
- Subtract each affiliate's own deductions (e.g., interest and local expenses) from its allocated share of the pooled profits to determine its net taxable income.

SOURCE: Based on IRS (1994a), *Tax Notes International* (1994c), and Wright (1994)

**Formula Apportionment for NAFTA?**

Just as there are optimal currency areas in which the benefits of adopting one common currency outweigh the loss of individual flexibility in terms of monetary policy, so too there may be geographic areas where formula apportionment makes sense. Integrated areas such as customs unions offer the possibility of coordinated tax planning and the potential for using income-based methods to allocate tax revenues among jurisdictions. For example, unitary taxation could be used to allocate MNE income within North America.<sup>23</sup>

In Chapter 7 we discussed some of the problems that tax differentials can cause within a regional free trade area such as NAFTA – for example, the difficulty of allocating income and expenses within a regionally integrated MNE among its North American affiliates, the problem of meeting complex rule-of-origin tests, the incentives to manipulate transfer prices to take advantage of these complexities, and so on. Raymond Vernon is also pessimistic about the impacts of NAFTA on the allocation of taxable profits within North America:

The tax problems described above are not created by the NAFTA; they have existed as long as governments have taxed the units of multinational networks. When they have arisen in the past, they have been disposed of by lawyers and accountants wrestling with national tax collectors and national courts. Bilateral tax treaties have taken the edges off incipient conflicts between rival national collectors, but the unilateral power of the state ... has been the principal force determining the outcome. (Vernon 1994b, 34)

One possible solution to the tax and origin issues raised by NAFTA could be unitary taxation. A gradual introduction of formula apportionment, perhaps based on a weighted average of capital, employment, and sales, could be considered for allocating MNE income within North America. For example, Vernon argues:

Another objective [for Canada] should be to reduce the issue of transfer prices in tax matters to more manageable proportions. A start on this objective could be made if multinational enterprises with North American operations that are fairly autonomous from the rest of their global networks were given the option of allocating their North American income to national tax authorities on the basis of a unitary allocation formula. (Vernon 1994b, 45)

Formula apportionment within NAFTA has also been suggested by McIntyre and McIntyre (1993). They recommend that businesses operating within NAFTA file consolidated returns showing total income from the three countries. The formula for allocating income from goods would apportion about half the



income to the country of manufacture and the other half to the country of sale (as determined by a destination test); different formulas could apply for natural resources and services. In addition, the authors recommend that the bilateral tax treaties be renegotiated to establish a unified set of withholding tax rates, effectively establishing a 'common external tariff' in terms of withholding taxes. A milder, and easier to put in place, proposal would be for the three countries to negotiate common withholding tax rates on financial transfers within North America (i.e., with respect to the three bilateral tax treaties). This uniformity would simplify business operations and reduce the opportunities for tax avoidance and evasion.

While we do not have complete information on the taxes, profits, and economic activities of all multinationals (parents, branches, and subsidiaries) within North America, with the information at our disposal we can provide one picture of the impact formula apportionment could have on tax patterns.

Normally, a unitary tax system allocates a portion, based on a formula, of the worldwide income of a particular multinational to a particular jurisdiction. We have data for 1990, not on the consolidated worldwide income of U.S. *multinationals*, but on the worldwide income of U.S. *MOFAs* (i.e., the offshore profits of American MNEs), by host country. Building on the work done in Chapters 4 and 7 on MOFAs, we can illustrate how formula apportionment could be used to reallocate total MOFA income among these host countries. While this is not an accurate depiction of unitary taxation, the exercise does illustrate the formula apportionment approach and some of its benefits and problems.

In Table 12.1 we provide data on country shares, in percentage terms, for the following variables: number of MOFAs, total assets, sales, employee compensation, pre-tax profits, and host country taxes, for selected host countries. For example, Canada's shares of the total MOFA figures are: number of MOFAs (11.7%), total assets (14.4%), sales (14.9%), employee compensation (18.2%), operating profits (7.7%), and taxes paid (8.7%).

An unweighted three-factor formula based on assets, sales, and labour costs provides an estimate of the pre-tax profits that *should* have been earned in a particular host country, assuming profits reflect the underlying economic activity of the MNE as reflected in its distribution of these three factors. Given the Canadian percentages noted above and using this formula, we see that Canada's factor ratio is 15.8 per cent. Canada's actual share of total MOFA pre-tax profits, however, is only 7.7 per cent; therefore, the income declared in this host country is not commensurate with the underlying economic activity of these MOFAs as specified in the three-factor formula. We can estimate the impact of switching from separate accounting to formula apportionment by multiplying Canada's three-factor ratio by worldwide MOFA income. Estimated MOFA

TABLE 12.1  
Applying Formula Apportionment to MOFA Profits, 1990

	Host country in which MOFAs are located:				
	All Countries	Canada	Mexico	Japan	EC
Number of MOFAs	15,532	1,814	113	138	6,831
Country share of total MOFAs	100.00%	11.68%	0.73%	0.89%	43.98%
Factor #1: Total assets (in US\$ mill.)	1,263,457	182,063	13,993	61,696	659,920
Country share of total assets	100.00%	14.41%	1.11%	4.88%	52.23%
Factor #2: Sales income (in US\$ mill.)	1,191,832	177,200	19,330	62,117	615,192
Country share of sales income	100.00%	14.87%	1.62%	5.21%	51.62%
Factor #3: Labour compensation (in US\$ mill.)	148,353	26,962	2,489	7,165	84,435
Country share of labour comp.	100.00%	18.17%	1.68%	4.83%	56.91%
Country three-factor ratio = (F1 + F2 + F3)/3	100.00%	15.82%	1.47%	4.97%	53.59%
Country actual operating profit (in US\$ mill.)	103,563	7,944	2,232	4,461	48,243
Country share of total MOFA operating profit	100.00%	7.67%	2.16%	4.31%	46.58%
Estimated country profit (in US\$ mill.) (Three-factor ratio × total MOFA profit)	103,563	16,381	1,521	5,152	55,497
Estimated profit – actual profit (in US\$ mill.)	0	8,437	(711)	691	7,254
Actual foreign income taxes paid (in US\$ mill.)	30,658	2,658	807	2,330	11,564
Average foreign tax rate (Actual taxes/Actual operating profit)	29.60%	33.46%	36.16%	52.23%	23.97%
Estimated gain (loss) in tax revenue if used formulary approach (Avg. Tax rate × estimated change in profit)	0	2,822.92	(256.93)	360.99	1,738.85
Percentage change in tax revenue if used formulary approach	0.00%	106.20%	-31.84%	15.49%	15.04%

SOURCE: Author's calculations based on U.S. Department of Commerce (1993c, Tables 90-24, 90-40, and 90-56), as reported in the National Trade Data Bank – The Export Connection

income in Canada is US\$16.38 billion, compared with actual income of US\$7.94 billion. Multiplying this 'income gap' by an average tax rate on Canadian MOFA profits of 33.46 per cent, we find that formula apportionment of MOFA profits generates an additional US\$2.82 billion for the Canadian government, an increase of over 100 per cent compared with actual revenues!

Performing the same procedure for Mexico suggests that MOFAs in Mexico would generate *less* taxable income, and therefore less tax payments (a drop of 31.8 per cent in Table 12.1), under a three-factor formula based on overall MOFA activities compared with separate accounting. What is causing these large changes?

We suggest several factors. First, the variables in the formula and their relative weights are the major determinant of estimated pre-tax profits in each jurisdiction. Canada, as a wealthy country that has been host to U.S. MNEs for several decades, has a large share of overall MOFA assets, sales, and wage compensation. Thus its three-factor ratio is likely to be large relative to MOFAs overall. Second, by using only one year we can substantially bias the results, particularly if business cycles are out of sync among the host countries.<sup>24</sup> Third, if an important factor is left out of the formula (for example, capital expenditures in the year after a free trade agreement is signed), the ratio may not reflect actual activity. Fourth, where rich and poor countries are both in the comparison, a wage compensation factor will undervalue the profit contribution of low-wage, high-productivity locations such as the Asian NICs and the Mexican maquiladoras. For all these reasons, a formula apportionment approach needs to be handled with care as it can produce wildly different results from the actual allocation of pre-tax MNE income across host countries.

Finally, we repeat that the above analysis does not proxy what the distribution of taxable income would be if formula apportionment were applied to MNEs within North America. Such an analysis would require data on the income and expenses of Canadian, U.S., and Mexican MNEs and their North American affiliates, and an estimate of the relative shares of the activities of these firms in each of the three countries. Our analysis has focused on the relative activities of U.S. MOFAs around the world.

#### *Formula Apportionment – The Wave of the Future?*

The unitary tax debate has been an ongoing issue within the OECD since the late 1960s when the organization formally adopted the separate accounting framework built into the U.S. Treasury 482 regulations. The OECD model tax treaties are all built around the separate entity concept and the OECD transfer pricing reports both endorse separate accounting and deplore the use of unitary

taxation. The use of worldwide combination by several U.S. states, most notably California, has only sharpened the hostility of tax practitioners to the method.

On the other hand, a small group of academics continues to argue that formula apportionment is the only way to deal appropriately with the integrated nature of the global enterprises we call multinationals. State legislators, hungry for tax revenues, see worldwide combination as a legitimate way, consistent with the U.S. constitution, to generate tax receipts. At the same time, the method is now being used to allocate international income from global trading, and it could potentially be used to allocate income within a regional free trade area such as NAFTA or the European Union.

Thus, unitary taxation is not dead in spite of the vilification and tax appeals by MNEs, the scorn of the international fiscal community, and its apparent violation of the international tax norm, the arm's length standard; in fact, its use appears to be spreading. We suggest that there will be other areas besides global trading in which multinational activities make it impossible to fairly allocate MNE income among competing jurisdictions. In these cases, a formulary approach may be a low-cost administrative mechanism, used because of its feasibility in spite of its apparent violation of international norms.

#### **Conclusions**

In this chapter we have discussed and evaluated the principles and norms of the tax transfer pricing regime. We have argued that the principles of international equity and neutrality are fundamental constructs on which an effective TTP must be built. The arm's length standard, however, as the key norm of the regime, rests on a shaky foundation. While most authorities recognize the problems inherent in the standard, few are willing to incur the costs of shifting to a completely new regime. Thus, the ALS is likely to continue to be both the prescriptive and descriptive norm of the TTP regime, with formula apportionment being restricted to selected areas and regions where administrative feasibility dictates that the separate entity approach cannot work in practice.

We turn now to Chapter 13 and a discussion of the rules and procedures in the international tax transfer pricing regime.