

CURRENCY DEVALUATION AND LIFE INSURANCE

1. In countries in which currency has been devalued, what has been the effect upon
  - a) The economy of the country?
  - b) The life insurance business in the country?
  - c) Pension funds in the country?
2. To what extent have those North American life companies which operate in Great Britain, in the Caribbean, or elsewhere been affected by the 1967 currency devaluation?
3. What may be the impact upon Canada and the United States of devaluation of currencies in other countries?

DR. JOHN D. HOGAN:\* Vic Henningsen has already impressed upon me that, having addressed the Society two years ago and been invited back, I am experiencing the next best thing to passing the portals of heaven itself. He need not have reminded me, because I share his esteem for this body. As a consequence of my last appearance at the Midwest regional meeting, I developed an extensive correspondence with actuaries interested in operations research—with substantial benefit to my own work and, I hope, to theirs.

The questions put to this panel by the program chairman have a disarming simplicity about them. His intentions are clear enough: if the strains on the foreign exchange and gold markets experienced this spring and last fall augur any prospect that the dollar—the world's key currency—will be devalued, let us be forewarned; let us look into the consequences of some past devaluation experiences to see what happened to our industry.

I could take my part in the time allotted the panel to explain why it is impossible to answer the questions posed in the program. But something can be learned from previous devaluation experiences, of course. If the life insurance industry has survived, even prospered, in the aftermath of devaluations, we know at least that a favorable outcome is possible. Our common interest is broader than any such simple generalization, however, and extends into the expectations about devaluation effects under given circumstances. Devaluation of a currency is one of those subjects which, in any historical experience, exhibit such an inextricable intertwining of cause and effect that more insight can be gained into relationships

\* Dr. Hogan, not a member of the Society, is vice-president, Planning and Research, at the Nationwide Life Insurance Company, Columbus, Ohio.

from theory than practice. I will, accordingly, discuss both theory and practice of devaluation.

*The Problem Setting: The International Monetary System*

The monetary relations among non-Communist countries are governed by a system adopted in 1944 at Bretton Woods, New Hampshire, and called the "Bretton Woods System." In historical perspective it is clear that the architects of Bretton Woods were bent on having their cake and eating it. They were mindful both of the apparent stability of trade relations under the gold standard, especially during the 1879–1914 period, and of the severe dislocations that beset the interwar years, 1919–39, when the gold standard "rules of the game" broke down. The fixed peg of the gold standard would, in the Bretton Woods System, be replaced by a flexible peg relating currencies to gold. External reserves would consist of gold and reserve currencies. It was hoped that a course could be steered between the external stability–internal instability characteristic of the gold standard, with its deflationary bias, and the internal stability–external instability threat posed by the absence of a gold standard. Above all else the system was designed to check frequent devaluation of currencies as experienced in the chaotic years from 1931–39. Under the Bretton Woods System a deficit country, instead of resorting to devaluation to decrease imports and increase exports, would borrow foreign exchange to "balance" its external accounts from the International Monetary Fund, meanwhile obtaining time to apply other remedies. If it became necessary, under stress of a fundamental disequilibrium in its economic relations with the rest of the world, the country could depreciate its exchange 10 per cent per year in a controlled move to restore equilibrium.

Fundamental to the Bretton Woods System were a number of assumptions, many of which have become increasingly questionable as the post-war years have lengthened. The ability to make recourse to controlled exchange depreciation was assumed to extend to all member countries in the system. But a key currency country—the United States of America—emerged that was the keystone of the system, and the dollar could not be depreciated without endangering the whole system. Moreover, as price levels have developed downward inflexibilities and full-employment programs have become official policies in most countries, the longer-term remedies—price deflation and growth repression—have ceased to perform their former roles. There was an implicit assumption that the member countries of the system would co-ordinate fiscal and monetary policies to assist deficit countries, that every country would try to keep the system going rather than win at its expense *à la le grandeur de la France*.

In successive Novembers during the last two years the pound sterling, which shared with the dollar a key currency role, came under attack on the foreign exchanges, finally succumbing on November 17, 1967. A devaluation of 14 per cent followed. More recently, on March 15, the dollar came under attack on the London and lesser Continental gold markets and is at present supported by a shaky coalition of seven countries that maintain a two-tier gold price system. This makeshift is at best expected only to gain time for a durable solution to the deficiencies of the Bretton Woods System to be framed. It has remained only for the United States Congress, in a demonstration of singularly inept and witless economic policy obstruction, needlessly to aggravate a serious international problem.

Eventual resolution along constructive lines of the current anxious state of world monetary relations, while uncertain as to time and method, has a high probability. The option that concerns us here today—devaluation of the dollar—is not a highly probable prospect, although an outside chance exists if the prevailing system is forced to its death throes by fratricidal nationalistic economic policies.

#### *Theory behind Devaluation*

Devaluation is not a recently developed policy action. Einzig traces the practice to biblical times and attributes to Solon of Athens (594 B.C.) "a deliberate devaluation of the coinage as a matter of policy by a government not inspired by motives of immediate financial gain. . . ."<sup>1</sup> If deliberate policy actions by government not motivated by motives of immediate financial gain can be presumed to rest on theory, then devaluation theory goes back twenty-five centuries. The rationale for devaluation has, in any case, ranged over a bewildering variety of variables and their interrelationships. Einzig identifies ten distinct theories of foreign exchange that originated with scribblers of the sixteenth to eighteenth centuries and refers to a considerably larger number originated, amalgamated, or synthesized in the last century and a half.<sup>2</sup> He concludes, nonetheless, that we are left today with an impressive list of unresolved issues in foreign exchange theory,<sup>3</sup> another way of saying that we are unsure what questions to ask and what magnitudes to study. The interest of economists in international monetary relations has, however, unerringly paralleled the occurrence of dislocations in the foreign exchanges; thus, we can be assured that intensive investigation is even now under way to remedy the deficiencies in the theory.

<sup>1</sup> Paul Einzig, *The History of Foreign Exchange* (London: Macmillan, 1962), p. 52.

<sup>2</sup> *Ibid.*, p. 139, *passim*.

<sup>3</sup> *Ibid.*, p. 266.

*State of the Theory: The Variables*

Some insight into the issues that bedevil international monetary theory can be gained from a consideration of devaluation under the simplest and best-understood system, the gold standard system.<sup>4</sup> The example is roughly applicable to the circumstance of the 1934 devaluation of the dollar. The expectation of the government that devalues its currency is that exports and domestic production will increase, and domestic producers—because they are confronted with higher prices for foreign materials and services in terms of the domestic currency—will increase their demand for domestic, as opposed to foreign, materials and services. But the qualifications to these expectations are impressive. It is assumed that foreign governments will not devalue their currencies in retaliation; that cost of production increases due to the devaluation will not cancel the export price advantage gained; that the elasticity of international demand for the now lower-priced exports of the devaluing country is high, that is,  $(dQ/Q)/(dP/P) > 1$ ; that the terms of trade (ratio of export prices to import prices) will not turn against the devaluing country; and that international confidence in the devalued currency will not be so shaken as to negate the gains in export trade. Because the qualifications limit the likelihood of its successful operation, devaluation is a policy choice of last resort adopted during, or at the end of, a runaway inflation, upon default of debt, when a massive attack on a currency occurs in the exchanges, and so forth.

The gold standard case is the simplest to analyze, because the equilibrium to which the exchange rate tends is the ratio of the gold content of each country's currency to every other currency, plus or minus the gold points.<sup>5</sup> Under a paper (nonmetallic) standard the equilibrium is not so definite. According to the two main theories the equilibrium is determined either by the relative price levels (domestic) among countries (the parity theory) or by the demand for and supply of a country's foreign exchange in the world market (the balance-of-payments theory). In brief, the parity theory centers attention upon the overvaluation or undervaluation of a currency. A currency is overvalued if its external value (price in terms of foreign exchange) is kept higher than its internal value (domestic purchasing power). The usual cause of currency overvaluation is either price

<sup>4</sup> A gold standard exists when a country is committed to buying and selling gold at a fixed price in unlimited amounts, when the purchasing power of a unit of the currency is kept equal to the purchasing power of a given weight of gold, and when the external value of the currency is fixed through the medium of gold.

<sup>5</sup> These upper and lower limits of fluctuation are determined by the cost of importing and exporting gold.

inflation (in a fixed-peg system) or foreign-exchange manipulation by the government. An overvalued currency tends to produce an export deficit in a country's balance of payments. The parity theory holds that the external equilibrium value of country A's currency,  $V_a$ , varies in relation to the external value of some trading partner country B's currency,  $V_b$ , in direct ratio to the purchasing power (domestic) of the two currencies as expressed by appropriate indexes, that is,  $V_a/V_b = P_a/P_b$ .

Because the parity theory centers attention upon price levels, a variable subject to manipulations and tradeoffs against other economic variables, and because it fails to cope with such important factors as capital movements and reciprocal demand elasticities, it has declined in favor among economists. The balance-of-payments theory (and some eclectic and esoteric theories not discussed here) has largely filled the gap. This approach to external currency values focuses attention upon the relative income levels of trading countries and the export (import) repercussions that may result from surplus (deficit) net balance-of-payments positions—all quite apart from any price considerations. An important relationship in the balance-of-payments theory not previously mentioned is the income elasticity of demand for a country's exports. Demand for a country's exports,  $M$ , and national income of the buying country,  $Y$ , determine the elasticity relation as follows:  $(dM/dY)/(M/Y)$ ; a high ( $> 1$ ) income elasticity of demand means that small changes in the money national income of a country will result in relatively large changes in the country's demand for exports of another country. This factor alone, independent of price moves, is held by the balance-of-payments theory to affect the exchange rate of a currency through the supply-and-demand forces operating on the foreign exchange markets.

Not only flows of goods and services but also flows of capital influence a country's exchange rate according to this theory. Export surpluses (net credit positions in the balance of payments) raise the external value of a country's currency while export deficits tend to decrease it. The mechanism through which this tendency operates is the supply of a country's currency in the foreign exchange markets relative to the demand for it as a medium with which to pay debts to the country. A series of annual surpluses, each requiring currency to be remitted by deficit countries to the surplus country, would tend to make the surplus country's currency scarce and raise its price (exchange rate). Thus, net export surpluses tend to raise a country's exchange rate and net deficits to decrease it. Repeated deficits invite speculative attacks on a country's currency in the exchanges.

By reference to an amalgam formed from the parity, balance of pay-

ments, and other theories, it is possible (barely) to fashion some expectations about the effects of a once-and-for-all devaluation by a given country assuming no retaliation by other countries, a favorable set of export and income elasticities of demand, no subsequent impairment of the terms of trade, and a relatively low ratio of the country's export volume to the world total. Exports will increase with few offsetting disadvantages, internal or external, with reference to the devaluing country. But the assumptions are a tall order. Appendix I gives a technical discussion of the requirements for a beneficial devaluation.

#### *Lessons of Recent Devaluations*

Other members of the panel will concern themselves with the life insurance company impact of devaluation. My comments here summarize information received from fifteen companies that might have been expected to experience devaluation in the geographic area of their operations. The questions put to the companies were the same as those appearing in today's program, especially the effect of devaluation upon the life insurance business and pension funds in the devaluing country and the specific consequences of devaluations in the Caribbean or Great Britain. A summary of the replies relevant to the discussion (two of fifteen were not usable) follows.

With regard to the implications for the average United States or Canadian company weighing the effects of a devaluation on their operations: (1) the direct problems are related to the movement of funds out of a country that has devalued and to the valuation of assets for statement purposes where the assets are held in a devalued currency; (2) insurance sales may or may not be affected by the experience of devaluation—in the majority of company experiences sales remained unchanged or increased; (3) no significant savings in costs of operation occurred for any company in the near-term period following devaluation, and in some cases cost increases were expected due to higher prices of imports; and, (4) if a company operating in a country that devalues continues to cycle funds, re-investing within the country, astonishingly little effect is observed on balance sheet values.

The interpretation of these replies should be undertaken with care. Devaluation effects are in all cases intertwined with other effects to a degree that defies separation. Moreover, one can imagine predevaluation circumstances so chaotic—such as runaway inflation—that devaluation would come as a relief.

*Concluding Remarks*

I have tried to gauge how this audience would receive a summary of economic knowledge on the subject of devaluation. In your place I believe I would be disturbed. While the theoretical issues might appeal to the actuary, who has been conditioned from birth to appreciate the abstract, he must grapple with substantive questions that I say are beyond the tools of economics in its present state of development. We do not know beyond reasonable doubt how the relationship of exchange movements should be related to purchasing-power parities among currencies, whether prices affect exchanges directly or through the influence of the balance of payments, or whether we are explaining chiefly day-to-day operations or basic trends in exchange rates. There exists no dynamic theory of foreign exchange that would explain the time path of exchange adjustment in comparison with a comparative static (before and after) explanation. The gaps in the theory are being slowly filled in.

For what it is worth, I believe that a breakdown of international monetary relations as we know them under the Bretton Woods System is highly improbable—because the major trading nations are in almost continuous contact and cannot allow the breakdown to occur. The penalties in terms of social and economic cost are too high. Gradually, possibly through the Special Drawing Rights to be established in the International Monetary Fund next year—the writing on the wall that the supremacy of gold will one day end—and other means to cushion disequilibrium, a better system will emerge.

Life insurance is besieged by other forces more pernicious (and more likely to be a real threat in the near term) than devaluation of the dollar. Among these are domestic liquidity crises that threaten to grow and engulf other assets, severe deflation or inflation attributable to mismanagement of economic policy, and major marketing and organizational mistakes of the industry's own making. This is not to say that we ought not consider the implications of devaluation for our business. It is rather a reminder that there are other devils whose exorcism more immediately concern us.

APPENDIX I<sup>6</sup>

A brief exposition is given here of the concepts and simple mathematics that underlie analysis of a currency devaluation. The intent is to carry a step beyond

<sup>6</sup> The Appendix is based on a widely quoted exposition by Egon Sohmen in Charles P. Kindleberger, *International Economics*, rev. ed. (Homewood, Ill.: Richard D. Irwin, 1958), Appendix D, pp. 610-12.

the body of the paper discussion of conditions necessary for a country to experience a successful devaluation. To facilitate the exposition, devaluation will be discussed under simplifying assumptions: trade is assumed to consist entirely of goods and services considered as a homogeneous unit (capital movements are excluded); restrictions on market-directed supply and demand are absent; and price relationships between currencies are the dominant influence on export and import trade.

Fundamental to any consideration of demand-and-supply influences on trade is the concept of elasticity. Demand for a product  $A$  is said to be elastic if, following a decrease in price, total receipts from the sale of the product increase ( $Q$ , quantity of  $A$  purchased, times  $P_A$ , price of  $A$ , = total receipts). An elasticity of zero indicates no change in total receipts associated with a decrease in price; elasticity of one indicates equiproportionate change in price and total receipts. Formally, elasticity,  $e$ , is expressed

$$e = \frac{dP/P}{dQ/Q} \quad \text{or} \quad \frac{PdQ}{QdP} \quad (1)$$

A value of  $e > 0$  indicates elastic demand;  $e < 0$  indicates inelastic demand. In terms of a country's foreign trade, the elasticities of foreign demand for the country's exports and domestic demand for imports determine the trade-balance effect of a change in the exchange rate (units of domestic currency paid per unit of foreign currency), given infinite elasticities of foreign and domestic supply.

Let us use the following notation:

$X$  = Physical quantity of exports

$M$  = Physical quantity of imports

$P_x, P_m$  = Foreign prices of exports and imports, respectively

$q_x, q_m$  = Domestic prices of exports and imports

$r$  = Exchange rate, expressed as units of domestic currency to be paid per unit for foreign currency

$e_x$  = Foreign elasticity of demand for exports

$e_m$  = Domestic elasticity of demand for imports

Some definitional relations and functional dependencies follow:

$$P_x = q_x/r \quad \text{and} \quad q_m = P_m \cdot r ;$$

$$X = X(P_x) = X(q_x/r) ;$$

$$M = M(q_m) = M(P_m \cdot r) .$$

Total revenue from exports (in terms of foreign currency) will be  $X(q_x/r) \cdot q_x/r$ , and total expenditure on imports (in terms of foreign currency) is  $M(P_m \cdot r) \cdot P_m$ . The balance of trade,  $B$ , export receipts less import receipts, in terms of foreign currency, is

$$B = X(q_x/r) \cdot q_x/r - M(P_m \cdot r) \cdot P_m . \quad (2)$$

Under the assumption of infinite supply elasticities the domestic prices of each country's exports (expressed in its own currency) are constants, and the balance of trade,  $B$ , becomes a function of the exchange rate alone. The effect of a change in the exchange rate can then be found by differentiating  $B(r)$  with respect to  $r$ :

$$dB/dr = dX/d\left(\frac{q_x}{r}\right) \cdot \{-q_x/r^2\} q_x/r + X \cdot \{-q_x/r^2\} - dM/d(P_m \cdot r) \cdot P_m^2 \tag{3}$$

or

$$dB/dr = X \cdot q_x/r^2 \left\{ dX/d\left(\frac{q_x}{r}\right) \left[ \frac{-q_x/r}{X} \right] - 1 \right\} + M \cdot P_m/r \{-dM/d(P_m \cdot r) P_m \cdot r/M\} . \tag{4}$$

The foreign demand elasticity for exports,  $e_x$ , is recognized in the first bracket, the domestic elasticity of import demand in the second bracket. By the minus sign the elasticity expressions are made positive quantities. Taking the absolute value of the elasticities, we obtain the expression

$$dB/dr = Xq_x/r^2\{|e_x| - 1\} + M \cdot P_m/r|e_m| . \tag{5}$$

A devaluation of the country's exchange rate,  $r$ , would take the form of an increase in  $r$ . For a successful devaluation  $dB/dr > 0$ . Manipulation of equation (5) gives

$$X \cdot \frac{q_x/r}{M \cdot P_m} |e_x| + |e_m| > 1 , \tag{6}$$

where the numerator is the value of exports and the denominator the value of imports, both expressed in terms of foreign currency. For the exchange rate decrease to be successful, that is, for the value of exports to exceed imports, the sum of the demand elasticities must exceed one. This is known as the Marshall-Lerner condition for a successful devaluation.

The assumption of infinite elasticities of supply can be removed to produce the general condition for a successful devaluation,

$$X \frac{q_x/r}{M \cdot P_m} \frac{|e_x|(1 + \eta_x)}{|e_x| + \eta_x} - \frac{\eta_m(1 - |e_m|)}{\eta_m + e_m} > 0 , \tag{7}$$

where  $\eta_x$  and  $\eta_m$  are the elasticities of supply for exports and imports, respectively.

MR. DAVID R. JOHNSTON: My discussion will be primarily concerned with the effects on the life insurance business in the United Kingdom of the 1967 devaluation of sterling. Later I will have a few comments on the extent that Canadian companies have been affected by this devaluation.

In looking at the United Kingdom situation, one should keep in mind

the factors leading up to devaluation in that country. Dr. Hogan has outlined the basic principles of devaluation and the mechanics of the 1967 devaluation of sterling. This devaluation was an obvious step in easing conditions that had been arising for some time. In the last ten years British export prices rose 19 per cent—a higher figure than that of any other leading industrial country—yet labor costs per unit of industrial output rose 31 per cent. Thus Britain's share of world trade has diminished year by year because exports have become both *unprofitable* and *uncompetitive*.

The 14.3 per cent devaluation, from the United States dollar equivalent of \$2.80 to \$2.40, was a delicate choice between, on the one hand, the need to have a sizable devaluation in order to stimulate trade sufficiently and, on the other hand, the desire to avoid forcing other major currencies to devalue with the pound. It still remains to be seen whether the 1967 devaluation will be adequate. Should another devaluation be necessary, the results may be much more far-reaching.

The success of the devaluation has been predicted by economic forecasts which translate the size of the devaluation into, first of all, decreases in export prices and increases in import prices and then, by analysis of "elasticity" of demand, further translate these into increases in export volume and decreases in import volume. It has been predicted that the 14.3 per cent devaluation will lead to a satisfactory balance-of-payment position and that therefore faith in the pound will be restored.

However, to live up to the predictions, Britain will have to pay particular attention to any increases in export prices, and foremost among the problems here is that of wage increases. Britain has introduced a policy of limiting wage increases to  $3\frac{1}{2}$  per cent in all the main forms of incomes. Productivity agreements may allow for somewhat higher increases. There is a unique National Board of Prices and Incomes which tries to enforce this policy. The board will have a difficult time keeping average wage increases anywhere near  $3\frac{1}{2}$  per cent, especially since the actual bill recently introduced did not have as many teeth in it as was expected. Even before this, the magazine *The Economist* said, "It will be a miracle if the total rise can be held to 6%."

In addition to wage ceilings, the recent budget has imposed heavy new taxes, mainly of the indirect variety. This budget is actually aimed at producing a drop in the standard of living. The indirect approach to taxes should discourage spending, particularly on imports, and encourage savings, but knowledgeable people are guessing that demand for goods will actually remain high, so that the savings "dollar"—and in Great Britain insurance is mainly thought of as savings—may be what is squeezed.

With this background, it is easier to consider the effects on the life insurance business in the United Kingdom.

1. As we have noted, devaluation leads to rises in the cost of doing business, and the insurance business is no exception, although at least our basic ingredient is not a raw material. The rise in expenses may be delayed somewhat until the full impact of devaluation finds its way into salaries, rents, materials, and the like, but it will come very surely. This rise in expenses will decrease the value of future premiums to be collected. However, the insurance business in Great Britain is in a fortunate position in that the very great majority of policies have been written on a participating basis. Thus the dividend scale should be able to absorb the increased expenses without much effect on the surplus of the company.

2. A large share of the investment of United Kingdom life insurance companies is in equities. Very approximately, about 25 per cent of total investments are in common stocks. To the extent that these equity investments gain in value due to devaluation, and the indications are that they will, they will tend to provide extra surplus which can be used to offset the rise in expenses. In fact, a case can be made for the possibility of this effect's being greater than the opposite effect of expenses, since the value of the investment in common stocks is much larger in the normal United Kingdom case than the value of the expense element in future premiums.

3. The wage controls which have been imposed, combined with the heavy new taxes and the inevitable rise in the cost of living, will tend to put a squeeze on the consumer "dollar," so that one might expect that, to the extent that the demand for insurance is elastic, new sales of insurance will suffer. Furthermore, there may be, for a time at least, a less favorable climate of public opinion for life insurance as an investment. The public may not understand the long-term consequences of devaluation, but they do understand that policies are now being settled at maturity in pounds having a lower purchasing value.

Nonetheless, the meager results that can be obtained so far indicate that the demand for insurance is not very elastic. I have at hand the experience of only two United Kingdom companies, comparing the new issues for the first three months of 1968 to the first three months of 1967. About the only conclusion that can be drawn is that there has been no significant change in the amount of new sales.

I also studied the new United Kingdom issues of half a dozen Canadian companies. During the first three months of this year their new sales in the United Kingdom, expressed in pounds sterling amounts of insurance, have increased 16 per cent over the corresponding period in 1967. I

analyzed my own company's experience in rather more detail. In addition to an increase in sales, there was no evidence of any significant changes in plan distribution—for example, away from endowments toward term.

There are, of course, several possible reasons for the increase, not the least of which might be the paucity of the data. It may be that much of the increase is accounted for by people who wished to buy insurance before the budget was announced this spring, for fear that it would include new insurance taxes. Also, I think some companies have taken advantage of the general situation and have begun to market equity-linked contracts, which in the current climate seem to have considerable attraction. Further, the full force of the squeeze has not yet been felt.

Finally, on the same point of the effect on new business, I asked our United Kingdom Superintendent of Agencies for comments. He wrote as follows:

The effects of devaluation on the life insurance business in the country have been remarkably few. Life insurance is still being sold in ever increasing amounts and this is being borne out by our own Company's results. In March we wrote more business in Sterling than we did in any previous March. The larger cases are more difficult to get, business insurances are harder to close because business executives are troubled by devaluation and the general state of the economy. But the ordinary bread and butter business is there to be written and although the man in the street is bothered by increasing costs, nevertheless he had enough money to go on a spending spree immediately prior to the budget.

4. The basic economic conditions which led to the devaluation also led to the budget presented this spring, with its very heavy tax burden. However, the budget contained no harsh words for legitimate life insurance operations. The main points of attack were the tax abuses which were springing up—such as the use of several policies to split one's estate into separate small estates, each with low tax rates, and the use of investment policies solely to attract income tax relief for premiums.

5. As far as the overseas business of a United Kingdom company is concerned, devaluation offers no opportunity for an increase in the true volume of such business by price-cutting as it would for, say, motor manufacturers. There is, however, some room for advantage to the extent that home-office expenses are involved in premium rates and, in turn, to the extent that these expenses decrease in terms of the currency in which the United Kingdom company is operating.

6. As a final comment on the United Kingdom life insurance business, there are a number of possible effects of devaluation on the existing economic climate that did not, in fact, cause much concern. In some types

of insurance (aviation, marine, etc.) technical problems are introduced, but, since life insurance is expressed entirely in terms of a given currency, these problems have not risen. The new and increased taxes are not affecting life companies in any significantly new way. The record-breaking bank interest rate does not seem to have caused much concern to investment managers.

In summary then, I feel that the United Kingdom insurance industry will feel remarkably little impact from devaluation and its related effects. Expenses will rise, but, in the United Kingdom setting, will not be a major problem. The sale of insurance in the domestic market seems to be relatively unaffected, and no major tax problems have been introduced.

A brief mention of the situation in the Caribbean area might be worthwhile. Since these islands are very dependent on imports, the effects of devaluation seem to have been more immediate than they were in the United Kingdom. Our company has had to make adjustments in staff salaries in our Caribbean branches to keep up with the cost of living. Any figures that I was able to obtain showing the amount of new business being written in these areas are sparse enough to be taken with a grain of salt, but it is interesting to note that new amounts of insurance for this year when compared to last year have shown some staggering increases. The figures I obtained were for Jamaica and Trinidad, and for these two islands increases of the order of 40 per cent were not uncommon. What this might indicate as an example for the United Kingdom market over the next several months is a moot point.

I would like to conclude by making a few comments on the effect of the 1967 devaluation on the Canadian companies which operate in areas where devaluation occurred. These comments will be primarily from the statistical point of view. I surveyed eight Canadian companies which do almost all the overseas business of all Canadian companies. Not all these have devalued their book rates of exchange as yet—for those that have not, I have taken educated guesses as to what they will do.

First of all, let us look at the effects on the balance sheet. These eight companies had over \$800 million in assets held in currencies which were devalued. Therefore, there has been an immediate drop in assets totaling about \$140 million. Expressed as a percentage of total assets in all currencies of these companies, this amounts to a decrease of less than 2 per cent.

Of the eight companies, five obviously have followed a practice of balancing their sterling assets (plus sterling-related assets) with the corresponding liabilities. (Mention of "sterling-related" assets brings up

a particular problem in the devaluation area. The trick here is to guess which currencies will devalue together. For example, we had thought Bahamian dollars were “sterling-related” and therefore had most of our Bahamian dollar liabilities covered by sterling assets. When the Bahamian dollar did not devalue, we took a distinct loss.) For these five, even though assets decreased by \$50 million, liabilities decreased by almost the same amount, so that the change in surplus amounted to only one-third of \$1 million. Expressed as a percentage of total surplus for these companies, this amounts to a change of only one-tenth of 1 per cent.

The other three companies had rather larger changes in surplus. For a \$90 million decrease in assets, there was a change in surplus of approximately \$5½ million, representing a 2 per cent change in total surplus for these companies.

As far as the policy exhibit is concerned, the eight companies showed a decrease in insurance in force of \$700 million, representing again a 2 per cent decrease in total in force.

In summary, then, the Canadian companies with overseas business suffered minor losses of about 2 per cent in each of their assets, liabilities, and sums insured. While most companies had almost insignificant changes in surplus, a few had somewhat larger changes in surplus, still amounting to less than 2 per cent. It is interesting to note that those with the small changes in surplus all took slight losses, that is, they had slightly over-invested in sterling, plus sterling-related currencies. On the other hand, those with a *noticeable* change in surplus made a profit. I believe this was a case of reaping the benefits of history rather than any sudden change in investment practices in anticipation of devaluation. In general, the Canadian companies have felt that they are not in business to speculate in currency.

MR. EDWARD RUSE: During the next fifteen minutes or so, I would like to philosophize with you about how one North American company—my own—anticipated the sterling devaluations of 1949 and 1967 and also about the steps we have taken—or are proposing to take—to minimize, as it were, the unfavorable effects of the 1967 devaluation upon the future level of dividends to our British policyholders.

In order that you may more easily follow and evaluate my points and later, if you care to, to support or criticize them, I would also like to outline very briefly something about my company's size and the size of its British operation.

*Brief Outline of Confederation Life*

Confederation Life was founded in Toronto, Canada, in 1871—three years short of a century ago. Thirty-five years later, in 1906, we opened our first branch office in Great Britain. At that time, as you know, the pound was the world's leading currency and had enjoyed a long history of relative stability.

However, during and for a short time after World War I and during the year 1932, sterling came under considerable pressure. It was not until World War II and the year 1940 (I believe) that the pound was officially devalued for the first time in modern history. In terms of United States dollars, it was cut from \$4.862 to \$4.035. The next devaluation came nine years later, in 1949; this time the cut was from \$4.035 to \$2.80. As we all know, the latest one, last November, took it down from \$2.80 to \$2.40. In the space of about a quarter of a century, 1940–68, sterling, in terms of United States dollars, lost a shade more than half its value.

And, who knows? The way things are going, the British may have to devalue again in the not-too-distant future unless, perchance, the United States dollar gets there first; something which to most, if not all of us here, is too monstrous to even contemplate.

And yet a United States economist, Paul A. Samuelson, was quoted the other day as regarding the current United States balance-of-payments deficit as "quite incurable at existing foreign exchange rates" and suggested that what is needed is a depreciation of 10–15 per cent in the United States dollar in terms of the German mark and other surplus-country currencies.

I interpolate these comments because, in our forward planning, it is not what will or may happen to one specific major currency in which we do business but rather what will or may happen to relative values, one with another, of *all* the major currencies in which a life company is doing business. However, back to the profile of my company. Today the vast bulk of our business in force is payable in United States dollars, in Canadian dollars, or in pounds sterling. In 1967, with our pre-devaluation book rates at \$1 United States equal to \$1 Canadian and £1 sterling equal to \$3 Canadian, our world-wide amounts in force, premium income, investment income and liabilities, exclusive of surplus, were around \$5 billion, \$122 million, \$40 million, and \$650 million, respectively. The corresponding figures for our United Kingdom operation were around \$412 million, \$15 million, \$5 million, and \$75 million. At our post-devaluation book rate of exchange of \$2.64, these United Kingdom figures came down 12 per cent.

Thus, though not large in terms of a typical United States or Canadian company, our British operation is perhaps of sufficient magnitude to serve as a practical basis for discussing sterling devaluation.

### *Anticipated Sterling Devaluation*

Now a word about how we anticipated sterling devaluation.

Ever since World War II we have been aware of the latent threat of sterling devaluation. There were too many ominous straws in the economic wind to feel otherwise—the staggering burden of World War II debt, the escalating costs of national welfare, higher taxes, exchange controls, and trade deficits, to name a few.

Accordingly, we maintained a deliberate policy of keeping our sterling investments approximately equal to our sterling liabilities, excluding surplus. However, as a good corporate citizen of Great Britain, we did not feel we should pursue a deliberate policy of major underinvestment.

Thus when sterling was devalued approximately 30 per cent in 1949 our overinvestment in sterling was quite small and our 1949 world-wide statement surplus, in terms of Canadian dollars, was reduced by only 1.7 per cent.

The 1967 devaluation found our sterling overinvestment even smaller than it was in 1949, and our 1967 statement surplus was reduced by less than one-quarter of 1 per cent.

I suppose some of you might wonder, on hindsight, whether we carried our policy of being a good corporate citizen a little too far. You might ask, “If you were so sure the future relationship between sterling and dollars would always favor the dollar, wouldn’t you have been a better corporate citizen, as it were, to your United Kingdom policyholders if you had been underinvested in sterling?”

That may well be so, but nevertheless I do not personally believe management can afford to gamble in any large way on future currency devaluations or revaluations of sterling or any other major currency. No one can be that sure—absolutely sure—of the future relationships between one currency and another. The right guess may bring a pat on the back; a wrong guess could bring disaster.

### *Surplus Invested Mainly in Dollars*

On the other hand, some intelligent currency hedging (I will not call this “gambling”) may well be a quality of sound forward planning when it comes to the investment of statement surplus. Some might argue, I think, that statement surplus should be invested in various currencies in proportion to the reserve liabilities in those currencies. Others might argue

that statement surplus should be invested in whatever currency or currencies management believes are less likely to be devalued. Actually, our position is somewhat between the two.

At the end of 1967, approximately 70 per cent of our world-wide liabilities, excluding surplus, was for Canadian dollar policies, leaving 30 per cent for policies paying in United States dollars, sterling, and a number of miscellaneous currencies. And, interestingly, 70 per cent of our 1967 statement surplus was also invested in Canadian dollars with the balance of 30 per cent invested in United States dollars.

So much for the various considerations underlying the planned investment of a company's reserve liabilities and of its statement surplus in one or more *major* currencies. Now I would like to spend the next few minutes philosophizing on how the possible favorable consequences of inflation and certain organizational steps we have taken, or propose to take, may minimize the unfavorable consequences of devaluation and inflation on our United Kingdom profitability.

1. It *may* increase the sale of lower-premium permanent plans of insurance for estate purposes, as well as the sale of our equity-based endowments.
2. It *may* increase the average premium per policy which, combined with an increase in the number of sales, should help to minimize increases in unit expense rates.
3. It *may* increase bond yields, *at least on the short-haul*, due, in part, to reduced confidence in the pound as a permanent storehouse of relative monetary value.
4. It *may* increase the price of common stock and, in turn, the prospects of future capital appreciation and growth rates which, together with a possible short-term increase in bond yields, may also help offset to some extent the increase in higher unit costs.
5. It *will* gradually increase direct administrative expenses—mainly British salaries, rents, printing, communications, travel, welfare benefits, office equipment and supplies, and so forth—but *they should not rise*, other things being equal, by anything like 16½ per cent; perhaps 10 per cent over the long haul, perhaps even less.
6. It *will* immediately increase by 16½ per cent the British share of head-office dollar expenses unless we can transfer certain head-office functions to the British Office in such a manner that the sterling equivalent of the reduction in home-office dollar expenses is significantly greater than the additional sterling expenses incurred by the British operation for the added functions.

For many years now, our British management team has been responsible for its own underwriting of new business and of claims, for its own investments, for its own marketing plans, for the size and composition and compensation of its own field and office staffs, for many policyholder

services, and so on. Hence, while allocated head-office expenses represented almost 45 per cent of total administrative expenses for our operations outside of Britain, the corresponding percentage for our United Kingdom operation has been only about 30 per cent. Our British management team is now in the process of educating, training, and reorganizing its staff to take over a number of other major head-office functions; notably the complicated business of policy changes from start to finish, the drafting and printing of policy forms, equity and financial studies leading to annual dividend recommendations, the responsibility for producing and up-dating the entire British ratebook, and so on.

The successful outcome of this reorganization of functions presents a real challenge. The head-office operation must, of necessity, arrange a true reduction in staff. Likewise, the British operation must, of necessity, take on no more additional staff than has been released at head office. And the two reorganizations together must result in a reduction in head-office expenses greater than the increase in British expenses. With British salary levels being from 10 to 20 per cent lower than those in Canada for comparable clerical positions, both at competitive levels, we believe that the probability of a successful outcome is high.

MR. G. ASHLEY COOPER: I have a few comments on the field of international pensions to round out the discussion.

I would like to draw a distinction between what I think of as the direct or primary effects of a devaluation of one currency and the secondary effects that the other speakers have covered in a fair amount of detail.

A conventional type of pension fund that is operating in one country and entirely in one currency has no direct increase or decrease in its position because of devaluation of any currency. The indirect influences are the things that have been covered, particularly by Dr. Hogan, such as changes in levels of prices and wages, stock market performances, tax structure, and the balance of payments and its influence on the economic picture. I thought it might be interesting to look at some of the direct effects of devaluation which have appeared in the pension field. These have not appeared in the life insurance field because of the efforts to balance assets and liabilities in a given currency. This does not always happen in individual pension plans.

The United Fruit Company pension plan is an example of a multi-national plan which crosses national borders. Many Central Americans are covered under this United States dollar plan, and, if one of the national currencies is devalued, the plan has a drop in its liabilities with no corresponding drop in its assets.

The holding of assets and liabilities in different countries and different currencies is fairly common in the so-called undeveloped countries. Pension funds in Nigeria or East Africa, for example, are held in United Kingdom sterling.

A different effect results where payments are received from another country to a fund or a contract to provide benefits, for example, in United States dollars for the senior personnel in a foreign country. Where the local currency is devalued, the local subsidiary has a higher cost to pay for the existing contract.

Similarly, a United States expatriate, whose benefits under social security or his company pension plan are expressed in United States dollars, might retire to Spain. Devaluation of the Spanish peseta will have a direct effect on his pension benefits.

Before retirement, such people might experience a windfall, when their salary is expressed in United States dollars and they are residents of a country which devalued its currency.

In many cases, a pension plan crossing national borders has no assets at all. The easiest way to disentangle what has happened here, on devaluation, is to pretend that the company has funded the plan in its own assets.

Devaluation has caused both gains and losses to pension funds. In many instances the employer has gained or lost either because the amount he has to pay into the fund has changed or because he pays benefits directly to a pensioner. It is possible for the fund to have a gain or loss which is borne not by the employer but by an insurance company. It is also possible that the retired employee suffers the gain or loss, as in the case of the expatriate who retired in Spain. In a contributory plan the employee may be affected by the change in the values of currency.

Despite these few instances, because most funds are self-contained in one currency and one country, although devaluation has been dramatic, its effects have been really quite small.

MR. LLOYD J. BROWN: Would Dr. Hogan please comment on the fact that Cuba maintains parity with the United States dollar in its use of the International Monetary Fund but the Cuban peso is worth very little outside Cuba? This concerned us, because some of our Cuban policyholders, having come to the United States, wanted to surrender their policies and receive payment in United States dollars, one for one. All amounts payable under the policies were payable in Havana in pesos, and we were willing to pay them there in pesos, but this would not do the

policyholders any good. How do they maintain this parity of one to one with United States dollars as far as the monetary funds are concerned?

DR. HOGAN: Cuba is the only country outside what we refer to as the Free World that maintains that kind of affiliation, to my knowledge. Poland, Hungary, and Czechoslovakia once did but have since been ridden out. Cuba's ploy here is just a matter of being independent for foreign trade purposes, but, as most totalitarian countries do, Cuba maintains extreme exchange control and it would not be possible for someone to import, for example, luxury cars.

CHAIRMAN HARRIS SCHERMANN: It seems to me that the things that cross one's mind in thinking about devaluation are almost indistinguishable from the things that cross one's mind in thinking about inflation, whatever the cause. Is it possible for a devaluation which attains its theoretical objectives not to be accompanied by inflation? If there is no resultant inflation, is the devaluation more successful?

DR. HOGAN: There is no necessary connection between devaluation itself and subsequent inflation. However, characteristically, the country that devalues would be a country that is vigorously involved in export-import trade and has probably been forced to this recourse as a consequence of deficits and attacks upon its currency. If it devalues, it will have a higher cost situation as a consequence of imported materials and services being more expensive.

A historical devaluation that did not achieve what was intended was the 40 per cent devaluation of the dollar in 1934. There was a confident expectation that what was referred to as a "reflation" would occur. There are few exercises in statecraft where more bungling went on than in that particular devaluation. The academic reputation of Professor Warren, an agricultural economist at Cornell, plummeted when, after the devaluation, *Liberty Magazine* and *Collier's* still cost five cents and home calls by physicians were still two dollars. That is the best example I know where everything that was expected as a consequence of the devaluation failed to take place.

CHAIRMAN SCHERMANN: I would like to refer to J. Ross Gray's contribution to "The Actuary" in February, in which he presented certain statistics relating to the effect on Canadian companies doing business in devalued areas of the recent devaluation. While the companies do not seem to have taken great care to balance their assets and liabilities in every individual currency in which they do business, more particularly

the minor ones, they have certainly taken great care in the aggregate regarding all these minor currencies.

MR. JOHNSTON: We try, as a rule, to cover liabilities in the Caribbean with assets in each currency there. However, there simply are not enough good investments, and there are various other legal restrictions. By and large, we try to hold sterling assets to cover these currencies which we feel are related to sterling, and it is quite a good guessing game to try to figure out just which currency is related to another.

DR. HOGAN: Devaluation is almost always a bad weather recourse. It is not undertaken calmly and deliberately but normally in the throes of economic disruption.

We know less about devaluation than we should to feel comfortable about it. Every ingenious device that we can use of hedging and controlling growth of insurance accounts will be needed. The devaluation of the dollar in today's circumstances is a move of unprecedented importance. In 1934 the dollar was not, in the way it is now, the keystone of the whole international monetary system.

I was interested in Mr. Ruse's reference to Paul Samuelson. I feel that there are other ways in which to deal with the matter of what is in all likelihood an undervalued mark, that is, to raise it vis-à-vis the dollar. It is difficult to interpret some of the strains on the French economy and the position of the franc on the world exchanges for the past year without coming to the conclusion that the franc may be overvalued. If we consider changing the dollar, we are considering changes in a standard almost like some physical measure, such as a yard.

The insurance companies have an enormous amount at stake because of their large assets in relation to other kinds of financial intermediaries and the particular ways in which reserve liabilities are funded.

I want to make it clear in my remarks that I think devaluation is a very improbable expedient at this stage. Once we find ourselves without the burden on the United States balance of payments of nearly \$2 billion magnitude from Vietnam alone, the very substantial technological advantages of the United States, including the spillovers from the defense program, will assert themselves.

Bear in mind that, in referring to the remarks about the dollar being overvalued by 10-15 per cent, more than goods and services are involved in the over-all balance. Capital transfers are also involved and are subject to manipulation. We will probably adopt almost every other expedient before embarking on a course of altering the world monetary measure, the dollar.