

ANNEX IV

PCT FEES AND EXCHANGE RATE MECHANISMS

Summary

1. PCT forecasts and PCT income for the International Bureau are expressed in Swiss francs. However, applicants pay international fees in, usually, their local currency based on “equivalent amounts” set by the International Bureau and adjusted from time to time. The system of setting equivalent amounts and the fact of exchange rate fluctuations expose the International Bureau to income variances which may be positive or negative, depending on whether the Swiss franc is appreciating or depreciating relative to other currencies. Several options have been suggested for reducing the exchange rate risk, including requiring applicants to pay international fees in Swiss francs and/or directly to the International Bureau.

2. In this analysis, we attempt to quantify the exchange rate exposure based on an historical analysis of the three major currencies of payment (US dollar, euro and yen) from 1990 to 2004. We find that the present system of equivalent amounts and variations in exchange rates expose the International Bureau to fluctuations within \pm five per cent of its income in any given year, and more in exceptional years. This is the equivalent of \pm 10 million Swiss francs based on the 2004 fee schedule and number of PCT applications filed in 2004.

3. We examine alternative scenarios where the system of setting equivalent amounts is modified to be more responsive to variations in exchange rates. Instead of waiting for a five per cent variation in exchange rates and implementing new equivalent amounts three months later (which is the case with the present system) we test the scenario of adjusting the equivalent amounts after a 2.5 per cent variation and implementing the new amounts two months later.

4. Under this alternative scenario, the exchange rate exposure is reduced to within \pm 2.5 per cent, or the equivalent of 5 million Swiss francs based on the number of filings and the fee schedule of 2004.

Background

5. The PCT equivalent amounts are set according to a method that is outlined in PCT Rule 15.2 and detailed in directives established by the PCT Assembly, the current version of which can be found in Annex II of document PCT/A/32/1.

6. Essentially, the PCT regulation and the directives specify the following:

- Filing fees are converted from Swiss francs to an “equivalent amount” in the currency of each receiving office, so that applicants can pay their fees in a single, local currency to the receiving office.
- If the exchange rate between the Swiss franc and another currency varies by more than five per cent for more than 30 days, then the equivalent amounts are adjusted.

- The new equivalent amounts come into effect two months after their publication in the PCT Gazette.

7. This system means that the International Bureau is exposed for at least three months to variations in exchange rates of more than five per cent. For some time, it has been felt that this exposure has resulted in significant losses (and gains) in PCT income in any given year, but the exposure has never been quantified in any general way.

Methodology

8. In order to quantify the exchange rate exposure, we proceeded as follows.

- Monthly Swiss-franc exchange rates over 15 years in euros, Japanese yen and US dollars were downloaded from the Swiss National Bank's website. These three currencies account for 85 per cent of PCT filings in 2004.
- We simulated the system of setting equivalent amounts from this data, using the methodology prescribed in the PCT regulations and directives.
- The simulated equivalent amounts were compared with actual published PCT fees for a sample of results. It was not practical to compare all published PCT fees for a 15-year period since the data is only available in paper files. The simulation compared favorably with the actual published fees in recent years.
- The simulated equivalent amounts and the historical exchange rates were used to calculate the percentage gain/loss per application for every month of the 15-year period, in all three currencies. This was aggregated to an average yearly gain/loss per application.
- The results were analyzed using simple statistical methods to estimate the mean, standard deviation, maximum and minimum gain/loss per application.
- The per-application statistics can be converted to total Swiss francs per year or to a percentage of total income.

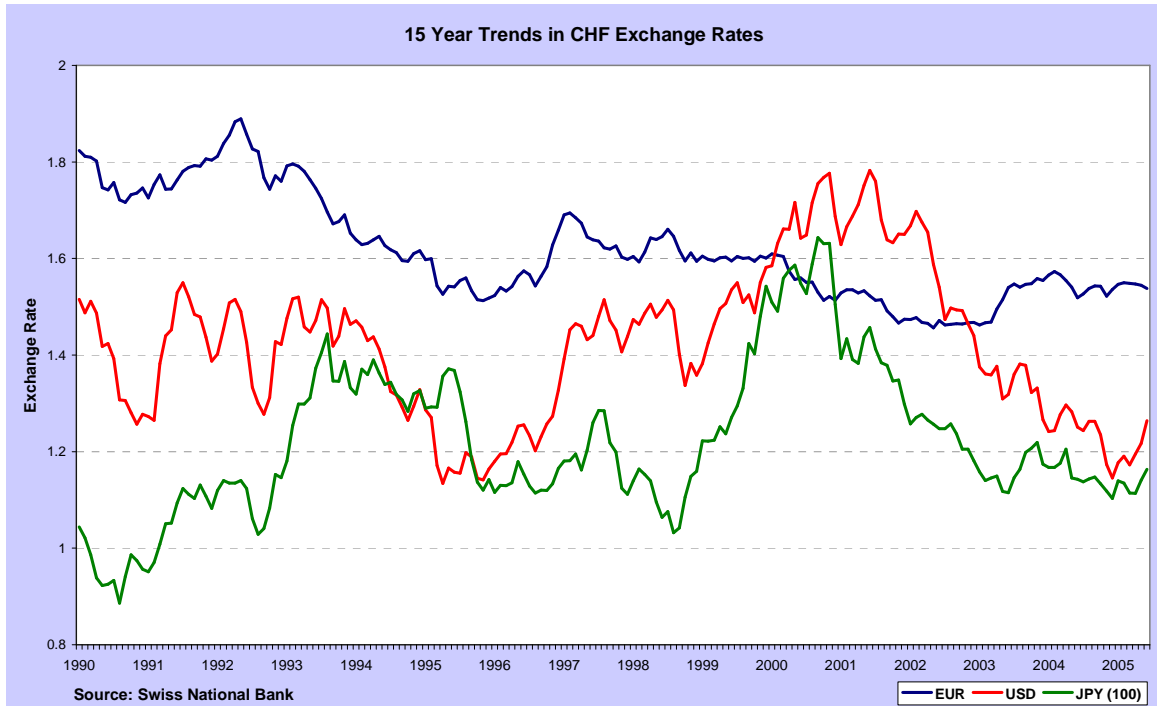
9. The same methodology was repeated for different scenarios for setting equivalent amounts. We tested reducing the threshold variation from five to 2.5 per cent and reducing the time to detect a variation and change new amounts from three months to two months.

10. Note that the number of filings and fee schedule of 2004 were used to calculate the total gain/loss in Swiss francs. This is because our objective is not to rediscover the actual amounts gained or lost since 1990, but to compare different scenarios with a common basis.

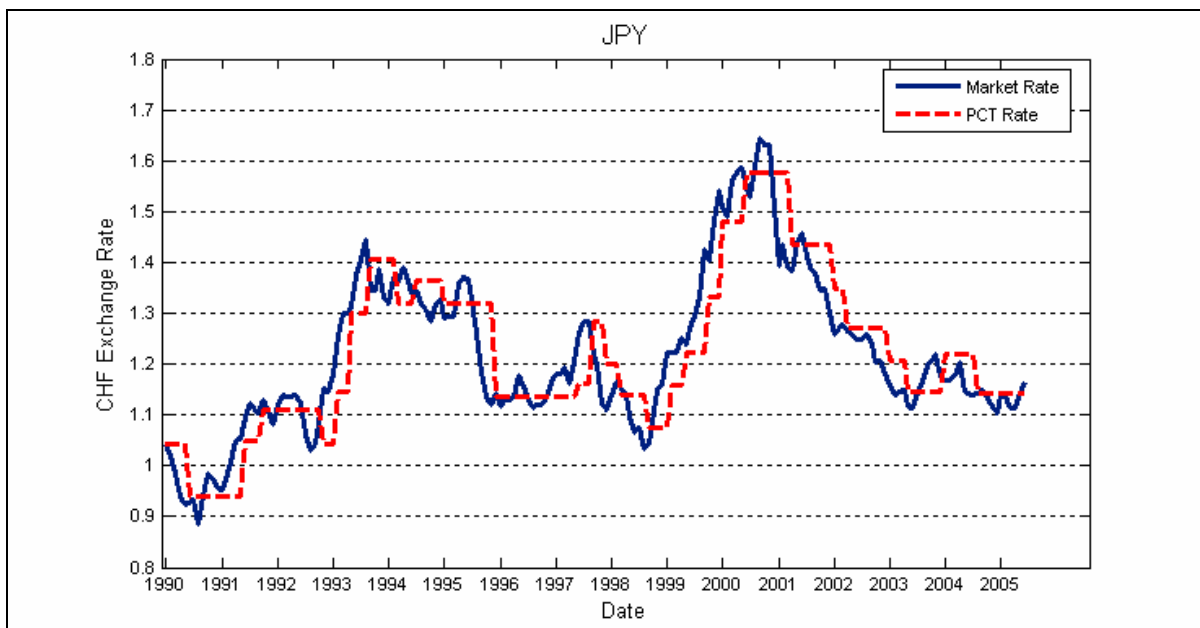
11. The methodology does not take into account further gains or losses that can be incurred from the time of filing to the final conversion of fees into Swiss francs at the International Bureau. The payment and conversion time can add another two months exposure to exchange rate variations.

Results

12. The first chart shows the 15-year trends in the three exchange rates against the Swiss franc. It can be seen that the 15-year period captures at least one complete appreciation-depreciation cycle for the yen and the dollar. The trend in the euro (and its predecessor currencies) has been a long term but relatively minor depreciation against the Swiss franc.



13. The second chart is an example of the difference between the market exchange rate and the (simulated) PCT equivalent amount rate for the yen. When a currency is appreciating against the Swiss franc, the International Bureau is gaining and when it is depreciating, the International Bureau loses.



14. The three tables show the results of running different scenarios of equivalent amounts against the three currencies. The tolerance is the amount of variation that can be observed before a PCT equivalent amount is changed. The changed can be implemented after three or two months. Minimum and maximum figures are based on 95 per cent probability. Conversions into Swiss francs are done using the fee schedule and number of PCT filings in 2004 and based on 1,611 Swiss francs per application.

Currency	Tolerance	Months	Per Application				In CHF		
			Mean	Std Dev	Min	Max	Mean	Min	Max
EUR	5.0%	3	-15.11	39.11	-98.46	68.25	-581,254	-3,788,693	2,626,185
EUR	5.0%	2	-13.87	36.01	-90.62	62.89	-533,549	-3,486,918	2,419,820
EUR	2.5%	3	-5.51	19.13	-46.28	35.27	-211,840	-1,780,636	1,356,956
EUR	2.5%	2	-4.12	15.48	-37.12	28.88	-160,564	-1,447,517	1,126,390

Currency	Tolerance	Months	Per Application				In CHF		
			Mean	Std Dev	Min	Max	Mean	Min	Max
USD	5.0%	3	-4.05	45.18	-100.35	92.26	-184,346	-4,572,572	4,203,879
USD	5.0%	2	-3.07	32.74	-72.86	66.72	-139,956	-3,320,305	3,040,394
USD	2.5%	3	-3.7	44.96	-99.53	92.13	-168,559	-4,535,169	4,198,051
USD	2.5%	2	-3.17	28.99	-64.95	58.62	-144,224	-2,959,640	2,671,192

Currency	Tolerance	Months	Per Application				In CHF		
			Mean	Std Dev	Min	Max	Mean	Min	Max
YEN	5.0%	3	1.81	60.34	-126.81	130.43	35,985	-2,517,160	2,589,130
YEN	5.0%	2	4.41	34.65	-69.44	78.27	87,583	-1,378,472	1,553,637
YEN	2.5%	3	4.25	54.8	-112.55	121.06	84,456	-2,234,041	2,402,954
YEN	2.5%	2	1.52	28.17	-58.54	61.57	30,097	-1,161,922	1,222,115

15. Several observations can be made:

- With the current system of setting equivalent amounts, the total exposure to exchange rate variations is within ± 10 million Swiss francs, or ± 5 per cent of PCT income. This figure is based on a 95 per cent probability calculation, therefore the risk may be higher in exceptional years.
- The average variation over the 15-year period is a loss in income. This appears to be because the long term trend has been an depreciation of the dollar and the euro against the Swiss franc.
- The Japanese yen is the most volatile currency of the three. As Japanese filings become a greater proportion of PCT filings, this will increase the International Bureau's exposure to the yen.
- The largest exposure in Swiss-franc terms is to the US dollar.
- Reducing the tolerance to exchange rate variations from 5 to 2.5 per cent has the greatest effect on the euro exposure.
- Reducing the response time to exchange rate variations from three months to two months has the greatest effect on the dollar and yen.
- Reducing both the tolerance and the response time results in a 50 per cent reduction in exposure to exchange rate variations.

Final Caveats

16. This analysis is based on a simplified simulation of setting PCT equivalent amounts. The purpose has not been to determine exactly how much income is gained or lost due to exchange rate variations, but to estimate the effect of changing the system of setting equivalent amounts. Several simplifying assumptions have been made, such as ignoring the time taken to receive funds and convert them to Swiss francs at the International Bureau. However, it is believed that the conclusions are valid in that a relatively simple change to the procedure of setting equivalent amounts can have a significant effect in reducing exchange rate exposure.

[Annex V follows]