CHAPTER VII

ECONOMIC CONSIDERATION FOR THREE - BLOCK CASES

In order to consider effects of Block Ringfencing concept on the return to the

concessionaire as many cases as possible, the three-block cases are investigated here.

Similar to the two-block cases, the effects of Block Ringfencing concept for various

conditions – different lag time for development, financing with loan and without loan,

different escalation, different cost of investment, and different value of K factor in

SRB calculation – will be considered.

The case of three blocks with one field in each block.

Cases with different lag time for development

For three-block cases, the lag time refers to the time differences in starting the

development of the first field and the second field and also in starting the development

of the second field and the third field. For example, for 2-year lag time cases, if the

development of the first field starts in year 1, the development of the second field and

the third field will start in years 3 and 5, respectively.

The effects of Block Ringfencing concept, as well as of different lag time on

IRR for cases without loan are shown in Figure 7-1.   Similar to previous Chapter's

observation, the shorter the lag time, the better the IRR is (comparing the small and

large crosses curves for the cases without Block Ringfencing and comparing the small

and large triangles curves for the cases with Block Ringfencing). When looking at the

effects of the Block Ringfencing concept, one can say that the effects of Block

Ringfencing concept has more pronounced for the cases with 6-year lag time than for

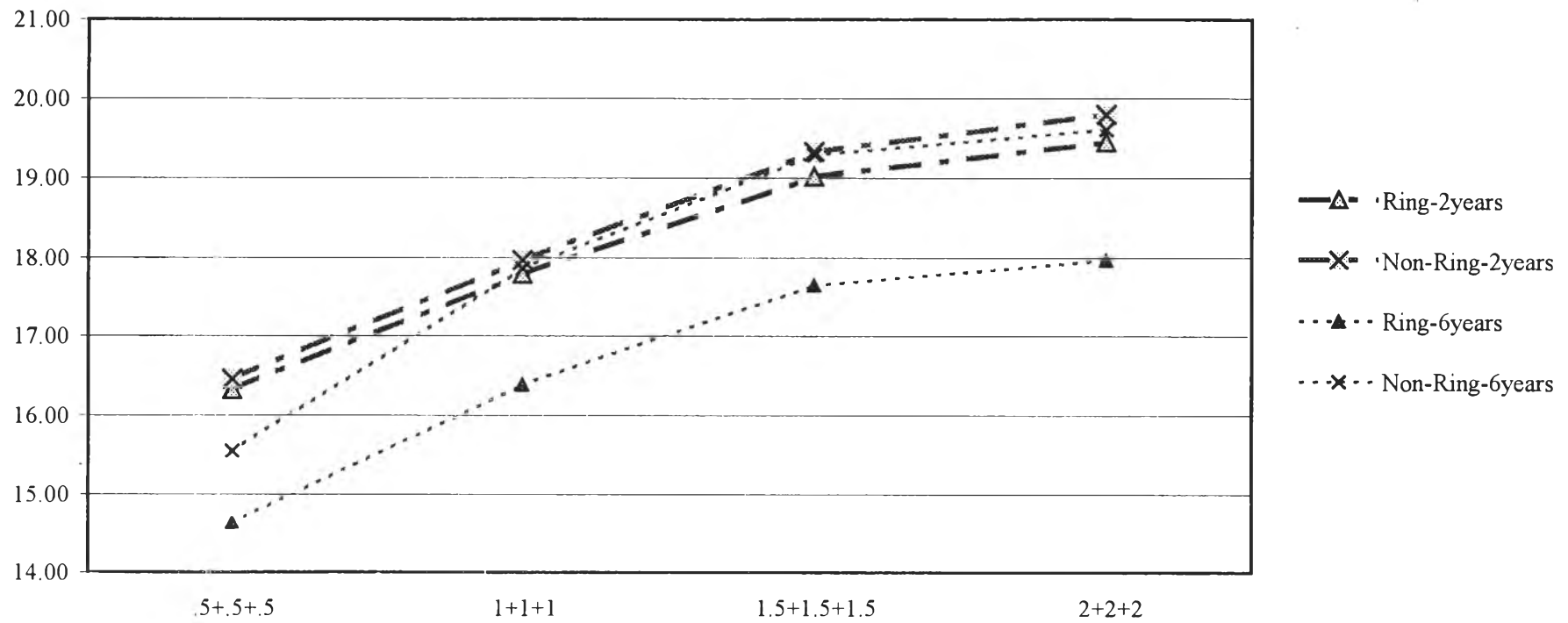the cases with 2-year lag time (comparing the pair of large cross and triangle curves

Figure 7-1 Effect of Block Ringfencing concept and different lag time on IRR for the three-block case
(without loan and K = 3 x 150,000 for three blocks)

with the pair of small cross and triangle curves) and this effect is less for small combination size. In addition, the non Block Ringfencing concept cases give higher IRR than the Block Ringfencing concept cases for all combination of field sizes. This means that the Block Ringfencing concept, when applied, is less beneficial to the concessionaire.

For cases with loan (partially financed by loan) as shown in Figure 7-2, the effects of Block Ringfencing concept and effect of different lag time give the same result as the case without loan. That is, IRR's is higher for the non Block Ringfencing concept cases and the shorter the lag time, the better the the IRR's. It should be also noted that with loan, IRR's of all cases are higher than that without loan.

Cases with loan and without loan

The effects of Block Ringfencing concept for cases with loan and without loan are shown in Figure 7-3. As mentioned before, cases with loan give much higher IRR's than cases without loan, especially for combinations of large field sizes. When considering the effect of Block Ringfencing concept, there seems to be less influence of Block Ringfencing concept for cases without loan than for cases with loan. However, for both cases with loan and without loan, IRR's for the case of not using Block Ringfencing concept are higher than the cases of using Block Ringfencing concept.

With the effects of Block Ringfencing concept in couple with the way to finance the project, it is obvious that they should be taken into account when considering the feasibility of development projects in petroleum exploration and production industry. This applies to both oil companies and government agencies.
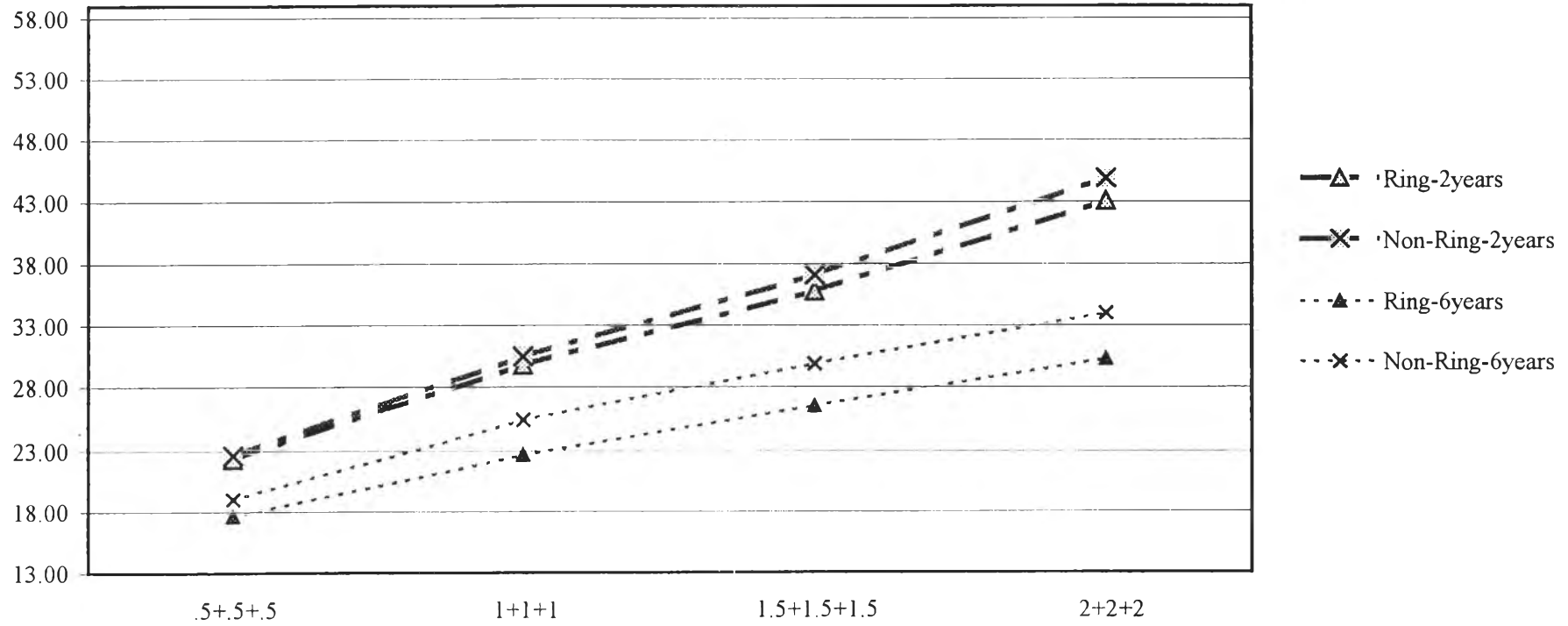
Figure 7-2 Effect of Block Ringfencing concept and different lag time on IRR for the three-block case
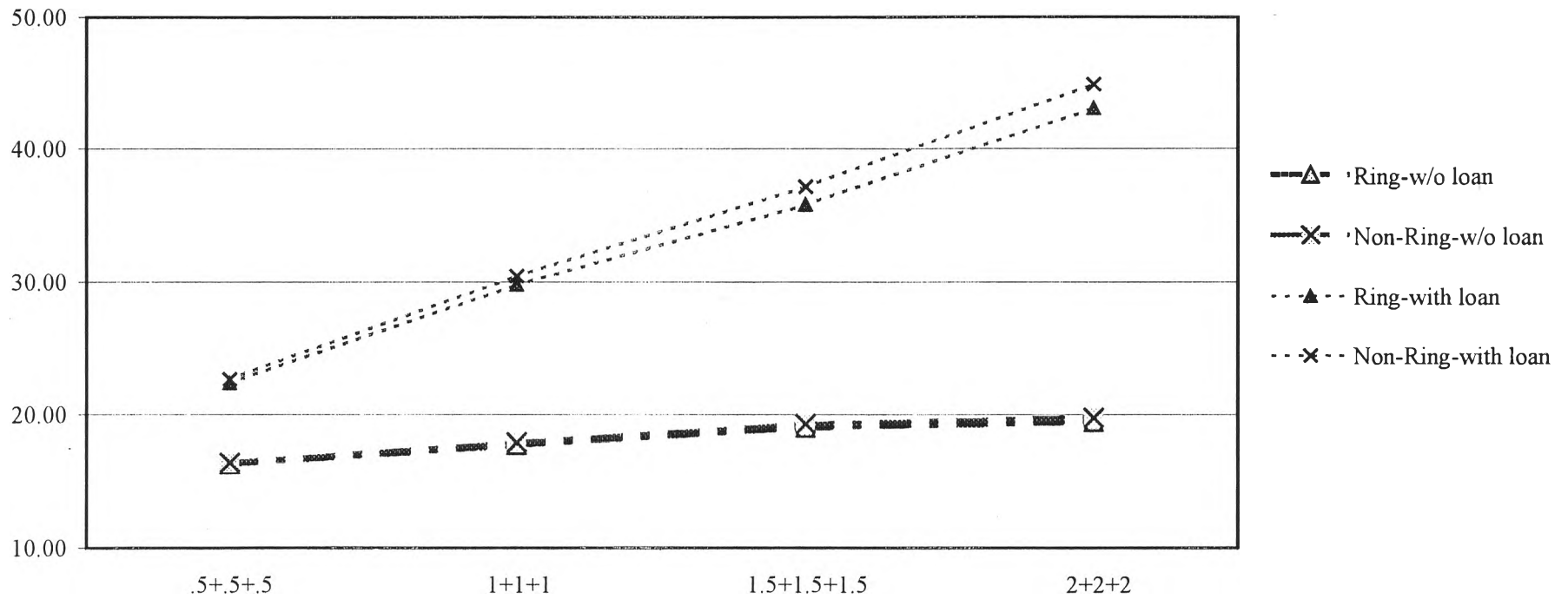(with loan and K = 3 x 150,000 for three blocks)

Figure 7-3   Effect of Block Ringfencing concept for cases with and without loan on IRR for the three-block case
(K = 3 x 150,000 for three blocks)

<u>Cases with different escalation</u>

The effects of Block Ringfencing concept when the escalation of cost and price are different are shown in Figure 7-4. The effects of Block Ringfencing concept for cases with escalation of 3% and 5% on IRR are about the same, and this effect for small combined size is less than that for the large combined size. Similar to previous observation, IRR's for cases without Block Ringfencing concept are higher than IRR's for cases with Block Ringfencing concept. In addition, as in previous cases, IRR's of cases with higher escalation rate is higher than IRR's of cases with lower escalation rate. It is noticeable that for both cases of using Block Ringfencing concept and cases of not using Block Ringfencing concept, IRR's for the cases of 3% escalation and 5% escalation are almost the same for the largest combined size (6 TCF or 2+2+2 TCF). This suggests that when investigating the effects of Block Ringfencing concept, several scenarios of different escalation percentages, which are expected, should be tried to be able to see the effects thoroughly.

<u>Cases with different costs</u>

When costs unexpectedly increase or decrease, the effects of Block Ringfencing concept on IRR are similar to those of the base case (Figure 7-5). In this Figure, it is assumed that the costs either increase or decrease at 25% of those of the base case. From a closer look, it can be seen that the magnitude of the effects of Block Ringfencing concept on IRR is slightly higher in the cases with high IRR. That is, effects of Block Ringfencing concept for cases of 25% decrease in costs are slightly greater than those for the base case and effects of Block Ringfencing concept for the base case are slightly greater than those for cases of 25% increase in costs. It can be seen that effects of Block Ringfencing concept are less for the small combined
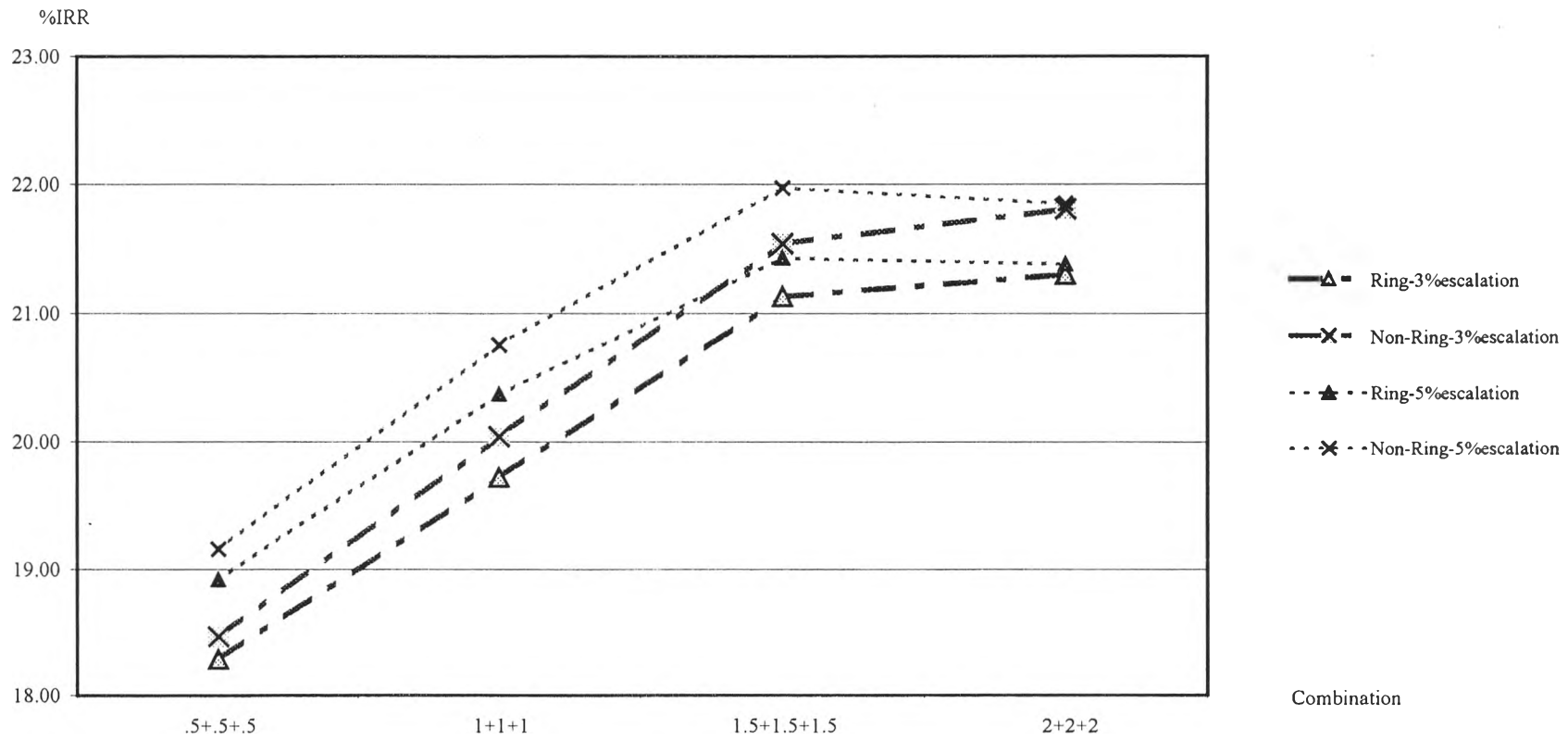
%IRR

Legend:
- Ring-3%escalation (△)
- Non-Ring-3%escalation (X)
- Ring-5%escalation (▲)
- Non-Ring-5%escalation (✖)

Combination

Figure 7-4 Effect of Block Ringfencing concept and different escalation on IRR for the three-block case
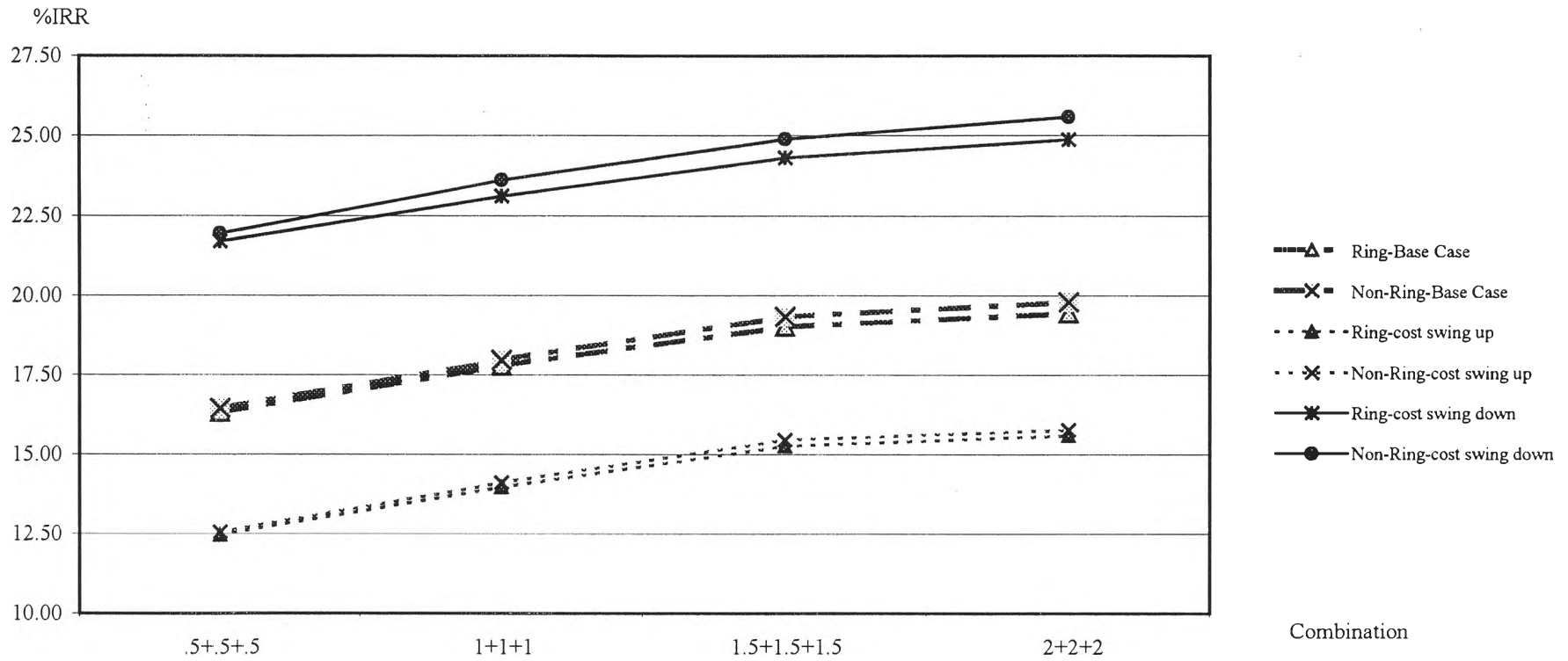(K = 3 x 150,000 for three blocks)

%IRR

Legend	
---△---	Ring-Base Case
---✕---	Non-Ring-Base Case
···▲···	Ring-cost swing up
···✕···	Non-Ring-cost swing up
——✳——	Ring-cost swing down
——●——	Non-Ring-cost swing down

Combination

Figure 7-5 Effect of Block Ringfencing concept for cases with and without cost change on IRR
for the three-block case (K = 3 x 150,000 for three blocks)

size for all three cases (the base case, 25% cost increase case and 25% cost decrease case).

Case with different K (geological factor) value

The cases of not using Block Ringfencing concept with the value of K = 150,000 for three blocks is also studied here for the case of three blocks.

The effect of Block Ringfencing concept with different lag time for the cases with K = 150,000 for three blocks are shown in Figure 7-6. IRR's of 2-year lag time for both cases of using Block Ringfencing concept and cases of not using Block Ringfencing concept are higher than IRR's of 6-year lag time. This is the same conclusion as that obtained for the cases with K for three blocks equal to $3 \times 150,000$. Effect of Block Ringfencing concept are more pronounced for the case of shorter lag time (2 years) than the case of longer lag time (6 years). This observation is opposite to the observation made for the cases with K for three blocks equal to $3 \times 150,000$. In addition, IRR's for the case of using Block Ringfencing concept are higher than IRR's for the case of not using Block Ringfencing concept for both cases of different lag time (2 years and 6 years). The opposite is true for the cases with K for three blocks equal to $3 \times 150,000$.
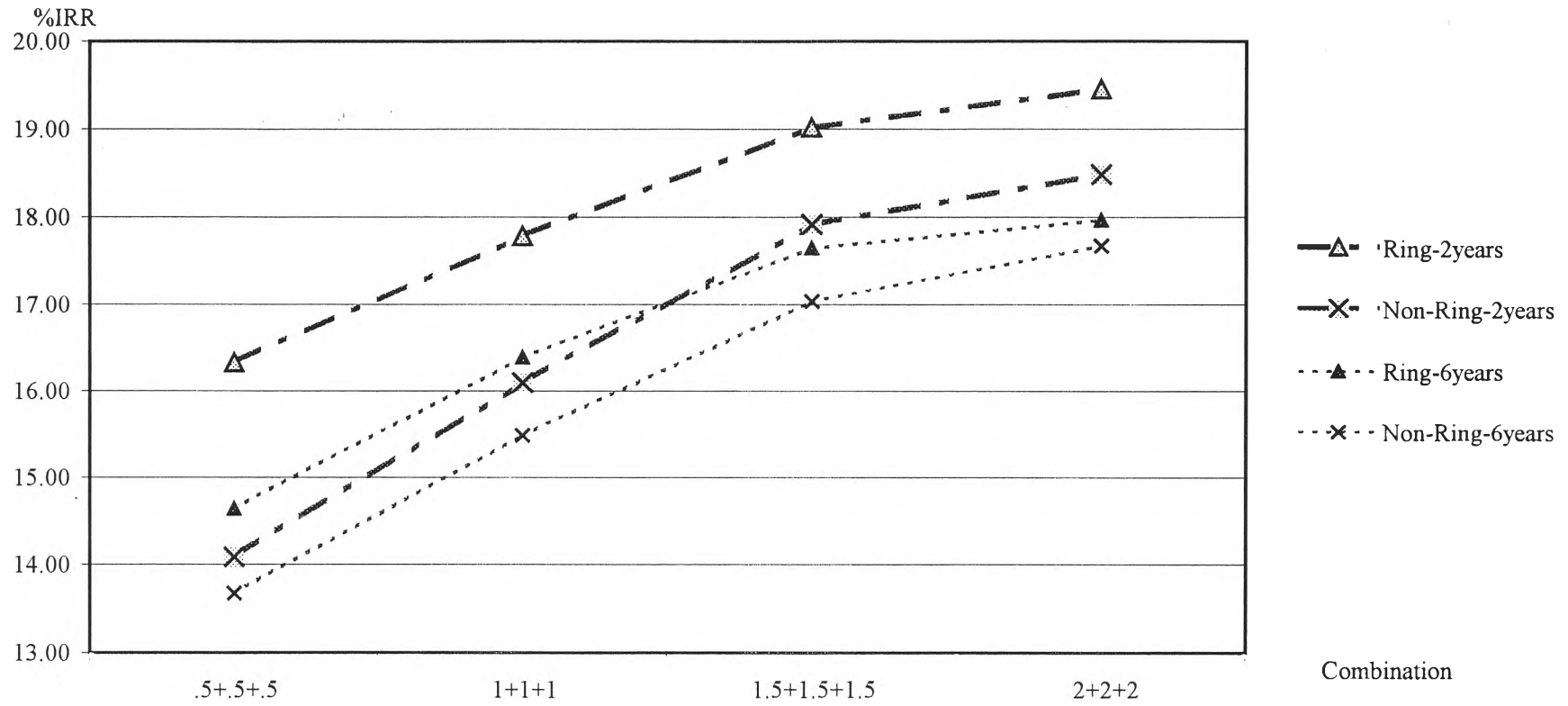
Figure 7-6 Effect of Block Ringfencing concept and different lag time on IRR for the three-block case
(without loan and K = 150,000 for three blocks)