



Cost-Effectiveness of Ribociclib Plus Letrozole for Premenopausal Women With HR+/HER2- Advanced Breast Cancer in Thailand: A Societal Perspective

Sittibodin S¹, Waleekhachonloet O², Rattanachotphanit T², Limwattananon S³, Limwattananon C⁴

¹Ph.D. candidate, Faculty of Pharmacy, Maharakham University, Maharakham, Thailand;
²Lecturer, Faculty of Pharmacy, Maharakham University, Maharakham, Thailand;
³International Health Policy Foundation, Bangkok, Thailand;
⁴Independent Researcher, Khon Kaen, Thailand.

1 BACKGROUND

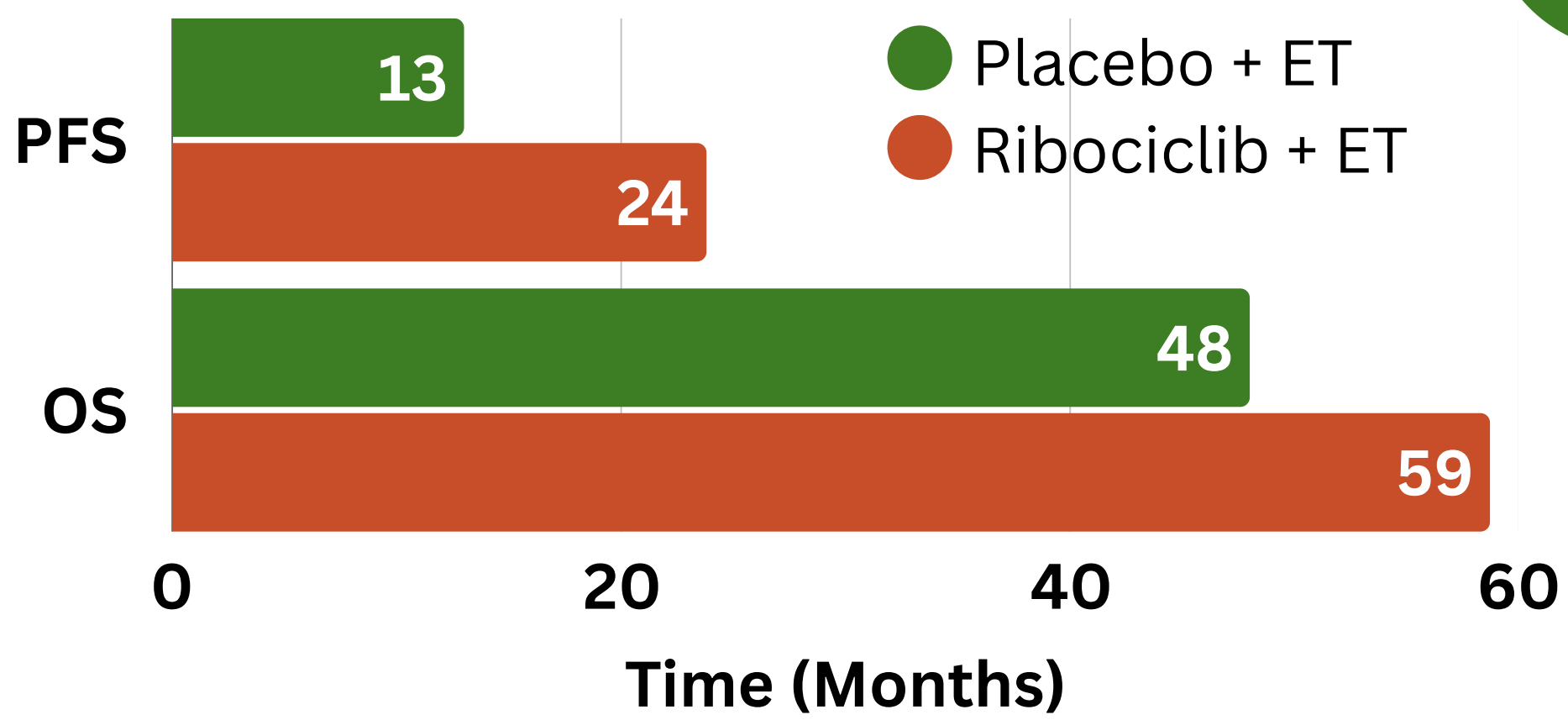


Figure 1 Survival data from MONALEESA-7

- MONALEESA-7 showed longer progression-free survival (PFS) and overall survival (OS) with ribociclib + endocrine therapy (ET) in premenopausal HR+/HER2- advanced breast cancer (ABC).
- Ribociclib is not listed on Thailand's National List of Essential Medicines (NLEM).
- No prior cost-effectiveness evidence for Thai premenopausal patients.

2 OBJECTIVES

To evaluate the cost-effectiveness of ribociclib + letrozole vs letrozole alone in premenopausal women with HR+/HER2- ABC in Thailand, from a societal perspective.

3 METHODS

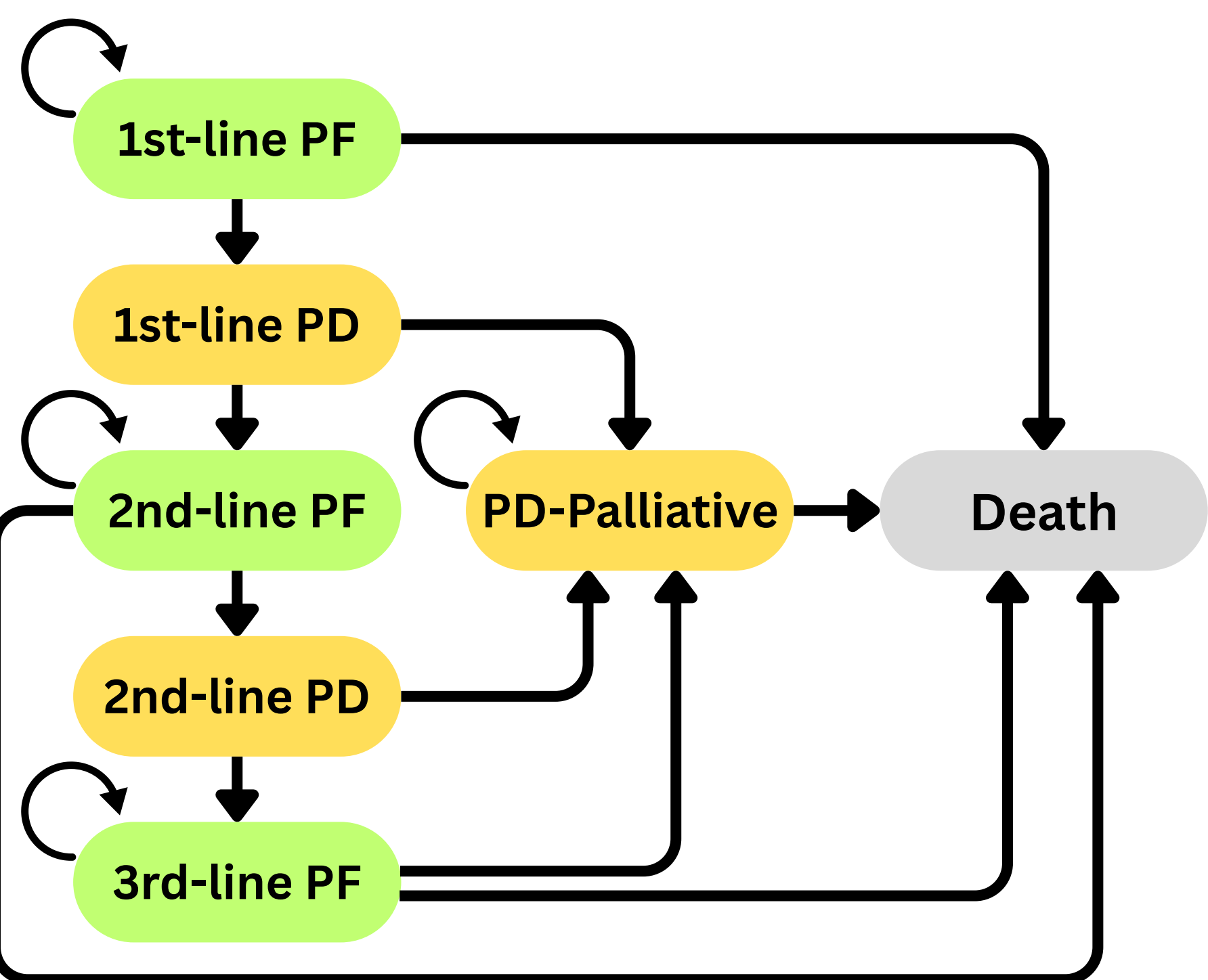


Figure 2 Markov diagram

PF, Progression-Free; PD, Progressed Disease.

Model structure

- Three-state Markov model (Progression-Free, Progressed Disease, Death).
- Cycle length: 28 days; time horizon: lifetime.
- Cohort: premenopausal women, age 40, HR+/HER2- ABC.
- Grade 3–4 adverse events (AEs) cause one-cycle utility decrement; dose-reduction is allowed.

Data inputs

- Efficacy and safety: MONALEESA-7.
- Utilities: EQ-5D values for Thai patients with ABC from three tertiary centers.
- Costs (2024 US\$): Drugs—DMSIC; direct & indirect care—tertiary hospital records.
- Exchange rate: THB 35.2952 per US\$1; costs CPI-adjusted to 2024.

Treatment pathway

Step	Intervention	Comparator
1st-line	Ribociclib 600 mg PO OD Days 1-21 q 28 days + Letrozole 2.5 mg PO OD + Bilateral oophorectomy.	Placebo + Letrozole 2.5 mg PO OD + Bilateral oophorectomy.
2nd-line	Paclitaxel 175 mg/m ² IV q 21 days x 6 cycles or Palliative.	
3rd-line	Capecitabine 1,000-1,250 mg/m ² PO BID on Days 1-14 q 21 days x 8 cycles or Palliative.	

Analyses

- Outcomes: Incremental costs, QALYs, and the ICER.
- Discount rate: 3% per annum for costs and QALYs.
- Deterministic Sensitivity Analysis (DSA): parameters varied by ±20% or published 95% CI; results summarized in a tornado plot.
- Probabilistic Sensitivity Analysis (PSA): 1,000 simulations; Cost-effectiveness plane (CE plane), Cost-effectiveness acceptability curve (CEAC).

4 RESULTS

Table 1 Effectiveness, cost, and incremental cost-effectiveness ratios

Outcomes	Letrozole alone	Ribociclib + Letrozole	Incremental
Cost (US\$)	8,945.6	40,844.2	+31,898.5
QALYs	3.39	4.01	+0.62
ICER	-	-	US\$51,385.9/QALY

ICER, incremental cost-effectiveness ratio; QALYs, quality-adjusted life-years.

- The ICER for ribociclib plus letrozole, compared with letrozole alone, was US\$51,385.9 per QALY—which exceeded Thailand's WTP threshold (~US\$4,533 per QALY).
- DSA: OS benefit, PFS utility, and ribociclib cost were identified as the key drivers.
- CE plane: All points lie above Thailand's WTP line.
- CEAC: The regimen is not cost-effective until WTP is at least US\$52,500 per QALY.

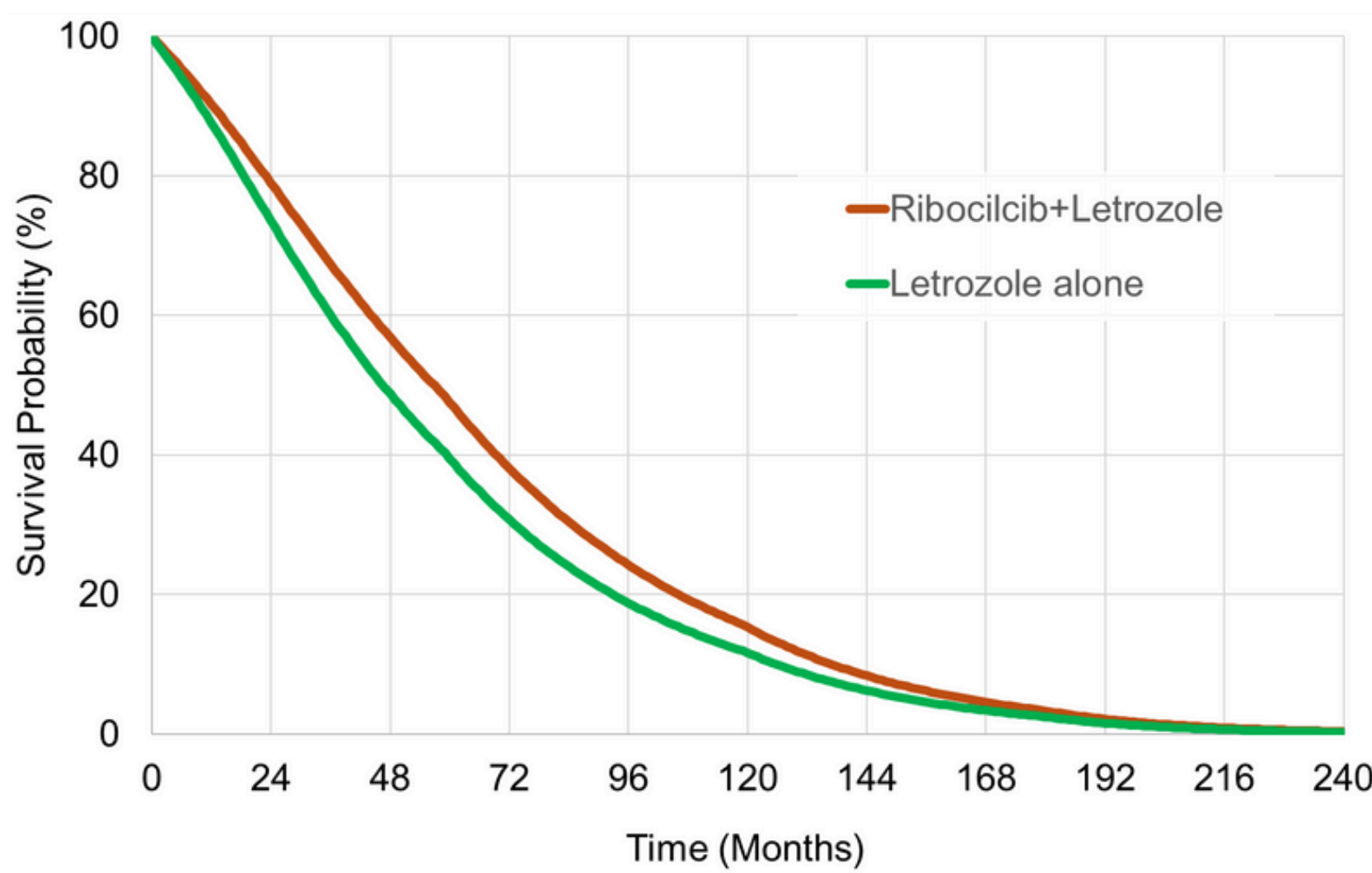


Figure 3 Survival curve derived from the Markov model

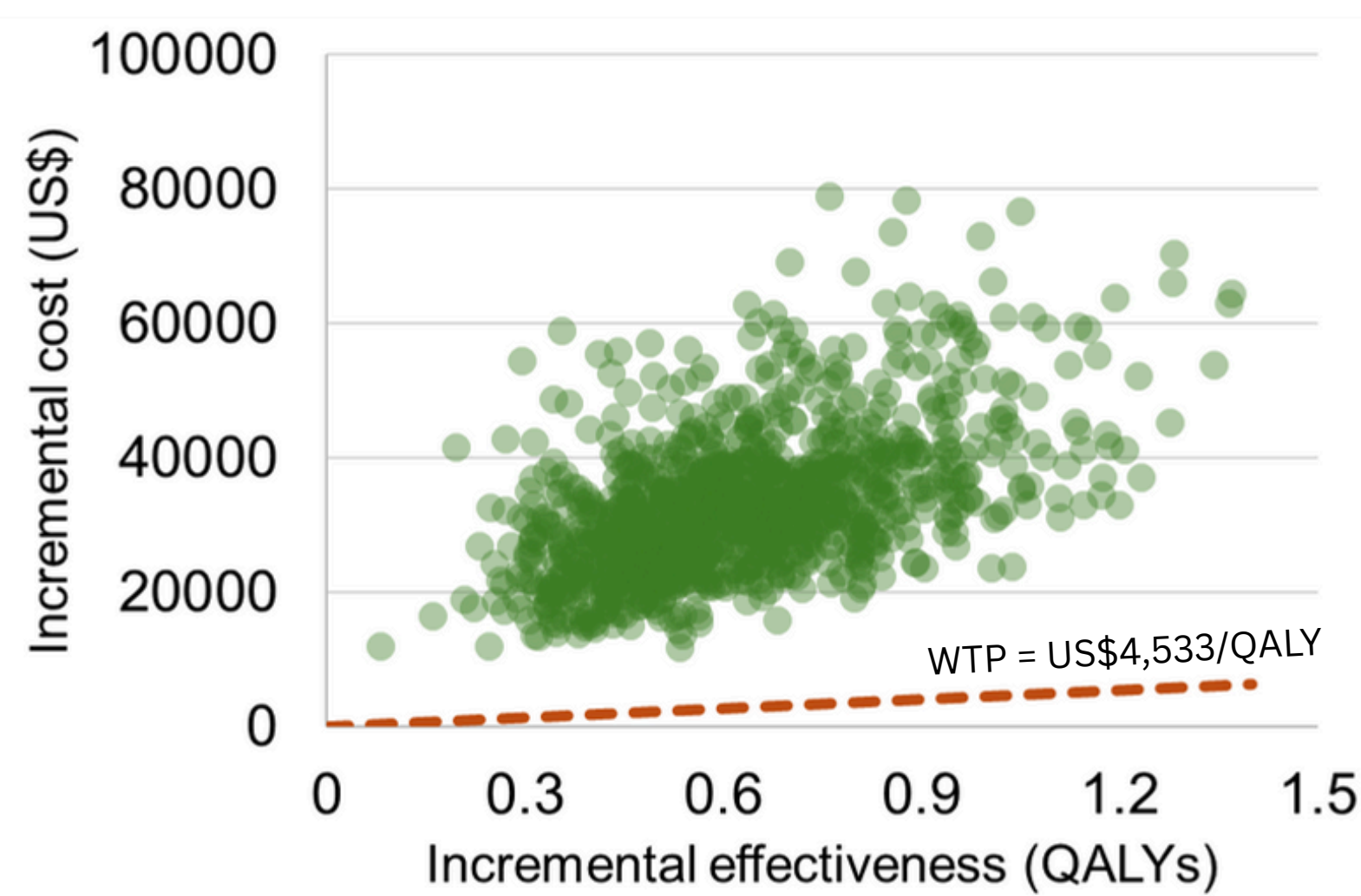


Figure 5 Cost-effectiveness plane

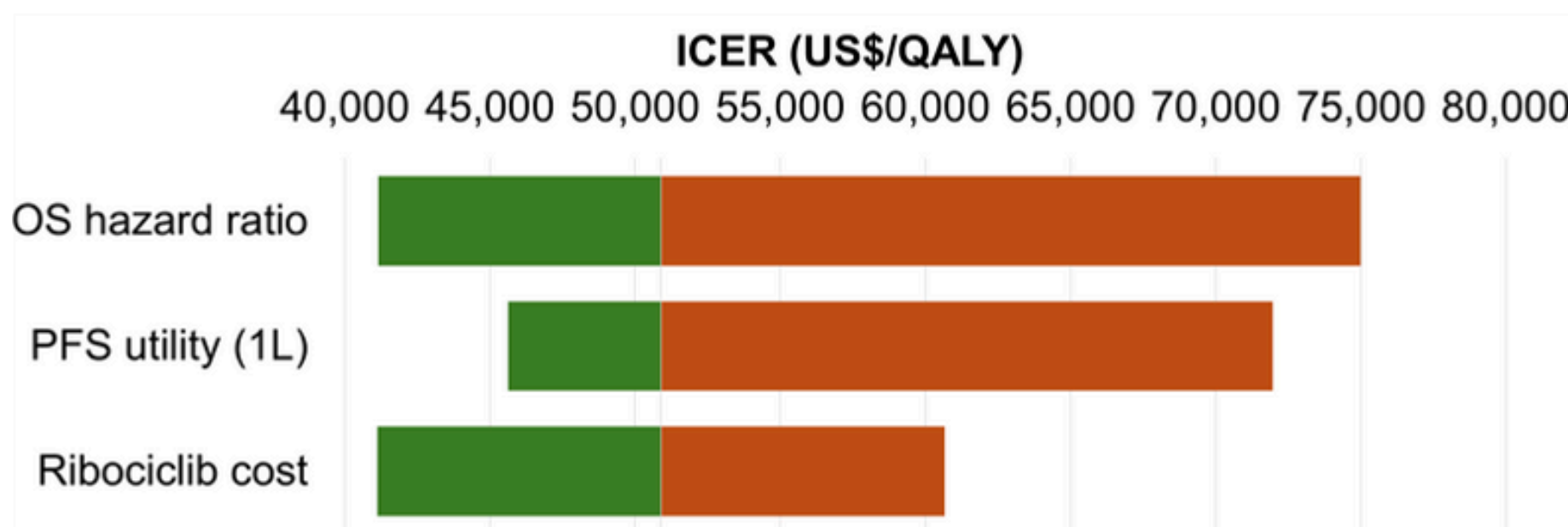


Figure 4 Tornado diagram

OS, overall survival; PFS, progression-free state; 1L, first-line.

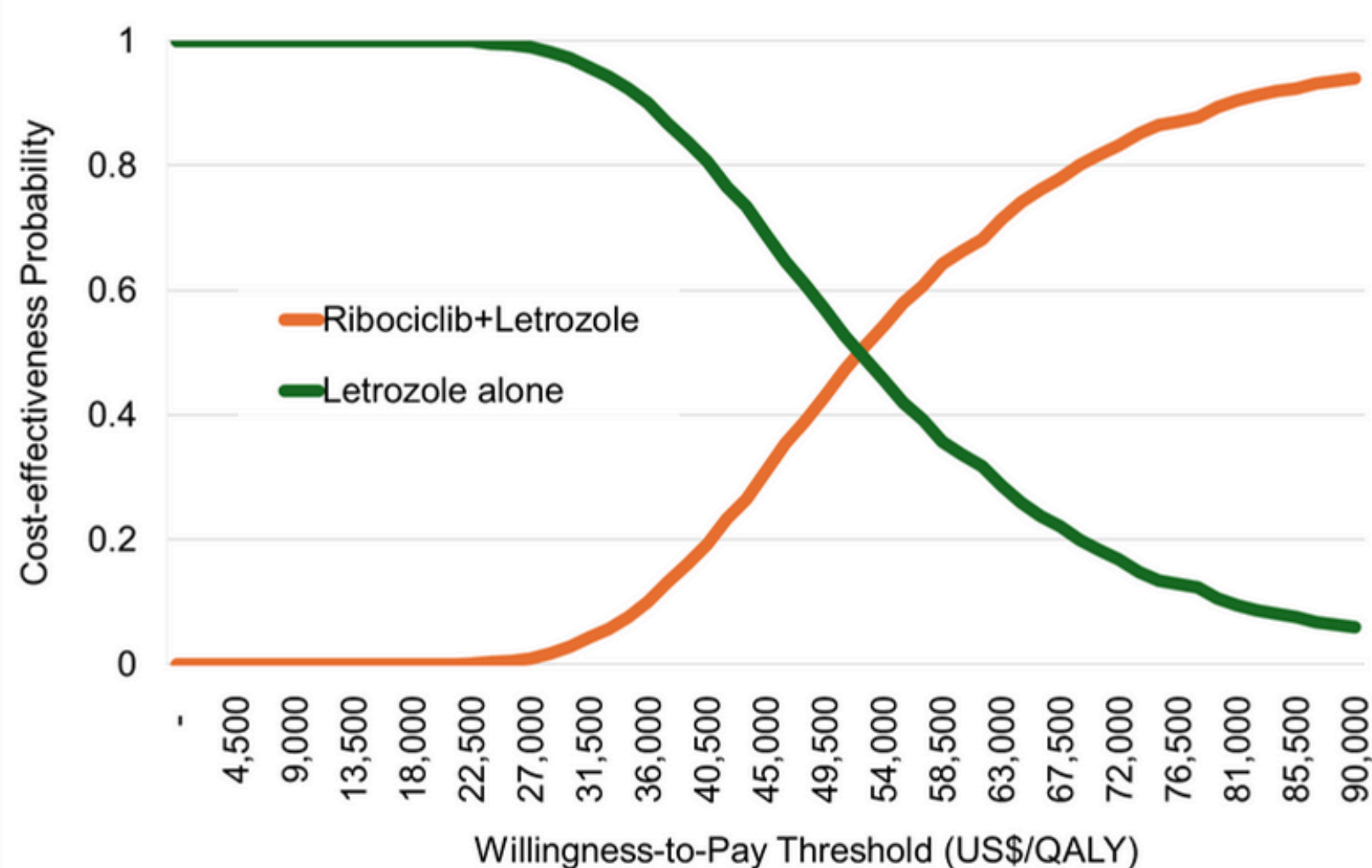


Figure 6 Cost-effectiveness acceptability curve

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CONCLUSIONS

- Ribociclib plus letrozole is not cost-effective at its current price in Thailand.
- A 95% price reduction is required to reach the Thai WTP threshold.
- These findings provide evidence for policymakers and stakeholders to guide reimbursement decisions and price-negotiation strategies.