Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

Static Simulation in USD-Based Hedging Transactions for Hajj Funds in the Banking Money Market: Implications for Banking Policy in Indonesia

Ahmad Saifi Athoillah[1], Mutia Tsalitsa Alawia[2]
[1,2]Department of Finance, Accounting, State Polytechnic of Malang, Malang, Indonesia

Article Info
Keywords:
hedging,
rupiah exchange rate,
SAR,
static simulation,
USD

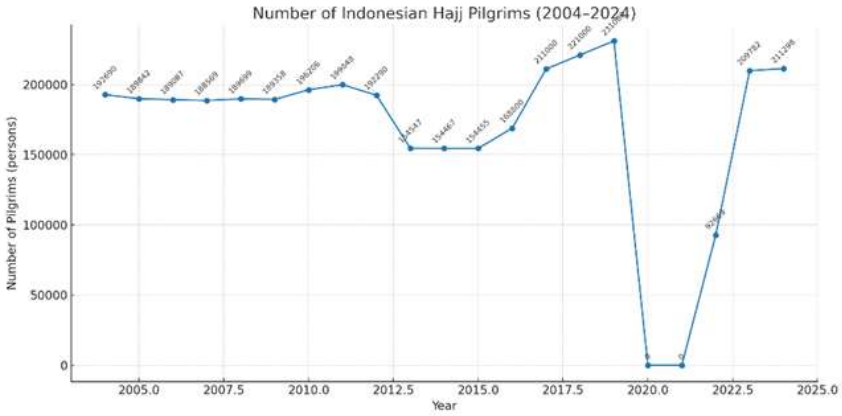
ABSTRACT
This study aimed to: (a) analyse sharia hedging transactions of hajj funds in sharia banking through static simulation, (b) identify the cost savings obtained, the optimal term and pricing, as well as the appropriate timing and amount of hajj funds, (c) provide recommendations to the BPKH. This study applied a static simulation method with a Sharia hedging scheme utilizing simple forward contracts, along with a comparative analysis of data on 25% of Hajj funds in Islamic Commercial Bank (BUS) accounts for the period 2007-2024. The simulation involved BUS entering into a USD sale and purchased a contract with a Conventional Commercial Bank (BUK), then BUK enters into a SAR sale and purchase contract with a Foreign Bank (BA). Premium calculations used financial indicators as references, including the Islamic Interbank Money Market (PUAS) yield, the Interbank Money Market (PUAB) rate for foreign exchange, and the Saudi Arabia Interbank Offer Night (SAIBON). Based on the Islamic hedging simulation, it was proven that: (i) the optimal period is 12 months because the longer the Islamic hedging period, the greater the cost savings obtained, (ii) the right time to conduct Islamic hedging is when the rupiah weakens against the USD by 20%-30% and 40%-50%, (iii) the inappropriate time is when the rupiah strengthens against the SAR by 10%-20%, (iv) the amount of hajj funds that has the potential to provide optimal cost savings is IDR 2.4 trillion to IDR 2.7 trillion and IDR 5.2 trillion to IDR 8.5 trillion. The results of this study proposed the following to the BPKH: (i) the BPKH is recommended to conduct sharia hedging by considering the right time and the optimal amount of hajj funds, as well as the potential cost savings that can be obtained, (ii) the right time to conduct sharia hedging is when the rupiah weakens against the USD and SAR, while it is not recommended when the rupiah strengthens against the USD and SAR, (iii) the amount of hajj funds that provides maximum cost savings is between Rp 2.4 trillion and Rp 2.7 trillion and between Rp 5.2 trillion and Rp 8.5 trillion, (iv) the optimal period is 12 months. Thus, BPKH needs to monitor fluctuations in the rupiah against the USD and SAR, as well as the returns from money market instruments, before conducting sharia hedging.

Corresponding Author:
Ahmad Saifi Athoillah
State Polytechnic of Malang
saifiathoillah@polinema.ac.id

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

INTRODUCTION

Indonesia, with an 87% Muslim majority as of June 2025, had a population of 284.43 million and is estimated to reach 329.13 million by 2045. As the Muslim population grows, demand for the Hajj pilgrimage also rises. Data from the Siskohat system of the Ministry of Religious Affairs shows an increase in Indonesian pilgrims to Saudi Arabia (see Figure 1).



Source: Siskohat, processed data (2025)

Figure 1 Graph showing the number of Indonesian Hajj pilgrims from 2005 to 2025

Figure 1 illustrates a decrease in the number of pilgrims from 2013 to 2015, followed by an increase to 231,000 pilgrims in 2019, the highest figure in two decades. The Covid-19 pandemic led to the cancellation of pilgrim departures in 2020 and 2021, resulting in no departures during these years. Departures partially recovered in 2022, reaching 92,660 pilgrims. Projections indicate further increases to 209,780 pilgrims in 2023 and 211,290 pilgrims in 2024.

The annual increase in the number of pilgrims has been accompanied by a corresponding rise in the cost of organising the Hajj pilgrimage. According to data from the Indonesian Ministry of Religious Affairs' Siskohat, the cost reached Rp 5.28 trillion in 2015, increased to Rp 5.92 trillion in 2016, Rp 7.20 trillion in 2017, and rose sharply to Rp 19.73 trillion in 2024. These expenses include accommodation in Mecca and Medina and living costs for pilgrims in Saudi Arabia, which constitute 25 percent of the total cost and must be paid in Saudi Arabian Riyal (SAR). The remaining 75 percent, allocated for flight and transportation, is paid in United States Dollars (USD) (Hajj Financial Management Agency, 2025).

Financial reports from the Indonesian Ministry of Religious Affairs indicate that managed Hajj funds totaled Rp 166.5 trillion in December 2022, Rp 166.7 trillion in December 2023, and Rp 171.65 trillion in December 2024. These funds are sourced from deposits by prospective regular and special Hajj pilgrims on the waiting list, as well as from the optimisation of Hajj fund investments. (Jen, 2021).

Analysis of the rupiah exchange rate against the United States dollar (USD) and Saudi riyal (SAR) from 2014 to 2024 demonstrates a persistent weakening trend. The rupiah consistently depreciated against both the USD and SAR, with significant fluctuations observed throughout the period. The highest recorded exchange rates occurred in June

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

2024, reaching Rp 16,490 per USD and Rp 4,395 per SAR (Bank Indonesia, 2025). These fluctuations were primarily attributed to the global economic crisis originating in the United States, which subsequently affected Indonesia (Paat, Kumenaung and Mandeij, 2024). Further depreciation and volatility peaked in September 2024, when the rupiah reached Rp 15,125 per USD and Rp 4,032 per SAR (Databoks, 2024). This subsequent weakening was driven by the economic slowdown in China, which had a cascading effect on Asian economies, including Indonesia (INDEF, 2021).

The ongoing depreciation of the rupiah underscores the necessity of effective exchange rate risk mitigation strategies. This risk is heightened by Indonesia's adoption of a free-floating exchange rate system, which results in unpredictable currency fluctuations (Maganini dkk., 2021). Risk management theory offers frameworks for addressing such financial risks (Ekananda, 2016).

To minimize losses due to exchange rate fluctuations, Bank Indonesia has issued regulations on hedging transactions based on sharia principles through Bank Indonesia Regulation Number 18/2/PBI/2016 concerning Hedging Transactions Based on Sharia Principles (Bank Indonesia, 2016). This regulation provides convenience for Islamic finance and Islamic banking players in minimizing exchange rate risk. However, since its issuance, this regulation has not been optimally utilized by Islamic finance players as an opportunity. Currently, the use of hedging is still limited to conventional banks and large-scale companies that use conventional swap and forward hedging contracts (Muhtadi, Rodoni dan Amelia, 2023). Based on spot, swap, and forward transaction data from 2012 to December 2024, foreign exchange transactions are still dominated by spot and swap transactions, while the use of forwards is still low (Bank Indonesia, 2024). Spot and swap transactions still dominate foreign exchange transactions in Indonesia. In December 2024, the number of spot transactions amounted to USD 3.43 billion (62.35%), swap transactions amounted to USD 1.75 billion (31.81%), and forward transactions amounted to USD 321.40 million (5.84%). Based on the number of forward transactions, conventional banks and large companies that use conventional hedging contracts still dominate. Based on the description, the problems of this study are: How can alternative Sharia hedging be used for hajj funds as USD and SAR demand rises?. What are the estimated cost savings, timing, and pricing for optimal sharia hedging of hajj funds?. Under what conditions is Sharia hedging for hajj funds recommended, given that there are no studies or simulations explaining this?

METHOD

This study used a quantitative method with calculations through a static simulation method using a sharia hedging scheme with simple forward contracts, as well as comparative analysis (Creswell dan Creswell, 2022). Based on research on the use of static hedging methods conducted by Cho et al. (2020), it was concluded that static hedging methods are very effective compared to all other hedging methods, as they can stabilize the effects of market movements.

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

The data analysis method in this study was simulated 12 times based on the PUAS premium rate, PUAB foreign exchange rate, and SAIBON rate with a period of 3 months, 6 months, 9 months, and 12 months. Data analysis and simulation used hajj funds managed by BPKH in Islamic banking accounts and money market indicators to determine the amount of Islamic hedging premiums. The amount of hajj funds to be analysed is 25% of the total hajj funds managed by BPKH in Islamic Commercial Bank (BUS) accounts, considering that the SAR currency requirement for the implementation of the hajj reaches 25% of the total cost of implementing the hajj. Meanwhile, the calculation of sharia hedging premiums uses the PUAS, PUAB foreign exchange, and SAIBON rates for the period December 2012 to December 2024 (Bank Indonesia, 2023).

The USD fulfilment simulation mechanism begins with BPKH, as the hajj fund manager, having a rupiah account at BUS. To organise the hajj, BPKH requests BUS to provide SAR for a certain period. To purchase USD, BUS enters into a rupiah and USD sale and purchase contract with BUK for a certain period. Next, BUK enters into a USD and SAR sale and purchase contract with BA. When the contract matures, BA will submit SAR to BUK and receive USD, then BUK will submit SAR to BUS and receive rupiah. After receiving SAR, BUS will submit SAR to BPKH and debit BPKH's account at BUS. The simulation mechanism for the sharia hedging scheme in the context of SAR fulfilment is as shown in Figure 2.

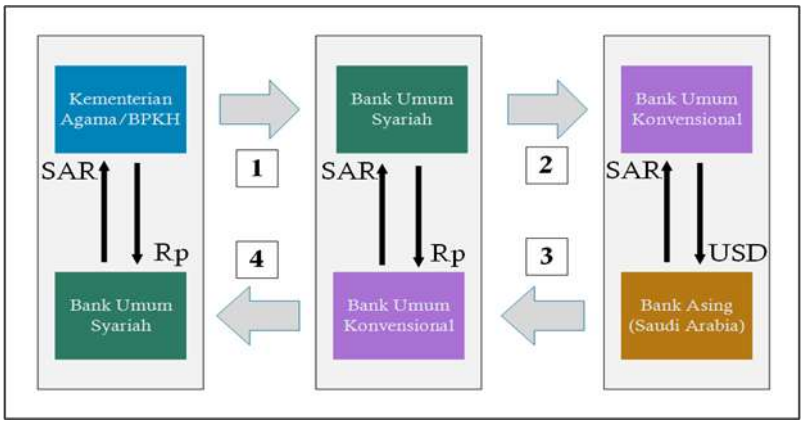


Figure 2 Sharia hedging simulation mechanism in SAR fulfilment

Figure 2 shows the mechanism of Sharia hedging simulation to fulfill SAR currency requirements between BPKH and BUS:

1. BPKH has a rupiah account at BUS, requires SAR, and requests BUS to provide SAR currency. Next, BPKH and BUS enter into a sale and purchase agreement for rupiah and SAR for a future period, specifying the currencies to be traded, the nominal amount, the exchange rate or exchange rate calculation, the premium, and the time of execution.
2. BUS enters into a contract with a Conventional Commercial Bank (BUK) to buy and sell rupiah and USD for a future period, specifying the currencies traded, the nominal amount, the exchange rate or exchange rate calculation, the premium, and the execution time.

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

3. Furthermore, BUK will enter into a contract with a foreign bank in Saudi Arabia to buy and sell USD and SAR for a future period, specifying the currencies to be traded, the nominal amount, the exchange rate or exchange rate calculation, the premium, and the execution time.
4. At the maturity date of the contract, BUK and the foreign bank in Saudi Arabia will exchange USD and SAR. BUK will deliver USD and receive SAR, while the foreign bank in Saudi Arabia will deliver SAR and receive USD in accordance with the previously agreed exchange rate. BUK and BUS will exchange SAR and rupiah. BUK will deliver SAR and receive rupiah, while BUS will deliver rupiah and receive SAR in accordance with the previously agreed exchange rate.

RESULTS AND DISCUSSION

Results of Sharia Hedging Simulation for a 3-Month Period

The results of the Sharia hedging simulation calculation on 25% of hajj funds in BUS for a period of 3 months during the observation period (2012-2024) show potential cost savings of Rp 3.9 trillion (after deducting premium costs). After examining three periods of rupiah exchange rate developments, it was found that when the rupiah was relatively stable, such as in period 1 (2012-2016), the potential cost savings from sharia hedging reached a maximum of 7 months (58.33%) per year, with potential cost savings reaching between Rp 7 billion and Rp 205 billion per year, or a total of Rp 303 billion.

During periods of rupiah volatility or instability, such as in period 2 (2017-2020), the implementation of sharia hedging has the potential to cause losses because the hedging premium costs are higher than not implementing sharia hedging (spot purchase of SAR), so it is recommended not to implement sharia hedging because the rupiah exchange rate strengthened relative to the SAR currency from 2012 to 2015. The accumulated value during this period is considered comparable between cost savings and Sharia hedging premium costs. However, limited Sharia hedging can be carried out with potential cost savings of IDR 117 billion to IDR 196 billion per year from 2012 to 2015.

Under conditions of a weak rupiah, such as in period 3 (2021-2024), the potential cost savings reached a maximum of 8 months (66.67%) per year, with cost savings reaching IDR 649 billion to IDR 1.2 trillion per year, or a total of IDR 3.6 trillion. The details of the results of the sharia hedging simulation calculations for a 3-month period during the observation period (2012-2024) are summarised in Table 1.

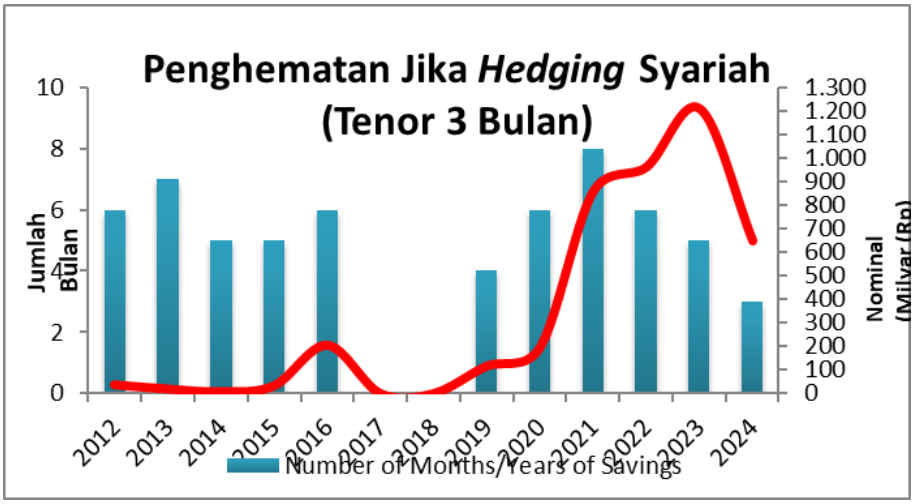
Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

Tahun	PUAB Valas O/N, SAIBON, PUAS			PUAB Valas All, SAIBON, PUAS		
	Jumlah Bulan/Tahun Penghematan	Nominal Penghematan (Rp)	Biaya Premi (Rp)	Jumlah Bulan/Tahun Penghematan	Nominal Penghematan (Rp)	Biaya Premi (Rp)
2012	6	37.362.175.417	9.276.436.107	6	37.782.121.656	8.507.459.917
2013	7	19.675.261.609	3.235.964.531	6	17.010.439.489	9.122.239.927
2014	5	7.588.515.378	5.512.812.456	3	2.854.228.459	24.376.628.749
2015	5	33.273.182.644	10.548.073.102	4	23.036.541.313	42.380.860.353
2016	6	205.632.720.720	76.319.083.191	6	203.390.259.659	75.753.733.428
2017	0	0	136.405.995.642	0	0	132.693.860.628
2018	0	0	168.108.239.442	0	0	164.024.300.530
2019	4	117.131.290.336	239.644.821.519	4	118.222.222.893	233.438.956.521
2020	6	196.095.958.305	278.617.031.552	6	201.969.832.337	263.957.902.791
2021	8	857.967.431.954	411.497.042.739	8	867.734.411.021	397.426.977.804
2022	6	962.476.556.287	1.104.208.066.942	6	975.954.675.664	1.077.368.442.836
2023	5	1.211.564.813.116	1.533.687.119.897	5	1.223.725.140.464	1.494.906.228.404
2024	3	649.223.080.529	1.156.970.825.470	3	683.589.388.162	1.065.822.167.678

Source: Processed Data, (2025)

Table 1 Recapitulation of the results of the 3-month sharia hedging simulation

The development of potential cost savings and the number of months per year obtained from the results of the sharia hedging simulation calculations for a period of 3 months during the observation period (2012-2024), as shown in Figure 3.



Source: Processed Data, (2025)

Figure 3 Graph showing cost savings for 3-month sharia hedging

Figure 3 shows the development of cost savings in one year and the number of months of savings per year during the observation period (2012-2024). The highest number of months occurred in 2023, with 8 months per year. The highest cost savings occurred in 2021, with a total of Rp 1.2 trillion.

Results of Sharia Hedging Simulation for a 6-Month Period

The results of the sharia hedging simulation calculations for a 6-month period during the observation period (2012-2024) show potential cost savings of Rp 5.7 trillion (after deducting premium costs). After examining three periods of rupiah exchange rate developments, it was found that when the rupiah was relatively stable, as in period 1 (2012-2016), the potential cost savings from sharia hedging reached 7 months (58.33%)

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

per year, with potential cost savings ranging from £1 billion to £393 billion per year, or a total of £495 billion.

During periods of rupiah volatility or instability, such as in period 2 (2017-2020), the implementation of sharia hedging has the potential to cause losses because the hedging premium costs are higher than not implementing sharia hedging (spot purchase of SAR), so it is recommended not to implement sharia hedging because the rupiah exchange rate is relatively stronger than the SAR currency in the period 2017 to 2020. The accumulated value during this period is considered comparable between cost savings and Sharia hedging premium costs. However, Sharia hedging in limited amounts can be carried out with potential cost savings of IDR 205 billion to IDR 269 billion per year during the period 2017 to 2020.

Under conditions of a weak rupiah, such as in period 3 (2021-2024), the potential cost savings reached a maximum of 10 months (83.88%) per year, with potential cost savings reaching IDR 1.4 trillion to IDR 2 trillion per year, or a total of IDR 5.3 trillion. Details of the results of the sharia hedging simulation calculations for a 6-month period during the observation period (2012-2024) are summarised in Table 2.

	PUAB Valas O/N, SAIBON, PUAS			PUAB Valas All, SAIBON, PUAS		
Tahun	Jumlah Bulan/Tahun Penghematan	Nominal Penghematan (Rp)	Biaya Premi (Rp)	Jumlah Bulan/Tahun Penghematan	Nominal Penghematan (Rp)	Biaya Premi (Rp)
2012	7	42.226.685.806	18.552.872.215	8	42.613.955.214	17.023.804.938
2013	6	29.037.767.267	6.471.929.063	6	23.711.790.290	18.423.039.272
2014	1	940.789.648	11.025.624.912	0	0	49.355.904.948
2015	7	29.600.477.504	21.096.146.204	3	5.499.250.679	85.800.039.722
2016	6	393.808.108.987	152.638.166.382	6	392.722.666.777	151.824.198.116
2017	0	0	272.811.991.285	0	0	265.385.712.704
2018	0	0	336.216.478.885	0	0	328.047.739.719
2019	8	205.871.433.377	479.289.643.038	8	213.614.691.808	466.875.881.182
2020	5	269.579.955.525	557.234.063.104	5	279.389.365.351	527.905.558.455
2021	10	2.005.127.475.671	822.994.085.479	10	2.028.564.932.875	794.843.550.274
2022	7	1.825.024.160.000	2.208.416.133.883	7	1.854.447.502.435	2.154.716.548.084
2023	6	1.488.017.598.767	3.067.374.239.794	6	1.515.938.962.777	2.989.783.249.540
2024	2	53.102.208.822	1.649.677.048.483	2	91.265.667.914	1.536.281.447.461

Source: Processed Data, (2025)

Table 2 Recapitulation of the results of the 6-month sharia hedging simulation

Meanwhile, the potential cost savings obtained from the results of the sharia hedging simulation calculations for a 6-month period during the observation period (2012-2024) are shown in Figure 4.

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

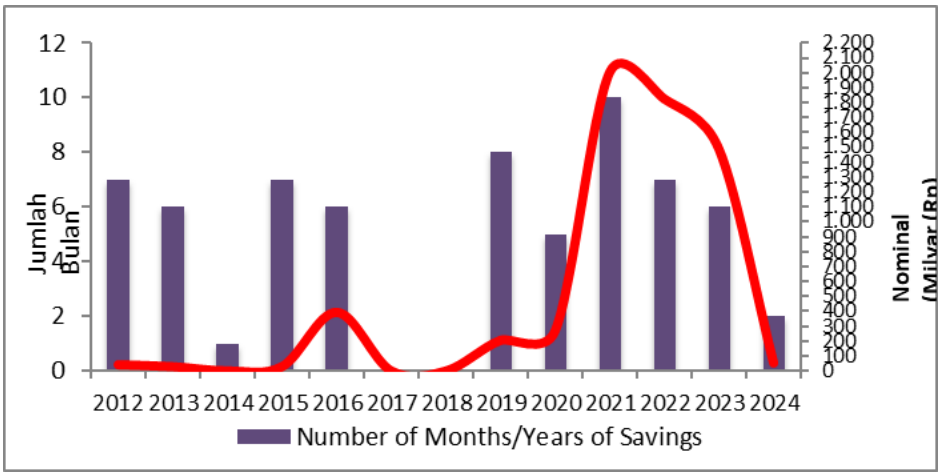


Figure 4 Graph showing cost savings for 6-month sharia hedging

Figure 4 shows the development of cost savings in one year and the number of months of savings per year during the observation period (2012-2024). The highest number of months occurred in 2021, with 10 months per year and cost savings of Rp 2 trillion.

Results of Sharia Hedging Simulation for a 9-Month

The results of the sharia hedging simulation calculations for a 9-month period during the observation period (2012-2024) show potential cost savings of Rp5.6 trillion (after deducting premium costs). After examining three periods of rupiah exchange rate developments, it was found that when the rupiah was relatively stable, as in period 1 (2012-2016), the potential cost savings from sharia hedging reached a maximum of 10 months (83.33%) per year, with potential cost savings ranging from £2.5 billion to £504 billion per year, or a total of £591 billion.

When the rupiah was volatile or unstable, such as in period 2 (2017-2020), implementing sharia hedging had the potential to cause losses because the hedging premium costs were higher than not implementing sharia hedging (spot SAR purchases). Thus, it was recommended not to implement sharia hedging because the rupiah exchange rate strengthened relative to the SAR currency in the period from 2017 to 2020. The accumulated value during this period is considered comparable between cost savings and sharia hedging premium costs. However, limited sharia hedging can be carried out with potential cost savings of IDR 268 billion to IDR 464 billion per year in the period from 2017 to 2020.

Under conditions of a weak rupiah, such as in period 3 (2021-2024), the potential cost savings reached a maximum of 9 months (75%) per year with potential cost savings reaching IDR 1.1 trillion to IDR 2.9 trillion per year or a total of IDR 6.5 trillion. Table 3 shows the details of the results of the sharia hedging simulation calculations for a period of 9 months during the observation period (2012-2024).

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

Table 3 Recapitulation of the results of the 9-month sharia hedging simulation

	PUAB Valas O/N, SAIBON, PUAS			PUAB Valas All, SAIBON, PUAS		
Tahun	Jumlah Bulan/Tahun Penghematan	Nominal Penghematan (Rp)	Biaya Premi (Rp)	Jumlah Bulan/Tahun Penghematan	Nominal Penghematan (Rp)	Biaya Premi (Rp)
2012	10	41.441.919.855	27.829.308.322	10	42.260.115.175	25.549.035.064
2013	4	18.601.895.315	9.707.893.594	4	13.921.692.649	27.902.398.035
2014	2	2.467.180.906	16.538.437.368	0	0	74.937.828.597
2015	4	25.354.730.764	31.644.219.305	1	2.392.903.246	130.257.538.107
2016	8	504.014.573.843	228.957.249.573	8	495.037.901.942	228.211.394.067
2017	0	0	409.217.986.927	0	0	398.075.556.226
2018	0	0	504.324.718.327	0	0	492.070.317.570
2019	9	268.203.914.965	718.934.464.556	9	281.315.710.165	700.310.773.984
2020	6	464.155.085.153	835.851.094.655	6	484.812.400.239	791.842.966.991
2021	8	2.548.070.503.300	1.234.491.128.218	8	2.576.777.505.978	1.192.249.717.411
2022	9	2.922.373.822.334	3.312.624.200.825	9	2.984.120.708.233	3.232.044.315.744
2023	5	1.112.386.526.443	4.601.061.359.691	5	1.148.092.474.713	4.484.631.063.408
2024	0	0	1.385.874.105.218	0	0	1.300.895.691.085

Source: Processed Data, (2025)

Figure 5 shows the potential cost savings obtained from the results of the sharia hedging simulation calculations for a period of 9 months during the observation period (2012-2024.

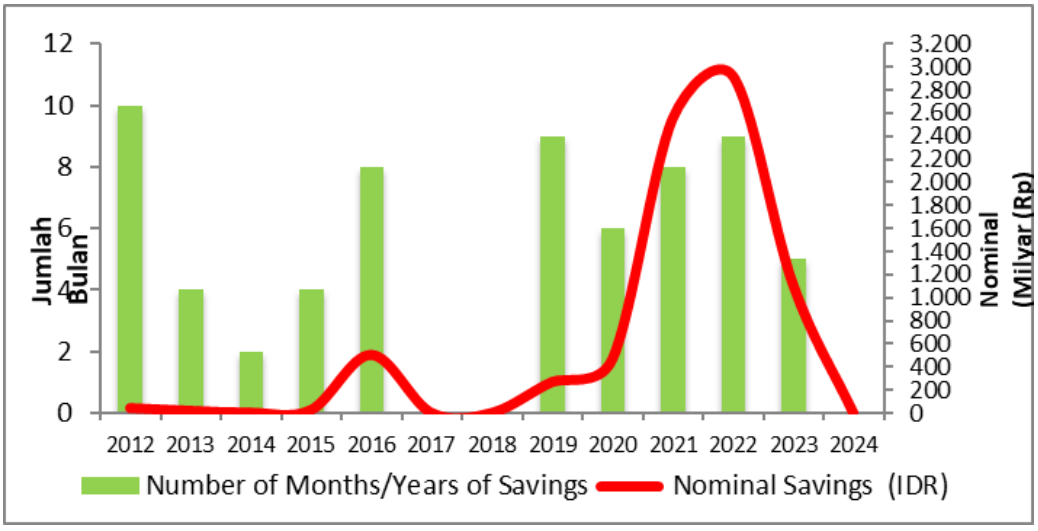


Figure 5. Graph showing cost savings for 9-month sharia hedging

Figure 5 shows yearly trends in cost savings and the number of saving months from 2012 to 2024. In 2022, the number of saving months peaked at 10, resulting in cost savings of Rp 41 billion. Although 2022 had the most saving months, the greatest cost savings occurred in 2014, totaling Rp 2.9 trillion.

Results of Sharia Hedging Simulation for a 12-month period

The results of the 12-month Islamic hedging simulation calculations during the observation period (2012-2024) showed potential cost savings of Rp 7.2 trillion (after deducting premium costs). After examining three periods of rupiah exchange rate developments, it was found that when the rupiah was relatively stable, as in period 1 (2012-2016), the potential cost savings from sharia hedging reached a maximum of 11 months (91.67%) per year, with potential cost savings ranging from £3.6 billion to £355 billion per year, or a total of £542 billion.

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

When the rupiah was volatile or unstable, as in period 2 (2017-2020), implementing sharia hedging had the potential to cause losses because the hedging premium costs were higher than not implementing sharia hedging (spot SAR purchases). Thus, it was suggested not to implement sharia hedging because the rupiah exchange rate strengthened relative to the SAR currency in the 2017 to 2020 period.

The accumulated value during this period is considered comparable between cost savings and sharia hedging premium costs. However, limited sharia hedging can be carried out with potential cost savings of IDR 321 billion to IDR 1.3 trillion per year in the period from 2017 to 2020.

Under conditions of a weak rupiah, such as in period 3 (2021-2024), the potential cost savings reached a maximum of 10 months (83.33%) per year with potential cost savings reaching IDR 316 billion to IDR 4 trillion per year or a total of IDR 6.7 trillion. Details of the results of the sharia hedging simulation calculations for a 12-month period during the observation period (2012-2024) can be seen in Table 4.

	PUAB Valas O/N, SAIBON, PUAS			PUAB Valas All, SAIBON, PUAS		
Tahun	Jumlah Bulan/Tahun Penghematan	Nominal Penghematan (Rp)	Biaya Premi (Rp)	Jumlah Bulan/Tahun Penghematan	Nominal Penghematan (Rp)	Biaya Premi (Rp)
2012	11	60.650.401.526	37.105.744.429	11	62.586.802.660	34.083.150.295
2013	2	3.665.890.550	12.943.858.125	1	3.210.303.344	37.560.316.215
2014	3	8.592.727.194	22.051.249.824	0	0	101.122.399.695
2015	8	114.207.688.897	42.192.292.407	2	66.933.912.486	175.753.355.508
2016	9	355.086.369.597	305.276.332.764	8	354.159.568.362	304.915.321.278
2017	0	0	545.623.982.570	0	0	530.763.391.195
2018	0	0	672.432.957.769	0	0	656.092.034.080
2019	8	321.116.188.733	958.579.286.075	8	336.609.170.290	933.743.634.926
2020	10	1.353.109.522.968	1.114.468.126.207	10	1.397.897.669.842	1.055.770.128.401
2021	8	2.369.648.201.831	1.645.988.170.958	8	2.407.938.833.634	1.589.645.479.214
2022	10	4.042.535.513.764	4.416.832.267.767	10	4.133.272.758.488	4.309.351.745.816
2023	2	316.725.902.463	6.134.748.479.588	2	336.367.372.330	5.979.449.670.009
2024	0	0	460.495.269.519	0	0	440.650.657.151

Source: Processed Data, (2025)

Table 4 Recapitulation of the results of the 12-month sharia hedging simulation

Figure 6 shows the potential cost savings and number of months per year obtained from the results of the sharia hedging simulation calculations for a 12-month period during the observation period (2012-2024).

Jurnal Ilmiah Multidisiplin Indonesia (JIM-ID)
Volume 4, Number 09, 2025, DOI 10.58471/esaprom.v4i09
ESSN 2828-9463 (Online)
https://ejournal.seaninstitute.or.id/index.php/esaprom

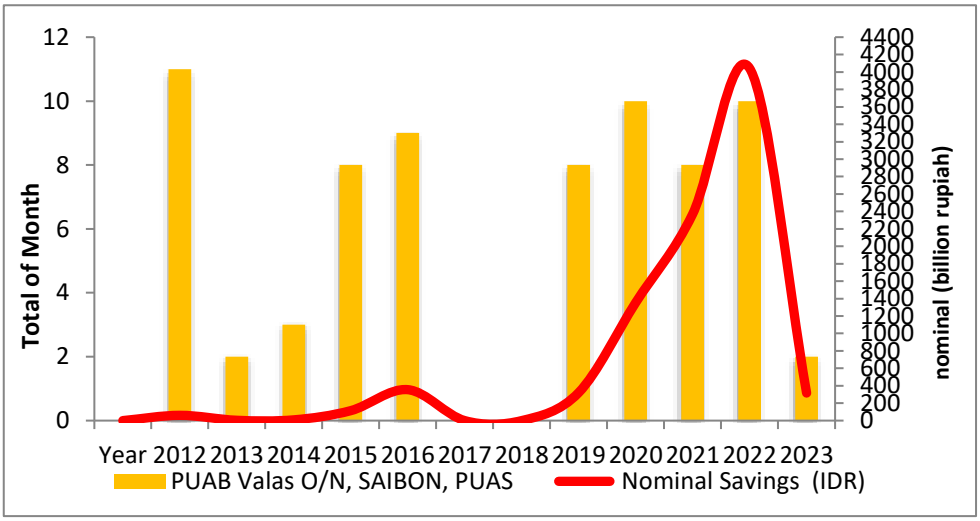


Figure 6 Graph showing cost savings for 12-month sharia hedging

Figure 6 shows the development of cost savings in one year and the number of months of savings per year during the observation period (2012-2024). The highest number of months occurred in 2022, with 11 months per year and cost savings of Rp 60 billion. The highest cost savings occurred in 2022, amounting to Rp 4 trillion.

CONCLUSION

Seeing the potential for savings in hajj funds, based on simulations conducted for the period 2012 to 2024, the findings of this study can be a consideration by related parties, especially the BPKH as the government's representative, to conduct sharia hedging on hajj funds with the aim of (1) protecting the value of pilgrims' hajj savings, (2) providing exchange rate certainty and the provision of SAR currency in the future, (3) prevent losses due to exchange rate fluctuations and, conversely, provide potential cost savings. By optimising the potential savings resulting from the risks, it is necessary to consider the best time to conduct sharia hedging. Several factors that must be calculated include (1) the level of exchange rate volatility of both the rupiah against the USD and the rupiah against the SAR, (2) alternative sharia hedging periods (3, 6, 9 and 12 months), (3) current returns in the money market, (4) the recommended amount of money for sharia hedging, considering the requirement that a minimum of twice the average cost of performing the annual Hajj pilgrimage must be placed in highly liquid financial instruments that can be withdrawn at any time, (5) distribution of sharia hedging across various sharia banks and carried out in stages to see the best prices offered by sharia banks and (6) Indonesia's macroeconomic conditions (both internal and external factors) that can affect the rupiah exchange rate. Based on a simulation of sharia hedging for 25% of Hajj funds at BUS for the period 2012 to 2024, policy recommendations for BPKH in managing Hajj funds are: BPKH is suggested to conduct sharia hedging of hajj funds with the following objectives: To protect the value of pilgrims' hajj savings, To provide exchange rate certainty and SAR currency availability in the future. To prevent losses due to exchange rate fluctuations and, conversely, provide potential cost savings. The right time to conduct sharia hedging is very important is when

the rupiah weakens against the USD and SAR by 20% to 30% and 40% to 50%. The inappropriate time to conduct sharia hedging is when the rupiah exchange rate against the SAR and USD strengthens by 20% to 30%. The appropriate time to conduct sharia hedging for hajj funds based on the rate of return on instruments or premiums is: When the rupiah exchange rate is relatively stable against the USD and SAR, as in period 1 (2012-2016) with PUAS returns reaching 8% to 10%, PUAB foreign exchange rates of 3% to 4% and SAIBON rates ranging from 3% to 4%. When the rupiah exchange rate tends to weaken against the USD and SAR, as in period 3 (2021-2024), with PUAS returns reaching 6% to 7%, PUAB foreign exchange rates of 0.2% to 0.4%, and SAIBON rates ranging from 0.5% to 0.7%. The times when it is not suggested to conduct sharia hedging for hajj funds based on the yield rate of the instrument or premium are: When the rupiah exchange rate is relatively stable against the USD and SAR, with PUAS yields <8%, PUAB foreign exchange <3%, and SAIBON <3%. When the rupiah exchange rate is relatively stable against the USD and SAR, with PUAS <6%, PUAB foreign exchange <0.2%, and SAIBON <0.5%. The recommended period for sharia hedging is 12 months, considering that the longer the sharia hedging period, the greater the potential savings in hajj funds. The recommended amount of hajj funds and the maximum potential cost savings if sharia hedging is carried out are in the range of IDR 2.4 trillion to IDR 2.7 trillion and IDR 5.2 trillion to IDR 8.5 trillion.

REFERENCE

Badan Pengelola Keuangan Haji. (2025). Biaya Haji Indonesia dari Tahun ke Tahun. Badan Pengelola Keuangan Haji. https://bpkh.go.id/kontroversi-biaya-haji/?utm_source.com

Badan Pusat Statistik. (2025). Jumlah Penduduk Pertengahan Tahun (Ribu Jiwa) 2025. Badan Pusat Statistik. https://www.bps.go.id/id/statistics-table/2/MTk3NSMy/jumlah-penduduk-pertengahan-tahun--ribu-jiwa-.html

Bank Indonesia (2016) *Peraturan Bank Indonesia Nomor 18/2/Pbi/2016 Tentang Transaksi Lindung Nilai Berdasarkan Prinsip Syariah*. Jakarta.

Bank Indonesia (2023) *Pengembangan dan Pengaturan Transaksi Lindung Nilai Syariah untuk Mendukung Pendalaman Pasar Keuangan Syariah*, *Bank Indonesia*. Tersedia pada: https://web.iaiglobal.or.id/assets/files/file_publikasi/Materi Seminar DSAS IAI Islamic Hedging 1.pdf.

Bank Indonesia. (2024). Perkembangan transaksi spot, swap dan forward tahun 2012 sampai dengan Desember 2024.

Bank Indonesia (2025) *Kurs Transaksi Bank Indonesia*, *Bank Indonesia*. Tersedia pada: https://www.bi.go.id/id/statistik/informasi-kurs/transaksi-bi/default.aspx.

Cho, J., Ghi Min, H., & McDonald, J. (2020). Volatility and dynamic currency hedging. Journal of International Financial Markets, Institutions and Money, 64.

Creswell, J. dan Creswell, J.D. (2022) *Research Design: qualitative, quantitative, and mixed methods*. 6 ed. New Jersey: SAGE.

Databoks (2024) *Nilai Tukar Rupiah Menguat ke Level Rp. 15,341 Ribu per Dolar AS (Rabu, 18 September 2024)*, *Databoks*. Tersedia pada: https://databoks.katadata.co.id/pasar/statistik/32ec67c22c32882/nilai-tukar-rupiah-

menguat-ke-level-rp-15341-ribu-per-dolar-as-rabu-18-september-2024.

Ekananda, M. (2016) *Analisis Ekonometrika untuk Keuangan: Untuk Penelitian Bisnis dan Keuangan*. Jakarta: Salemba.

INDEF (2021) *Badai Krisis Ekonomi*. Jakarta: INDEF.

Jen, I. (2021) *Optimalisasi Pengelolaan Dana Haji untuk Kesejahteraan Jamaan Haji di Indonesia*. Yogyakarta.

Maganini, N., Rashid, A., & Sheng, H. (2021). Exchange rate regimes and price efficiency: Empirical examination of the impact of financial crisis. Journal of International Financial Markets, Institutions and Money, 73(1).

Muhtadi, Rodoni, A. dan Amelia, E. (2023) "Implementasi Penggunaan Lindung Nilai (Hedging) Syariah untuk Menghadapi Ketidakpastian di Indonesia," *Jurnal Niara*, 16(1), hal. 46–55. Tersedia pada: https://doi.org/10.31849/niara.v16i1.13932.

Paat, K.E., Kumenaung, A.G. dan Mandeij, D. (2024) "Analisis Pengaruh Fluktuasi Nilai Tukar Rupiah (Kurs) Per Dollar Amerika Serikat (Usd) Terhadap Tingkat Inflasi Di Indonesia Tahun 2007-2021," *Jurnal Berkala Ilmiah Efisiensi*, 24(7), hal. 15–27. Tersedia pada: https://ejournal.unsrat.ac.id/v3/index.php/jbie/article/view/58452.