CBA Global Markets Research

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Abstract

This is a LaTeX writeup of my progression through a preponderance of alternative hedging strategies

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Contents

List of Tables

List of Algorithms

1 Case Brief

1.1 Problem Statement

You and your colleagues work in the Commonwealth Bank of Australia's Global Markets team. Your role is to help clients to navigate their financial market risks. Your client, Prime Property Trust (PPT), is concerned with the potential impact that movements in financial markets may have on their operations. The Treasury team at Prime Property Trust are particularly concerned about interest rate market movements and how it may impact their ability to meet budgeted cost obligations over the next year. The Treasury team wants to know:

1. Your view on inflation and the RBA cash rate and; how this will affect Australian interest rates.
2. The impact of variable interest rates to their business operations and cash flows; and
3. Financial market instruments that may be appropriate to manage these risks.

1.2 Background

Prime Property Trust is an Australian Real Estate Investment Trust (REIT) that manages and invests in a diverse range of property types, including office buildings and retail centres. Prime Property Trust primarily funds its assets with floating rate debt. Prime Property Trust has just announced two new assets to be added to the portfolio:

1. Price Corporate Tower (PCT) | | Facility tenor: 3 years | Size of facility: $100m | Interest rate: 3-month BBSY+1.20%
2. Sterling Square (SS) | Facility tenor: 5 years | Size of facility: $200m | Interest rate: 3-month BBSY+1.50%

Prime Corporate Tower (PCT) will generate immediate returns and be fully operational from Day 1. Sterling Square (SS) will commence construction Day 1 and be fully operational from FY27 onwards. Assume the PCT facility is refinanced at the end of the 3-year tenor.

The interest rate on the loan facilities are above and calculated at the beginning of each quarter. Additionally, Prime Property Trust must maintain an Interest Coverage Ratio (ICR) greater than 1.75x at all times or risk breaching the terms of the loan and have its funding withdrawn. Prime Property Trust's cost base and projected revenue for the upcoming financial year is provided on the following page.

1.2.1 Cost Base and Projected Revenue

Prime Property Trust - Income Statement

All figures in 000's

Item	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
Rental Income										
Retail Rent	5,850	7,116	7,289	20,057	18,542	17,126	14,496	13,046	14,095	14,971
Office Rent	3,978	2,901	2,469	5,821	7,564	9,265	12,137	14,083	14,768	13,852
Total Rental Income	9,828	10,017	9,758	25,878	26,106	26,391	26,633	27,129	28,863	28,823
Less Vacancy Factor	-	-	-	-	-	-	-	-	-	-
Less Repairs & Maintenance	1,047	1,078	1,176	1,232	1,309	1,424	1,518	1,607	1,760	1,925
Less Management Fee	349	527	579	411	436	361	394	536	587	642
Less Outgoings Paid	-	-	-	-	-	-	-	-	-	-
Net Rentals (EBITDA)	**8,432**	**8,412**	**8,003**	**24,235**	**24,361**	**24,606**	**24,721**	**24,986**	**26,516**	**26,256**
Base Case										
BBSY (%)	3.70%	3.75%	3.49%	3.36%	3.40%	3.49%	3.59%	3.71%	3.82%	3.92%

(Source: Prime Property Trust Income Statement; Assume ICR = EBITDA / Interest Expense)

2 Rates Outlook

2.1 Equilibrium and Dynamic Relationships

2.2 Macroeconomics

3 Hedging Objectives

Maintenance of the debt covenants

4 Interest Rate Derivatives Valuation

4.1 Forward Rate Agreements (FRAs)

A Forward Rate Agreement (FRAs) is an over-the-counter (OTC) contract that locks in an interest rate for a future loan or deposit. The buyer of an FRA locks in the right to borrow at a specific rate, while the seller locks in the right to lend at that rate. The contract is settled with a single cash payment at the settlement date, based on the difference between the agreed-upon forward rate and the actual market interest rate (the "fixing rate") on a notional principal amount. No actual principal is exchanged.

4.2 BAB Futures

4.3 Interest Rate Swaps

4.4 Caplets and Floorlets

5 Hedging Deliberations

5.1 Not Hedging

The strategic decision to remain unhedged against interest rate risk implies that PPT consciously accepts the direct financial impact of fluctuations in the 3-month Bank Bill Swap Rate (BBSY). This rate is the floating reference for its newly acquired $300 million in debt facilities. Such a strategy reflects a managerial assessment where the benefits of potentially favourable interest rate movements outweigh the costs or constraints associated with hedging instruments. This may also indicate that the firm's operational cash flows possess sufficient resilience to absorb interest rate volatility or that hedging instruments' costs are uneconomical (Stulz, 1996).

5.1.1 Mechanics

The operational mechanics of a non-hedging strategy are characterised by their simplicity, wherein PPT elects to service their debt obligations at the prevailing market rates. Specifically, interest payments on the $100m Prime Corporate Tower (PCT) facility will be at 3-month BBSY plus a 1.20% margin, and on the $200m Sterling Square (SS) facility at 3-month BBSY plus a 1.50% margin. These interest obligations will reset quarterly, ensuring that the firm's interest expense profile remains directly correlated with short-term interest rate movements.

5.1.2 Size or Number of Contracts

Under a strategy of not hedging, PPT does not engage in any off-balance sheet derivative contracts to mitigate interest rate risk. Consequently, the size or number of hedging contracts is zero. The entire nominal value of the floating-rate debt, amounting to $300 million, remains exposed to interest rate fluctuations.

5.1.3 Position and Contract Maturities

Contract maturities are inapplicable in this scenario, as no hedging instruments are utilised. The pertinent maturities are those of the underlying debt facilities: the $100m PCT facility has a 3-year tenor and is subject to refinancing, while the $200m SS facility has a 5-year tenor. Therefore, the unhedged interest rate position extends across these periods, with specific managerial concerns directed towards the upcoming 12-month budget cycle.

5.1.4 Timing and Tenor

The unhedged strategy is effectuated from the initial drawdown of the debt facilities. It persists for the duration of these loans or until management elects to implement a hedging program. The tenor of this unhedged exposure aligns with the respective tenors of the PCT and SS debt facilities. Each quarterly interest rate reset can be viewed as a discrete point at which the unhedged strategy is implicitly reaffirmed for the subsequent period based on the prevailing BBSY fixing.

5.1.5 Initial and Ongoing Cashflows and Costs

No direct initial costs are associated with *not* entering into derivatives contracts to hedge exposures. The primary benefit of not hedging is avoiding upfront premium payments (for options) or potential transaction costs associated with entering other derivatives positions.

The ongoing cashflows and costs are the variable quarterly interest payments due on the floating rate debt ($300 million), which is given by:

$$\begin{aligned} \text{Interest Payment} = &\left(\text{Principal}_{PCT} \cdot \left(\text{BBSY}_{3m} + \text{Spread}_{PCT}\right)\right)/4 \\ &+ \left(\text{Principal}_{SS} \cdot \left(\text{BBSY}_{3m} + \text{Spread}_{SS}\right)\right)/4 \end{aligned} \tag{1}$$

The "cost" inherent in this strategy is the economic uncertainty surrounding these payments, which will fluctuate directly with BBSY. Indirect costs may arise while no explicit fees are paid for hedge maintenance. These can include increased managerial resources devoted to monitoring market volatility and re-forecasting and potentially a higher cost of capital or reduced firm valuation if investors perceive the unhedged risk as excessive (Smith and Stulz, 1985; Stulz, 1996).

5.1.6 Expected Outcomes or Payoffs

The financial outcome of an unhedged strategy is contingent upon the realised path of future interest rates, juxtaposed with PPT's treasury team's expectations. Contextually, if prevailing market rates rise, PPT weathers escalating interest expenses, which reduce operating cash flows and pressure the ICR, directly eroding firm profitability. Conversely, if interest rates decline, PPT benefits from reduced interest payments, enhancing cash flows and improving the ICR. However, a notable characteristic is the market rate volatility regardless of net direction, wherein PPT's interest expenses become unpredictable, complicating financial planning, budgeting and potentially dividend policy. Such volatility can be particularly detrimental to REITs, which are often valued for stable and predictable income streams. The sensitivity of the annual interest expense and ICR to changes in BBSY is illustrated in Figure 1.

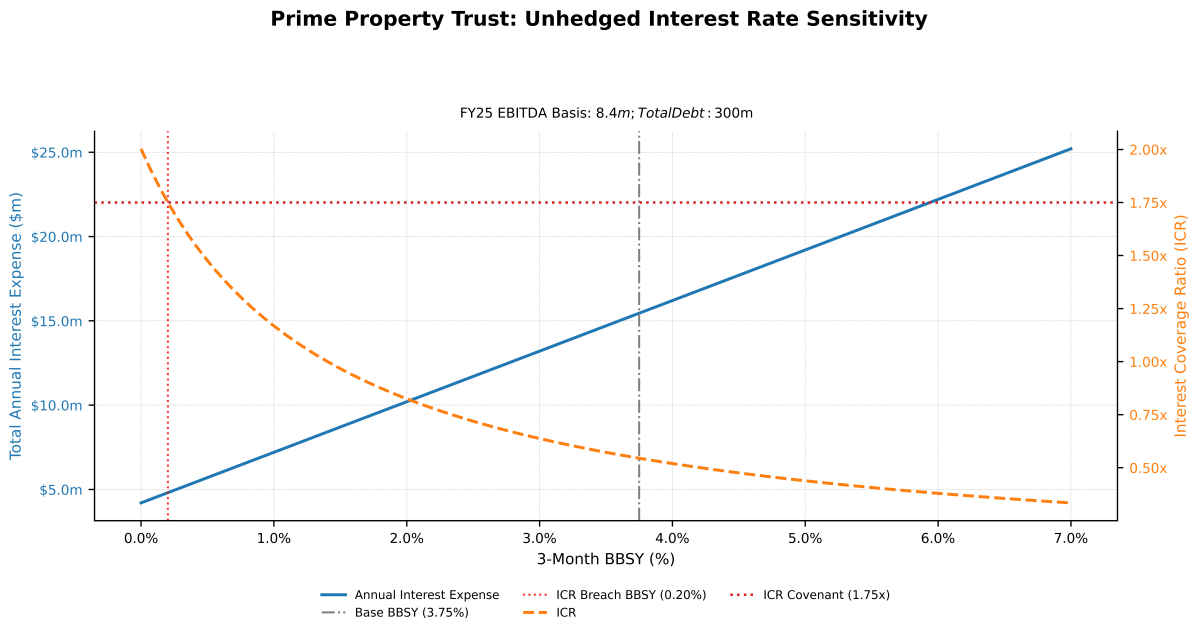

Figure 1: Sensitivity of Prime Property Trust's Annual Interest Expense and ICR to BBSY Changes under an Unhedged Strategy.

The payoff structure is linear concerning BBSY changes; each basis point movement in the 3-month BBSY directly alters the quarterly interest expense by $7,500 on the combined $300 million facilities.

5.1.7 Risks and Downside

The decision to forego hedging exposes PPT to several material risks amplified by the firm's financial structure and covenants.

Interest rate risk, the direct risk that increases in the 3-month BBSY, will lead to higher debt servicing costs, given that PPT's explicit communications about budgeted cost obligations constitute a primary risk factor.

Maintaining an interest coverage ratio (ICR) greater than 1.75x is a significant constraint. Previously expounded upon, the pro-forma ICR is approximately 0.54x (FY25 "Net Rentals (EBITDA)" of $8,412k and the base case FY25 BBSY of 3.75%), which is substantially below the covenant threshold. An unhedged strategy offers no protection against further BBSY increases, which would lower the ICR, almost certainly ensuring a breach. The consequences of such a breach can be severe, ranging from the imposition of stricter terms by lenders and demands for early repayment to, ultimately, insolvency (Smith and Stulz, 1985; Titman and Wessels, 1988). The high leverage implied by this low ICR makes the firm particularly vulnerable.

Unhedged interest expenses introduce significant volatility into PPT's earnings and cash flow profile, wherein this unpredictability can complicate internal capital budgeting and strategic planning (Froot et al., 1993), lead to underinvestment if internally generated funds are unexpectedly diverted to higher debt servicing (Mayers and Smith, 1987) or engender equity market penalisation, especially for REITs where investors often seek stable dividend yields (Ooi et al., 2006).

Firm value considerations.

5.1.8 Feasibility and Suitability

The operational feasibility of a non-hedging strategy is indisputable, as it represents the default state requiring no proactive financial market intervention or associated transaction costs. PPT can readily implement this strategy by simply servicing its debt obligations as they fall due, based on the prevailing floating market rates. However, the critical question pertains to the suitability of such an approach for PPT, given its specific financial structure, risk exposures, stated objectives, and the broader expectations for entities within the REIT sector (Myer and Webb, 1993).

The decision not to hedge material financial risks can be suboptimal if such risks increase the probability of financial distress or lead to underinvestment in valuable projects (Froot et al., 1993; Smith and Stulz, 1985). Moreover, the Treasury team's explicit concern regarding the impact of interest rate movements on their ability to meet budgeted cost obligations over the next year contravenes the inherent uncertainty accepted by forgoing hedging. An unhedged position directly exposes PPT's interest expense and budget adherence to the full volatility of the 3-month BBSY.

The nature of REITs and the expectations of their investors generally favour stable and predictable income streams, often to support regular distributions (Giliberto, 1990). The market can perceive the earnings volatility introduced by unhedged, large-scale floating-rate debt negatively, potentially increasing PPT's cost of equity or reducing its valuation multiples (Allayannis and Weston, 2001). Furthermore, the Sterling Square (SS) development, representing $200m of the new debt, will be in a non-income-generating construction phase until FY27. During this period, its floating-rate interest payments will be a direct charge against earnings generated by other assets, heightening the sensitivity of PPT's overall financial health to interest rate spikes. Not hedging this specific exposure during the construction phase is particularly risky.

From a managerial decision-making standpoint, the theory of real options might suggest that maintaining flexibility (by not locking into hedges) has value, especially in uncertain environments (Davis, 1996). However, this value of flexibility must be weighed against the potentially catastrophic costs of a covenant breach. Given the apparent severity of the ICR situation, the argument for preserving flexibility by not hedging is substantially weakened. The primary objective should shift towards ensuring financial stability and covenant compliance (Tufano, 1996).

5.2 Conclusion

Remaining unhedged, while the simplest option, exposes Prime Property Trust to unmitigated interest rate risk that directly threatens its ability to meet budgeted costs and, critically, to comply with its ICR covenant. Given the projected financials, this strategy is exceptionally high-risk and appears unsuitable for PPT. It would require a radical deviation from prudent financial management unless significant undisclosed information alters the risk landscape.

5.3 Forwards

5.3.1 Mechanics

5.3.2 Size or Number of Contracts

5.3.3 Position and Contract Maturities

5.3.4 Timing and Tenor

5.3.5 Initial and Ongoing Cashflows and Costs

5.3.6 Expected Outcomes or Payoffs

5.3.7 Risks and Downside

5.3.8 Feasibility and Suitability

5.4 Futures

Employing exchange-traded futures contracts represents a standardized approach for PPT to manage its exposure to fluctuating 3-month BBSY rates.

5.4.1 Mechanics

ASX 90-Day Bank Bill Futures are standardized, legally binding agreements to notionally buy or sell a 90-day bank-accepted bill with a face value of AUD $1,000,000$.

5.4.2 Size or Number of Contracts

$$\text{Number of Contracts} = h^* \cdot \frac{\text{Amount to be Hedged}}{\text{Value of One Futures Contract}} \tag{2}$$

where h^* denotes the hedge ratio. Notably, we can express the hedge ratio as:

$$h^* = \rho_{SF}\frac{\sigma_S}{\sigma_F} = \frac{\text{Cov}(S,F)}{\text{Var}(F)} \tag{3}$$

where S is the spot price of the underlying asset, and F is the futures price.

5.4.3 Position and Contract Maturities

5.4.4 Timing and Tenor

5.4.5 Initial and Ongoing Cashflows and Costs

5.4.6 Expected Outcomes or Payoffs

The primary expected outcome of employing a short futures hedge is the stabilization of future effective borrowing costs against variability in the 3-month BBSY.

5.4.7 Risks and Downside

Substantial adverse movements in futures prices can trigger significant margin calls, requiring PPT to provide liquid funds at short notice. Failure to meet margin calls could lead to the premature and forced liquidation of the hedge at an unfavorable time ().

The daily mark-to-market and variation margining process is a significant operational risk.

5.4.8 Feasibility and Suitability

5.4.9 Conclusion

5.5 Swaps

5.5.1 Mechanics

An interest rate swap (IRS) is a contractual agreement between two counterparties to exchange a series of interest payments over a specified period, calculated on a common notional principal amount which itself is typically not exchanged. In its most common form, a "plain vanilla" swap, one party agrees to make payments based on a predetermined fixed interest rate, while the other party agrees to make payments based on a floating interest rate, such as the Bank Bill Swap Rate (BBSY) or another relevant reference rate (REFERENCE, 0000). On each scheduled payment date (e.g., quarterly or semi-annually), these obligations are usually netted, with only the difference being paid by the party owing the larger amount. The fixed rate of the swap is determined at inception such that the initial market value of the swap is typically zero for both parties, reflecting prevailing market conditions and expectations for future interest rates (REFERENCE, 0000). This derivative allows entities to effectively transform the nature of their interest rate exposures or receipts without altering their underlying debt or asset portfolios.

5.5.2 Size or Number of Contracts

5.5.3 Position and Contract Maturities

To convert its floating-rate payments into fixed payments, PPT would enter into a payer swap, meaning it agrees to pay the fixed rate and receive the floating rate (3-month BBSY). This effectively neutralizes its floating rate exposure on the debt.

The maturity of the IRS can be customized to match the tenor of the underlying debt exposure PPT wishes to hedge. Specifically, for the 3-year PCT facility, PPT could enter into a 3-year interest rate swap, whereas for the 5-year SS facility, a 5-year swap could be used.

Alternatively, PPT could use shorter-dated swaps and roll them, or use a series of forward-starting swaps to hedge specific future periods, particularly for the concern over the "next year". The ability to precisely match the tenor of the liability is a significant advantage of swaps over futures, which often require rolling for longer-term hedges (REFERENCE, 0000).

5.5.4 Timing and Tenor

The swap would ideally be entered into as soon as PPT wishes to lock in a fixed rate for its future interest payments. The fixed rate achievable will depend on the swap market conditions at the time of execution. The "next year" focus () might lead to considering swaps covering that period, or even forward-starting swaps that become effective at a future date.

The tenor of an IRS is highly customizable. PPT can choose tenors ranging from a few months to several years (e.g., 1, 2, 3, 5 years or even longer), allowing for a precise match with the life of its debt facilities or its specific hedging horizon. This alignment reduces the risks associated with maturity mismatches.

5.5.5 Initial and Ongoing Cashflows and Costs

Typically, a standard ("at-market") interest rate swap has no upfront premium or initial cost, as the fixed rate is set such that the initial present value of the fixed and expected floating legs are equal. However, transaction costs or bid-ask spreads charged by the swap dealer (the bank) are implicitly built into the agreed fixed rate. Off-market swaps (where the fixed rate is set above or below the prevailing market rate) would involve an upfront payment or receipt.

5.5.6 Expected Outcomes or Payoffs

The primary outcome of entering a payer swap is the conversion of PPT's variable interest expense into a predictable, fixed expense for the term of the swap.

5.5.7 Risks and Downside

5.5.8 Feasibility and Suitability

6 Hedging Rationale

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