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AUSTRALIA'S HOUSING INFRASTRUCTURE FINANCING: A PORJECT FINANCE APPROACH

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ABSTRACT

Faced by the lack of access to capital markets and the inability to access cheaper and longer tenor debt financing, policymakers in Australia are assisting with a financing mechanism for housing projects through a public-sector housing development bank, National Housing Finance and Investment Corporation (NHFIC). A project finance model, one of the most common financing arrangements for public-private partnership projects, has been initiated by NHFIC to assist with debt structuring for projects involving community housing providers. This research determines the operating subsidy levels that meet the lender's requirements, determines the maximum permissible debt size by considering two lenders' constraints using the debt sculpting (DS) method, and compares debt sizes by examining the DS and annuity repayment methods. Three case studies were utilised to determine the subsidy levels and maximum permissible debt size and to analyse the effectiveness of the DS method.

Keywords: housing financing policy, public-private partnerships, project finance, debt sculpting

1.0 INTRODUCTION

Housing infrastructure investment has been promoted via public-private partnerships (PPPs) in Australia. Housing infrastructure refers to social and affordable housing. The government is often involved in a financially non-viable and socially desirable project through the provision of incentives or subsidies in PPPs (Byoun & Xu, 2014). An incentive structure is designed to induce early investment in PPPs. The immediate investment is considered optimal by the government because it satisfies public needs (e.g. health and education) or induces positive externalities (e.g. transport infrastructure) (Armada et al., 2012). Government plays an important role in encouraging early investment in housing infrastructure projects as housing is not considered as financially rewarding as other infrastructure sectors.

The involvement of the National Housing Finance and Investment Corporation (NHFIC), a public-sector housing development bank, has changed the housing infrastructure investment environment in Australia. Australia has established an incentive structure to bridge institutional investment and to address one of the challenges faced by the community housing sector (CHS) in housing infrastructure investment. NHFIC is a financial intermediary that matches the financing requirements of CHS with the investment preferences of institutional investors (AHWG, 2017). This arrangement addresses the major challenge in the Australian housing system: lack of access to capital markets. It also addresses one of the challenges faced by CHS: the inability to access cheaper and longer tenor financing. NHFIC acts as an incentive mechanism to attract institutional investors and to support more social and affordable housing provisions.

Project finance (PF) is a method of raising long-term debt financing based on lending against project cash flow that is frequently associated with projects developed under PPPs. This contractual form has been initiated by NHFIC to assist with debt structuring for housing projects involving community housing providers (CHPs). PF is viable only in light of the size and volatility of project cash flows generated by the project because of non-recourse debt (Gatti, 2013). It is crucial to identify the cash flow components of projects because lenders solely rely on project cash flows to assess the financial viability of the respective projects. For financially non-viable and socially desirable projects, government subsidies are commonly used to improve financial viability (Byoun & Xu, 2014). Therefore, it is necessary to build a financial model to determine subsidy levels that will adequately meet the lender's requirements and improve financial viability in housing infrastructure projects.

The determination of debt size is at the heart of debt structuring in a PF transaction (Bodmer, 2014). The drivers of debt size are operating cash flows, debt service coverage ratio (DSCR) requirement, interest rate, tenor, and debt repayment methods (Bodmer, 2014). Annuity repayment (AR) and debt sculpting (DS) models are two methods used to estimate debt size (Bodmer, 2014). An AR implies that the debt service is constant over the life of the loan while DS assumes the principal payment can be adjusted annually maintaining the DSCR requirement. Compared with the AR method, a DS method is useful to maximise debt size. Thus, a higher leverage ratio allows the sponsor to apply equity resources to other projects, limits downside risk, and significantly improve returns on invested capital.

There appears to be a paucity of studies discussing housing financing through a PF financing mechanism. The study focuses on the (1) determination of subsidy levels that meet the lender's requirements, (2) determination of maximum permissible debt size that meet the lender's financial covenants, and (3) comparison of debt sizes through different repayment methods. The study addresses the following three research questions: (1) What is the level of subsidy? (2) What is the maximum permissible debt? (3) Can the DS method maximise debt size?

This paper contributes to the literature of project finance in housing studies because project finance model is a relatively new financing model in housing infrastructure. Although project finance is widely used in financing infrastructure assets, a limited attention to financing social and affordable housing assets via project finance has been received. This research highlights that the PF model provides an innovative financing mechanism to finance housing infrastructure in Australia. The PF model benefits CHPs by (1) developing PF knowledge, (2) understanding the potential to be financed by NHFIC through its PF solutions, and (3) enhancing the capability to conduct financial modelling to determine subsidies and debt size. Secondly, the local government is often indirectly involved in the explicit form of PPPs in PF. This study assists public administrators in the state and territory governments to ascertain the more cost-effective way of delivering new social and affordable housing by using CHPs as a delivery agent and NHFIC's innovative financing arrangements. Lastly, the findings of this research have implications for the Department of the Treasury internationally to improve the availability and reduce the cost of finance for incentivising housing infrastructure investment. Faced by under-developed capital markets in their respective countries, public administrators may learn from Australia's experience in encouraging housing infrastructure investment by establishing a public-sector housing development bank to facilitate financing mechanisms for housing infrastructure projects. They also benefit from an understanding of using the non-for-profit sector to formulate a contractual-based PF structure to observe the determinants and impacts of various structural decisions in a more transparent manner. Overall, this research has implications on housing infrastructure financing policy to implement PPPs in housing. The incorporation of PPPs as a delivery mechanism and PF as a financing mechanism may address Australia's housing affordability problem by increasing the supply of new social and affordable housing.

This paper is organised as follows. Section 3.0 takes Australia's current housing infrastructure environment as an example to discuss the contractual structure of the PF. Section 4.0 discusses the literature review while Section 5.0 offers methodology and data. Section 5.0 presents the findings and discussion. Section 6.0 concludes this paper.

2.0 PUBLIC-PRIVATE PARTHERSHIPS AND PORJECT FINANCE

We take Australia's current housing PPP environment as an example to explain the contractual structure of housing infrastructure using a PF model. The project sponsor is a registered CHP who establishes an SPV to own social and affordable assets, operates the assets, and receives government payments. The developer and builder are the main contractors who develop and construct social and affordable housing. Social and affordable tenants are the service users. The debt providers consist of private financial institutions and a public housing development bank, NHFIC. This institution issues AHBA in the capital market to attract institutional investment and offers NHIF to the state government to support more social and affordable housing provisions. The equity providers include institutional investors, private investors, and CHPs. Governments are involved in social and affordable housing through the provision of subsidies. Figure 1 illustrates the structure of housing PPPs using the PF model.

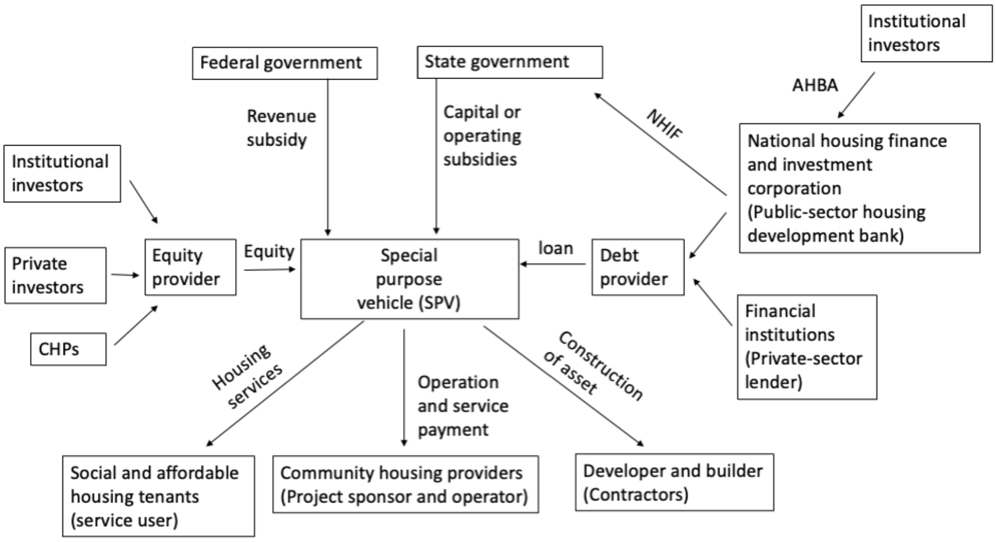

Figure 1. The structure of housing PPPs using the PF model

3.0 LITERATURE REVIEW

Operating cash flows in a PF model are dynamic. Operating cash flow, known as cash flow available before debt service (CFADS) in PF, is defined as the difference between inflows and outflows before considering financial items (Gatti, 2013). In other words, CFADS are the amounts that can be used to service debt and pay dividends to sponsors. In the construction phase, CFADS are all negative and lenders allow the project company to draw down loans. When the project progresses from the operational phase, CFADS reverse and is still negative because the project starts generating revenues. CFADS turns positive until the project reaches a certain point during the operational phase. In summary, CFADS in the construction period is negative while they are partially negative and positive in the operation phase.

Cash inflow mainly comprises three different sources in Australia's housing projects: tenant income and subsidies. Social and affordable housing rents are generally set below market levels and are influenced by household incomes (AIHW, 2021). The below-market level rent forms a part of cash inflow during the operating phase. Financial assistance in the form of subsidies is typically implemented to enhance the financial viability of housing projects. Revenue subsidy takes two forms in housing infrastructure. Armada et al. (2012) define revenue subsidy as a variable subsidy per customer. Rent assistance from CRA varies according to the customer's family situation and the number of children they have (DSS, 2019). CRA can be considered as a form of revenue subsidy. Owing to the low rental return from housing tenants, operating subsidies are widely used as a form of revenue to support housing investment outcomes internationally (Lawson et al., 2018). Public grants in PPP projects represent a key source of financing for building and operating facilities that serve the needs of the public (Gatti, 2013).

Further, cash outflow comprises initial housing development costs (IHDC) and operating expenses. IHDC includes land cost, development cost, construction cost, and finance cost. Capitalised interest and fees are an important part of the IHDC in PF because all the funds are used to pay for the construction of the project and no money is left to service the debt (Gatti, 2013). Therefore, interests and fees must be capitalised during the construction phase and be amortised following the amortisation schedule of the loan.

The bankability of a housing project is a fundamental prerequisite for lenders to establish a successful financing structure. DSCR is an important indicator of financial sustainability and is the lender’s main criterion for a project’s financial viability. DSCR is the ratio of the annual cash available to the annual total debt service. In theory, DSCR should be at least equal to or larger than 1.0 to be acceptable (Zhang, 2005). An infrastructure project is bankable when the DSCR is in the range 1.10x–1.25x and is satisfactory when the DSCR is between 1.30x and 1.50x (Zhang, 2005). A DSCR above 1.50x is a preferable project (Zhang, 2005). DSCR reflects the project’s debt carrying ability.

Based on the literature, a robust and stable revenue stream is critical to the project’s debt capacity because debt is serviced through long-term revenues over the operation period. The DSCR requirement ensures the availability of sufficient liquidity for the scheduled repayment of loans plus interest payments from the CFADS. The housing revenue stream relies on rental profiles and subsidies. The government intervenes by providing subsidies in Australia’s housing infrastructure investment when a socially desirable project is not financially viable for private investors. Therefore, hypothesis 1 is stated as follows:

Hypothesis 1: The level of subsidy is linked to the DSCR requirements and rental profiles.

The maximum permissible debt size is affected by the lender’s requirements in the form of financial covenants known as DCR and DSCR. Bodmer (2014) states that the debt size is influenced by two constraints that are implicitly and explicitly used by lenders. The debt-to-capital constraint comes from the banking philosophy that equity providers will have a strong motivation to project success and consider downside risk (Bodmer, 2014). DSCR is an important indicator of financial status and reflects a project’s carrying ability, thus it is the lender’s main criterion for a project’s financial viability (Zhang, 2005).

Empirically, PF benchmarks used by NHFIC are explicitly provided in its credit policy. The maximum debt to capital ratio is 85 per cent (Siliprandi, 2020). DSCR for social housing ranges from 1.15x to 1.25x, while DSCR for affordable housing varies from 1.35x to 1.5x (Siliprandi, 2020). Compared to the DSCR requirements from Zhang (2005), NHFIC’s housing credit policy falls in the bankable range for social housing and satisfactory range for affordable housing. Bodmer (2014) points out that lenders aim to ensure that debt size does not exceed a given DCR and that the DSCR does not fall below a given DSCR in determining the amount of debt in PF. Debt size is driven by several factors, such as debt tenors, debt repayment methods, operating cash flows, and interest rates (Bodmer, 2014). These factors can determine whether the debt size is limited by minimum DSCR or maximum DCR constraints. Bodmer (2014) observes the followings situations: a higher cash flow may limit debt size due to DCR constraint, a shorter debt tenor may restrict debt size due to DSCR constraint, a higher interest rate may limit debt size due to DSCR constraint, and DS method may restrict debt size due to DCR constraint.

Based on the literature, debt size is limited by minimum DSCR or maximum DCR constraints and is driven by DSCR requirements, debt tenors, debt repayment methods, operating cash flows, and interest rates. We assume the debt tenor is 30 years and adopt the DS method. Therefore, we can focus on the other three factors to observe whether DSCR or DCR constraint limits debt size. Given a relatively low cash flows from housing infrastructure projects, we expect the DSCR constraint to have a stronger impact on debt size than the DCR constraint. Due to NHFIC's lower interest rate provision and lower DSCR requirements, we expect the DCR constraint to have a stronger influence on debt size than the DSCR constraint. Therefore, we propose hypothesis 2 as follows:

Hypothesis 2: In terms of operating cash flow, the DSCR constraint has a stronger influence on debt size than the DCR constraint. In terms of interest rate and DSCR requirements, the DCR constraint has a stronger impact on debt size than the DSCR constraint.

Academic studies pay less attention to the impact of debt repayment methods, particularly the DS method, on debt size in the context of PF. Debt repayment methods include the DS and AR methods. Debt repayments that are calculated based on ARs imply that the debt service is constant over the life of the loan. The debt profile of the AR method has a specific characteristic: principal payment increases with each instalment while interest amount decreases as the debt balance decreases. Alternatively, debt repayments calculated based on the DS method assume that the principal payment can be adjusted annually by maintaining the DSCR requirement. In other words, principal payment increases if the CFADS increases. Therefore, debt service is not constant. Zhang (2005) formulates a methodology for capital structure optimisation assuming the AR method in privatised public infrastructure projects. Dias and Ioannou (1995) address debt capacity and optimal capital structure for privately financed infrastructure projects using the AR method to determine debt size. The authors define debt capacity as the maximum amount of debt a company can borrow to fund a project in a perfect capital market (Dias & Ioannou, 1995). This definition implies the use of the corporate finance concept, where the AR method is dominant. Shah and Thakor (1987) discuss leverage using the AR method in the context of PF. Academic literature assumes the AR method to examine the level of debt and optimal capital structure. On the contrary, Bodmer (2015) points out that DS is used in a PF model and has the potential to maximise the debt size. Although the literature is scant and based on theoretical study, it suggests the following third testable hypothesis:

Hypothesis 3: DS-based debt size is higher than AR-based debt size.

4.0 METHODOLOGY AND DATA

4.1 Methodology

The methodological novelty in this paper is the application of the DS technique in PF for housing infrastructure investment. DS is a modelling technique used to derive debt repayments with the debt size by meeting the target DSCR ratio (Bodmer, 2014). The DSCR is calculated as cash flow available for debt service divided by the sum of interest payment and principal payment. The DS method maintains a constant DSCR and rearranges the equation as follows:

Principal payment = (cashflow available for debt service/targeted DSCR) – interest payment

There are three stages in this study. The first stage identifies the subsidy levels that satisfy the lender's requirements to derive cash flow available for debt service. There are three layers of cash flows available for debt service. The first two layers are net rental incomes from social housing and affordable housing, respectively. The last layer is the subsidy level. We use the AR method to determine the subsidy levels by meeting the DSCR requirements (1.1–1.25x for bankable projects, 1.3x–1.5x for satisfactory projects, and over 1.5x for preferable projects).

In the second stage, we find the maximum permissible debt amount through DS, given the DCR and DSCR constraints. Siliprandi (2020) indicates that the maximum DCR is 85% as well as DSCR guidelines of 1.15x–1.25x for social housing and 1.35x–1.5x for affordable housing. The maximum permissible debt size is the lower amount between DCR-based debt size and DSCR-based debt size. We calculate debt repayment service using the above formula based on NHFIC's targeted DSCRs for social housing and affordable housing. We calculate DSCRs for four scenarios: (1) 1.15x for social housing and 1.35x for affordable housing, (2) 1.2x for social housing and 1.4x for affordable housing, (3) 1.25x for social housing and 1.45x for affordable housing, and (4) 1.25x for social housing and 1.5x for affordable housing. Then, the debt size can be determined. The debt size is the net present value of debt service with an interest rate. We calculate interest rate for six scenarios: (1) 2%, (2) 2.5%, (3) 3%, (4) 3.5%, (5) 4%, and (6) 4.5%. We use this range of interest rate as NHFIC (2021) indicates a possibility of providing 2% of interest rate to social and affordable housing and NAHC (2019) uses 4.5% of private interest rate to conduct a feasibility analysis for government contribution application. Then, the debt size based on 85% of the maximum DCR requirement is calculated. The last step is to compare DCR-based debt size with DSCR-based debt size in different scenarios for observing the behaviour of the maximum permissible debt size.

In the final stage, we compare debt sizes based on the AR and DS methods to observe whether the DS method can achieve a higher debt amount. We use DSCR-based debt size from the second stage as a representative of the DS-based debt size in the final stage. Accordingly, we can compare AR-based debt size and DS-based debt size.

4.2 Assumption and data

Table 1 summarises the product mix, revenue, and costs by suburbs. The targeted tenants separate into two types of housing needs: social housing and affordable housing. The product mix serves as the basis for construction cost calculation and forecasted revenues. It lists market rents, percentage charges based on market rents, and rent charges for 1- and 2-bedrooms unit apartments for social and affordable housing, respectively. It also provides the uses of the fund by suburbs. Table 2 lists the variables used to conduct the feasibility analysis. The sources of variables are displayed in Table 2.

5.0 FINDINGS AND DISCUSSION

5.1 Subsidy levels

The level of subsidy depends on the lender's requirements and net rental incomes from social and affordable housing tenants. According to the indications of Zhang (2005), a project is bankable when DSCR is in the range of 1.10x to 1.25x, is satisfactory when DSCR is between 1.30x and 1.50x, and above 1.5x is preferable. From a lender's perspective on the Frankston project, we find that the level of subsidy should be above $683.33 per dwelling per month to be a bankable project, above $883.33 per dwelling per month to become a satisfactory project, above $1083.33 per dwelling per month to become a preferable project. In North Melbourne, the level of subsidy needs to be higher to become a bankable project ($1133.33 per dwelling per month), a satisfactory project ($1333.33 per dwelling per month), and a preferable transaction ($1,533.33 per dwelling per month). For the Coburg project, the minimum subsidy level is $833.33 per dwelling per month to become a bankable project, $933.33 per dwelling per month to become a satisfactory project, and $1133.33 per dwelling per month to become a preferable project. Therefore, we accept hypothesis 1 that the level of subsidy is linked to the DSCR requirements and mixed rental profile. Please refer to Table 3.

Our findings are partially aligned with NAHC's funding proposal. NAHC (2019) proposes a $1083.33 per dwelling per month contribution for the Frankston project and a $1333.33 per dwelling per month contribution for both the North Melbourne and Coburg projects. Our estimated outcomes show that a $1083.33 per dwelling per month contribution can achieve a preferable transaction from the lender's perspective. However, the proposed $1333.33 per dwelling per month contribution for the North Melbourne project falls in the satisfactory category. The proposed $1333.33 per dwelling per month contribution for the Coburg project is higher than our estimated preferable outcome ($1133.33 per dwelling per month).

Table 1. Summary of product mix, revenues, and costs by three suburbs

	Suburbs		
Targeted tenants	**Frankston**	**North Melbourne**	**Coburg**
Social housing			
Number of 1 bedroom	22	15	22
Number of 2 bedrooms	4	18	17
Total number of dwellings	26	33	39
Affordable housing			
Number of 1 bedroom	50	35	52
Number of 2 bedrooms	8	42	39
Total number of dwellings	58	77	91
Social housing			
1 bedroom market rent ($/week)	$310	$400	$370
2 bedrooms market rent ($/week)	$350	$500	$470
1 bedroom rent charge (%)	60%	47%	50%
2 bedrooms rent charge (%)	69%	48%	51%
1 bedroom rent charge ($)	$186	$188	$185
2 bedrooms rent charge ($)	$241.5	$240	$239.7
Affordable housing			
Rent for 1 bedroom ($/week)	$310	$400	$370
Rent for 2 bedrooms ($/week)	$350	$500	$470
1 bedroom rent charge (%)	75%	69%	70%
2 bedrooms rent charge (%)	75%	69%	70%
1 bedroom rent charge ($)	$232.5	$276	$259
2 bedrooms rent charge ($)	$262.5	$345	$329
Construction cost	$18,401,500	$35,361,150	$38,398,500
Professional fees and costs	$3,770,400	$4,212,250	$4,813,900
Project expenses	$71,439	$201,817	$204,714
GST liability	$2,487,273	$4,264,545	$4,902,727

Source: NAHC (2019)

Table 2. Summary of variables statistics

Variable	Indicator	Sources
Escalation rate for rent	2%	NAHC (2019)
Escalation rate for outgoing	2%	NAHC (2019)
Cost of debt based on private finance	4.5%	NAHC (2019)
Cost of debt based on NHFIC	2.0 - 4.5%	NHFIC (2020) and NAHC (2019)
DSCR for social housing	1.15 - 1.25x	(M. Siliprandi, personal communication, March 5, 2020)
DSCR for affordable housing	1.35 - 1.5x	(M. Siliprandi, personal communication, March 5, 2020)

Table 3. Subsidy level based on the bank's requirements by suburbs

	Suburbs		
Bank's requirement	**Frankston**	**North Melbourne**	**Coburg**
Bankable	$683.33	$1133.33	$833.33
Satisfactory	$883.33	$1333.33	$933.33
Preferable	$1083.33	$1533.33	$1133.33

5.2 Comparison between DCR-based and DSCR-based debt sizes

Our calculated outcomes show that the DSCR constraint has a stronger influence on debt size than the DCR constraint because of a relatively low operating cash flow in housing infrastructure projects. Additionally, the DCR constraint has a stronger impact on debt size than the DSCR constraint when the interest rate is lower and the DSCR requirements are looser. The maximum permissible debt size is the choice of the lower number between DSCR-based and DCR-based debt amounts. Therefore, DSCR-based debt size becomes the maximum permissible debt amount if the operating cash flow is low. DCR-based debt size is the maximum permissible debt amount if the interest rate is low and the DSCR requirements are looser. Table 4 illustrates the choice between DSCR-based debt size and DCR-based debt size in three projects.

Comparing preferable categories in the three projects or three categories in one project to observe how operating cash flow affects maximum permissible debt size, we observe that the maximum permissible debt size tends to be DSCR-based debt size when the operating cash flow is low. The Frankston project generates the lowest cash flow while the North Melbourne project provides the highest cash flow among the three projects. Therefore, DSCR-based debt size tends to become the maximum permissible debt amount in the Frankston project while DCR-based debt size is likely to be the maximum permissible debt size in the North Melbourne project. On the other hand, considering the North Melbourne project as an example to observe how the interest rate and DSCR requirements affect the maximum permissible debt size, we observe that DCR-based debt size tends to be the maximum permissible debt size when the interest rate is lower and the DSCR requirements are loose. The observed outcomes confirm with Bodmer's (2015) observation. Therefore, we accept hypothesis 2 that the DSCR constraint has a stronger influence on debt size than the DCR constraint in a relatively lower cash flow of housing infrastructure projects. Given access to lower interest rates and looser DSCR requirements, the DCR constraint has a stronger impact on debt size than the DSCR constraint.

5.3 Comparison between DS-based debt size and AR-based debt sizes

Our estimated results suggest that DS-based debt size is not always higher than AR-based debt size. The outcomes depend on subsidy levels, interest rates, and DSCR requirements. In Frankston's bankable category, DS-based debt size is always lower than AR-based debt size. If the subsidy level increases to the satisfactory category, DS-based debt size is partially higher than AR-based debt size. If 4.5% of interest rate and stricter DSCR requirements (Scenario 3 and 4) apply, DS-based debt size is lower than AR-based debt size in the preferable category. In North Melbourne's bankable category, DS-based debt size is higher than AR-based if 2% of interest rate and scenarios 1 or 2 apply. In the satisfactory and preferable categories, DS-based debt sizes achieve higher results than AR-based debt size, given a lower band of interest rate (2%–3%). The Coburg project has similar outcomes as North Melbourne. Therefore, we partially accept hypothesis 3 that DS-based debt size is higher than AR-based debt size. Please refer to Table 5.

DS is optimal if the lenders can provide lower interest rates and looser DSCR constraints. Housing infrastructure projects in Australia might benefit from leveraging NHFIC's credit policy which promotes the use of PF to increase the supply of social and affordable housing.

6.0 CONCLUSION

The significance of this study is the methodological innovation of PF as a financing mechanism to finance housing infrastructure in Australia. To understand how to finance through the PF model, this study contributes to determining subsidy levels that meet the bank's requirements. It also contributes to the debt structuring of the PF model to housing by applying the DS method. Lastly, this study contributes to identifying the favourable financial situation if DS is applied to the PF model.

Further research can examine the financial viability of housing projects considering capital subsidy or land contribution. They can also address the impact of debt tenor on debt size in the DS method. Finally, they can investigate multiple tier capacity payments or balloon payments in the PF model.

Table 4. Maximum permissible debt size in the Frankston, North Melbourne, and Coburg suburbs

	Interest rate																	
Scenario	2%	2.5%	3%	3.5%	4%	4.5%	2%	2.5%	3%	3.5%	4%	4.5%	2%	2.5%	3%	3.5%	4%	4.5%
	Bankable category						Satisfactory category						Preferable category					
Frankston																		
1	14,654	13,691	12,815	12,017	11,289	10,624	18,202	17,010	15,925	14,937	14,036	13,212	21,021	20,329	19,036	17,858	16,783	15,801
2	14,101	13,174	12,331	11,563	10,863	10,223	17,515	16,368	15,324	14,374	13,506	12,714	20,929	19,562	18,317	17,184	16,149	15,204
3	13,589	12,695	11,883	11,143	10,468	$9,852	16,878	15,773	14,767	13,851	13,015	12,252	20,168	18,850	17,651	16,559	15,562	14,652
4	13,287	12,414	11,620	10,896	10,236	9,633	16,505	15,424	14,441	13,545	12,727	11,981	19,723	18,434	17,261	16,193	15,219	14,328
North Melbourne																		
1	37,433	36,458	34,087	31,929	29,963	28,168	37,433	37,433	37,433	35,748	33,554	31,552	37,433	37,433	37,433	37,433	37,146	34,936
2	37,433	35,089	32,807	30,730	28,837	27,110	37,433	39,265	36,720	34,404	32,294	30,367	37,433	37,433	37,433	37,433	35,750	33,623
3	36,239	33,819	31,620	29,618	27,794	26,129	37,433	37,433	35,391	33,159	31,124	29,267	37,433	37,433	37,433	36,700	34,455	32,406
4	35,402	33,038	30,889	28,934	27,152	25,526	37,433	36,973	34,577	32,396	30,409	28,594	37,433	37,433	37,433	35,858	33,665	31,663
Coburg																		
1	34,814	32,485	30,368	28,443	26,688	25,086	37,555	35,049	32,772	30,699	28,810	27,086	41,071	40,178	37,578	35,212	33,055	31,085
2	33,506	31,264	29,227	27,374	25,685	24,144	36,144	33,732	31,540	29,545	27,727	26,068	41,071	38,667	36,165	33,888	31,812	29,917
3	32,293	30,133	28,170	26,383	24,755	23,270	34,835	32,511	30,398	28,476	26,723	25,124	39,919	37,267	34,855	32,660	30,660	28,833
4	31,549	29,438	27,521	25,776	24,185	22,734	34,034	31,764	29,700	27,821	26,110	24,547	39,005	36,414	34,058	31,913	29,958	28,174

Note:

1. The unit of number is in a thousand of the Australia dollars.
2. DCR-based debt size is $21,021,020 for Frankston project. This amount is calculated by 85% of the total development cost.
3. DCR-based debt size is $37,433,798 for North Melbourne project. This amount is calculated by 85% of the total development cost.
4. DCR-based debt size is $41,071,865 for Coburg project. This amount is calculated by 85% of the total development cost.
5. The green-shaded area means DSCR-based debt size while the red-shaded area means DCR-based debt size.

Table 5. Comparison between DS-based and AR-based debt sizes in Frankston, North Melbourne, and Coburg suburbs

	Interest rate																	
Scenario	2%	2.5%	3%	3.5%	4%	4.5%	2%	2.5%	3%	3.5%	4%	4.5%	2%	2.5%	3%	3.5%	4%	4.5%
	Bankable category						Satisfactory category						Preferable category					
Frankston																		
1	14,654	13,691	12,815	12,017	11,289	10,624	18,202	17,010	15,925	14,937	14,036	13,212	21,021	20,329	19,036	17,858	16,783	15,801
2	14,101	13,174	12,331	11,563	10,863	10,223	17,515	16,368	15,324	14,374	13,506	12,714	20,929	19,562	18,317	17,184	16,149	15,204
3	13,589	12,695	11,883	11,143	10,468	9,852	16,878	15,773	14,767	13,851	13,015	12,252	20,168	18,850	17,651	16,559	15,562	14,652
4	13,287	12,414	11,620	10,896	10,236	9,633	16,505	15,424	14,441	13,545	12,727	11,981	19,723	18,434	17,261	16,193	15,219	14,328
North Melbourne																		
1	37,433	36,458	34,087	31,929	29,963	28,168	37,433	37,433	37,433	35,748	33,554	31,552	37,433	37,433	37,433	37,433	37,146	34,936
2	37,433	35,089	32,807	30,730	28,837	27,110	37,433	39,265	36,720	34,404	32,294	30,367	37,433	37,433	37,433	37,433	35,750	33,623
3	36,239	33,819	31,620	29,618	27,794	26,129	37,433	37,433	35,391	33,159	31,124	29,267	37,433	37,433	37,433	36,700	34,455	32,406
4	35,402	33,038	30,889	28,934	27,152	25,526	37,433	36,973	34,577	32,396	30,409	28,594	37,433	37,433	37,433	35,858	33,665	31,663
Coburg																		
1	34,814	32,485	30,368	28,443	26,688	25,086	37,555	35,049	32,772	30,699	28,810	27,086	41,071	40,178	37,578	35,212	33,055	31,085
2	33,506	31,264	29,227	27,374	25,685	24,144	36,144	33,732	31,540	29,545	27,727	26,068	41,071	38,667	36,165	33,888	31,812	29,917
3	32,293	30,133	28,170	26,383	24,755	23,270	34,835	32,511	30,398	28,476	26,723	25,124	39,919	37,267	34,855	32,660	30,660	28,833
4	31,549	29,438	27,521	25,776	24,185	22,734	34,034	31,764	29,700	27,821	26,110	24,547	39,005	36,414	34,058	31,913	29,958	28,174

Note:

1. The unit of number is in a thousand of the Australia dollars.
2. AR-based debt size is $14,749,355 for Frankston project. This amount is calculated by 80% of the sum of land and construction costs in Frankston with 4.5% interest rate.
3. AR-based debt size is $37,303,795 for North Melbourne project. This amount is calculated by 80% of the sum of land and construction costs in North Melbourne with 4.5% interest rate.
4. AR-based debt size is $37,303,795 for Coburg project. This amount is calculated by 80% of the sum of land and construction costs in North Melbourne with 4.5% interest rate.
5. The green-shaded area means DS-based debt size is higher than AR-based debt size while the red-shaded area means DS-based debt size is lower than AR-based debt size

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