

Public Fund Optimization for Housing Finance (Case Study: Tabungan Perumahan Rakyat, Indonesia)

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Abstract. This research describes the optimization of *Tabungan Perumahan Rakyat* (Tapera) fund management, particularly in highlighting the balance between delivering benefits and fund sustainability. The newly implemented housing finance policy, Tapera is one of the housing finance programs initiated by the government of Indonesia through Law No. 4/2016 and Government Regulation No. 25/2020 to provide a financing alternative for the people, especially those who came from the lower-income segment (MBR). There are three main activities of Tapera fund management: fund collection from the public, fund investment to increase its value, and fund utilization for housing finance. This research is built on the qualitative approach and the analysis is conducted descriptively using the manpower base data from the Central Bureau of Statistics (*Badan Pusat Statistik/BPS*). This research shows that the key to Tapera fund optimization lies in the Tapera fund's portfolio allocation for investment, deliverable benefits, and reserved funds.

Keywords: Tapera, Public Fund Management, Housing Finance, Low Income

1 Introduction

A house is one of the essential needs for a good quality of life. Unfortunately, not everyone has the access to homeownership or some extent—to a proper living environment. One of the housing challenges faced by Indonesia is the unbalanced housing supply and demand, resulting in more than 11 million units of “backlog” (the house ownership shortage). One of the reasons behind this number is the lack of access to housing finance, especially for those who are in the lower-income segment (MBR).

In the future, the backlog problem would also face a greater challenge along with the increasing number of Indonesia's citizens. According to Indonesia Population Projection by BPS (2013) [1], there will be more than 300 million by 2035. Another challenge faced by the housing sector in Indonesia is urbanization. The trend could lead to a more saturated urban area compared to the rural, resulting in a higher price for housing in the cities, urban areas, or centers of activity. The increase in housing prices, if not balanced with the purchasing power of people—especially those who came from the lower-income segment—would be more challenging for the housing sector in the future.

The Government of Indonesia (GoI) has taken a commitment to address this issue through a new housing finance program called *Tapera*, legalized by Law No. 4/2016 [2] and Government Regulation No. 25/2020 [3]. The purpose of Tapera itself is to collect sustainable small funds for housing finance and to satisfy the need for proper and affordable housing for

its members. The fund collected in the *Tapera* program came from the public and therefore should be conducted optimally. The purpose of this research is to describe the optimization of *Tapera* fund management through balancing housing finance benefit deliveries and the sustainability of the fund itself. There are at least three focuses of this research, which are the potential fund collection for *Tapera*, *Tapera* fund management analysis, and the fund utilization to deliver benefits.

2 Literature Review

2.1 Housing Finance Best Practices

Other than Indonesia, there were several countries that already have a similar program to public fund management for housing. For example, there are Housing Provident Fund in China, *Infonavit* and *Fovisste* in Mexico, *Minha Casa Minha Vida* in Brazil, and HSF, Rural Subsidy and General Subsidy in Chile. There are also programs integrated with the national social security system, such as EPF in Malaysia, SSS in the Philippines, and CPF in Singapore. As one of the best practices, HPF in China has been going since 1991 and a decade later has been successfully delivering its service to more than 500,000 beneficiaries.

According to Yeung & Howes (2006) [4], there are several lessons learned from China's HPF. On the positive side, HPF has active contributions to the housing supply sectors, such as producing houses, funding projects for housing development, or mass-producing houses for people who have financial limitations. In addition, from the demand side, HPF takes a role in providing a low-interest credit for housing finance with a longer tenure but with less amount of down payment. On the other side, the limitations of this program include an increasing gap between regions and enterprises, imposing financial burden on enterprises, the increase of unemployed workers, arising problems of inequality [5][6][7][4][8], mismanagement and illegal utilization of the fund, also facing an undeveloped banking system [9][10][4][11].

2.2 Existing Housing Finance Program in Indonesia

Before the implementation of *Tapera*, the GoI has a similar housing finance product named *KPR Sejahtera FLPP*, a subsidy program designed especially for the lower-income segment. The main purpose of this product is to leverage people's purchasing power for housing through the housing interest rate subsidy (*Subsidi Selisih Bunga* or SSB) using *Fasilitas Likuiditas Pembiayaan Perumahan* (FLPP) scheme or translated as a housing fund liquidity facility. Although this program has a limited ceiling for housing purchases, it has several key features, such as a 5% p.a. flat credit interest (below the market: approx. 12% p.a.), a 20-year tenure (longer than the common market credit products), affordable payments, free insurance, tax-free, and lower down payments.

KPR Sejahtera FLPP has its own limitations. The program itself is funded heavily by the government, meaning that the product itself is considered unsustainable since it depends on fiscal policy. In 2020, the fiscal budget for FLPP reached 11 trillion Rupiahs for both the ongoing *KPR Sejahtera FLPP* beneficiaries and new subsidies for down payments and BP2BT programs [12]. The comparison among these housing finance programs is further described in the following Table 1.

2.3 Tapera Fund Management

The Tapera program is an alternative solution designed to face these challenges, such as providing a more sustainable fund for housing finance targeting the low-income segment. It is designed as a membership scheme to collect monthly savings from its members and to deliver benefits for those who came from the low-income segment. Tapera membership is obligatory by the regulations for workers who work for an employer and workers who work independently, and who has a wage or income above the minimum wage. The fund collected is then allocated to investments, benefit deliveries, and reserves.

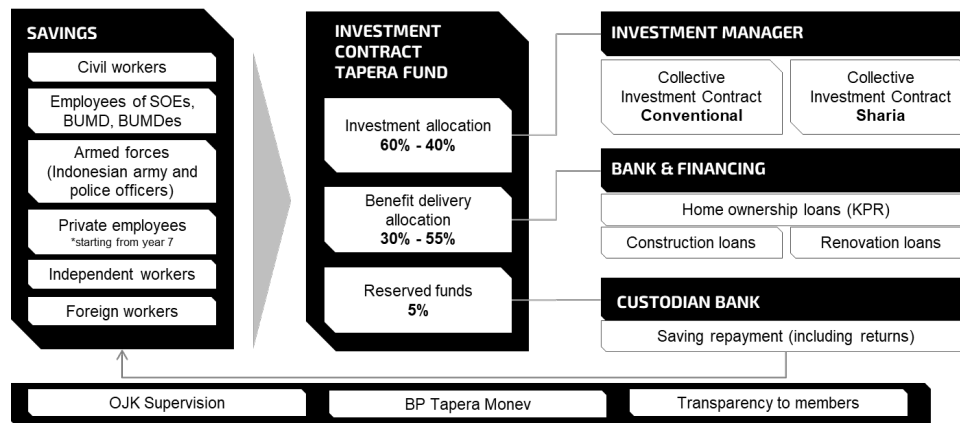


Fig. 1. Tapera Fund Management Scheme [13]

The investment allocation of the Tapera fund is used to add value to the fund itself. The Tapera fund will be invested in local instruments and the process will be done by the investment manager, based on a *Kontrak Investasi Kolektif* (KIK) or collective investment contract. The contract involves both the investment manager and the custodian bank, in agreement with *Badan Pengelola (BP) Tapera*.

Fund allocation for benefit deliveries is designed to leverage housing finance for the eligible members of Tapera. There are three types of benefits from Tapera, which are credit leverages for home ownership (*Kredit Pemilikan Rumah* or KPR), a new construction, and home revitalization or renovation. The delivery itself will involve banks or financial institutions as the intermediary for Tapera products. The eligible beneficiaries are those who have passed 12 months of membership, in the lower-income category, and only applicable for first-home ownership, construction, or renovation.

Fund for reserves is allocated to pay back the amount of initial savings and the return of savings for the members who have ended their memberships, such as for those who are retired (or have reach the age of 58 for independent workers), deceased, or not qualified to be a member for 5 years.

Table 1 Comparison of Tapera and Existing Housing Finance Programs for Low-Income

	KPR-FLPP	KPR-SSB	BP2BT	Tapera
Source of Fund	State Budget	State Budget	BP2BT fund and Beneficiary's Savings	Members' savings
Managing	Center for Housing	Ministry	Ministry of Public	BP Tapera

Institution	Financing Fund Management (PPDPP), Ministry of Public Works & Housing	of Public Works & Housing	Works & Housing	
Benefits	<ul style="list-style-type: none"> - Down payment subsidy - Fixed interest rate of 5% p.a. - Credit tenure up to 20 years 	<ul style="list-style-type: none"> - Interest subsidy of 5% 	<ul style="list-style-type: none"> - Homeownership - Home construction 	<ul style="list-style-type: none"> - Homeownership - Home construction - Home renovation

3 Research Method

This research took a qualitative approach to explore the fund collection potential, fund management optimization, and its impact on the housing sector. The analysis in this research was conducted by a descriptive and explorative statistical method completed with a financial modelling. There are two sources of data for this research: the primary data is from interview with BP Tapera while the population projection, manpower data, and *Survei Ketenagakerjaan Nasional (Sakernas 2017)* were retrieved from the BPS as the secondary data.

4 Results

This section elaborates more about three aspects of Tapera fund management, namely Tapera fund collection, Tapera fund investment, and Tapera fund utilization to deliver benefits.

4.1 Tapera Fund Collection

Tapera membership is mandatory for both workers who work for employers and for workers who work independently, with income above the minimum wage. There are two approaches used in this analysis to estimate the potential of Tapera fund collection, that is the manpower data (to understand the manpower trends through the years) and the Indonesia population projection 2010-2035 (to understand the growth of population in Indonesia). According to analysis from *Sakernas 2017* and manpower data, the weighted proportion of workers in Indonesia is 18% workers who work for employers, 12% independent workers, and the other 70% who have income below minimum wage are not eligible to be a member of Tapera.

According to an interview with BP Tapera (2020), the Tapera membership process will not be implemented for all population at one time, there will be a staging for the membership, starting with 4.2 million civil workers in 2020. The graph (**Exhibit A**) describes the estimation of Tapera fund collection from its members. While the bar graphs describe the number of workers for each category, the line shows the trend of the Tapera fund collection per year. In 2020, there is no saving collection from the members as Tapera is still on initial stage. The fund collection will be started effectively in 2021 for the civil workers. The saving itself is

calculated as 3% from the worker's wage or income, with an income ceiling of IDR 20,2 million (benchmarked to BPJS *Ketenagakerjaan*). The graph shows that the saving trend is increasing year after year alongside the increasing number of memberships.

4.2 Optimizing Tapera Fund Management

Tapera fund management includes two main activities, which are investment and benefit deliveries. In addition to those two activities, the Tapera fund is needed to be reserved as a liquidity to pay back the members' savings and returns for those who are terminating their memberships. Tapera fund optimization requires a balanced proportion for each allocation. The next question is how much is each allocation to achieve the optimization? On one hand, housing finance as the main purpose of Tapera indirectly pushes towards a larger number of benefit deliveries. On the other hand, Tapera program has an obligation to return the members' savings and investment returns when they terminate their memberships.

4.2.1 Tapera Fund Management Flow

The Tapera fund management flow (**Exhibit C**) includes five main components, namely the beginning balance, investment activities, benefit delivery activities, reserving funds activities, and ending balance. The beginning balance shows how much assets the Tapera fund have on the beginning of the year. The ending balance shows how much assets that the Tapera fund have on the end of the year. On the beginning of the year, the beginning balance is allocated for investment, benefit deliveries, and reserves.

The **investment** account shows the flow of activities done regarding the investment of Tapera funds. The investment process is managed by the investment manager and administrated by the custodian bank according to the collective investment contract (KIK). The regulations have stated that the investment management of Tapera fund is acceptable with a return greater than the deposit interest rate on the government bank (1 year). This research assumes that the return of Tapera investment portfolio is equivalent to 5,79%, which is acceptable (greater than the average of BI 7-Day Repo Rate: ~5%). There are two operational costs in the investment activity, which are the cost for investment manager for managing the fund and the cost for custodian bank as the administrator of Tapera fund management. The ending balance of investment account shows how the added value of Tapera fund from investment activity.

The **benefit deliveries** account is accountable for how much there is from Tapera fund that is allocated for delivering benefits to the eligible members. The delivery itself would be through banks or financing institutions cooperated with BP Tapera. There are three activities in this account, which are benefit delivery, security return from banks/financing institutions for the deliverables, and a return from deposit. This activity is also held accountable for administration fee of custodian bank.

The benefit deliveries are the amount used to deliver housing finance leverages for the members, in the shape of home ownership (KPR), house construction, or house revitalization. For example, in the year 2021, the beginning balance of this account is Rp11.36 trillion and is used Rp11.34 trillion for delivering housing finance to the members. On this benefit delivery, the Tapera fund would receive a return in security at the same value. The rate of security is assumed 1,76% p.a. The last activity on this account is the reserve of deliverable funds on liquid instruments, such as time deposit.

The third account for Tapera fund management is the **reserved funds**, which will be used for paying back the members' savings and returns when they finished their memberships. The reserved funds are allocated to a liquid instrument, to ensure the liquidity of Tapera funds' liabilities. The main activity in this account is the payback of saving and its return to the members who finishes their memberships. For example, in 2020 Tapera is estimated to have a liability to pay back Rp138.7 billion for the savings and an addition of Rp4.16 billion for the investment return to the retiring members of Tapera. Just like any other account on Tapera fund management, the activities on this account are also held accountable for administration provided by the custodian bank.

4.2.2 Tapera Fund Income Statement

The Tapera fund income statement (**Exhibit D**) describes how the Tapera fund is managed from the operational perspective, especially how the income streams could balance the expenses. The income streams for Tapera fund management come from the investment return (which is managed by investment managers), interests from deposits, and interest from deliverable securities (from banks or financing institutions). The expenses from operating Tapera fund management are the administration fee for investment managers and custodian bank related to the value of the Tapera fund managed and also the return for the members of Tapera, which is administered as a payable for each members' Tapera account.

4.2.3 Tapera Fund Balance Sheet

The overview of financial position of Tapera fund management could be described in the form of balance sheet (**Exhibit E**). From the asset category, there are current assets of Tapera fund which allocated in reserved funds (needs to be liquid) and the noncurrent assets, such as the investment allocation, benefit deliverables account, and the value of benefits delivered. From the liability's category, there are current liabilities that needed to be paid within a year—consisted of the saving and investment return payables to the members—and the noncurrent liabilities, such as the amount of savings and the long-term payable of investment return for the members. The equity category consists reserved surplus, which is a surplus made by the operating activities as described in the income statement.

5 Discussion

From the previous results, there are several considerations regarding the optimization of managing Tapera funds, such as the sustainability aspect of the fund, the ratio analysis, and to what extent this program could contribute to the housing sector in Indonesia.

5.1 Sustainability of Tapera Fund

The first indicator of Tapera fund optimization is to understand whether the existing fund allocation strategy does not have a negative value of operating margin. This indicator could be understood from the income statement of Tapera fund. Using the assumed fund allocation strategy (**Exhibit B**), the optimization of Tapera fund management could be seen from the following figure.

The sustainability aspect of Tapera fund management highlights the balance of income and expenses from the managing fund itself. The balance of surplus/deficit throughout is equivalent or almost zero best describes the balance between the income and expenses. This sustainability is extremely sensitive to the Tapera fund's allocation policy. The increase in investment allocation means lesser fund for benefits, so that the fund management is not optimized. On the other hand, the increase in benefit deliveries allocation means lesser fund for investment, resulting a negative balance (deficit) of income statement.

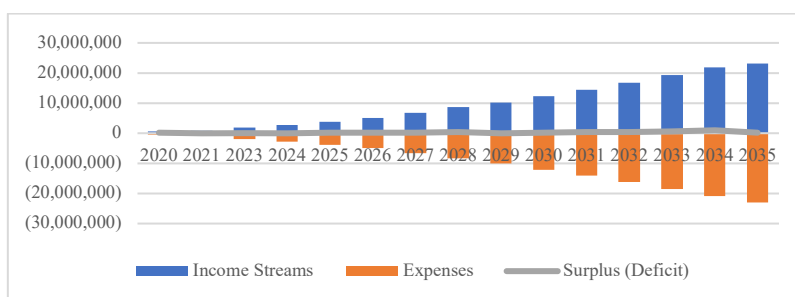


Fig. 2. Sustainability of Tapera Fund Management

5.2 Ratio Analysis

Another way to understand the optimization of Tapera fund management is by using ratio analysis (**Exhibit F**). There are several ratios that could be used to describe the optimization of fund management, classified as follows.

First, the optimization of fund management could be interpreted from to what extent this program could contribute to its services. The first indicator is the operating program efficiency to understand how efficient the program is according to the total cost of the program compared to the cost to operate the program. Although the Tapera fund management could be considered as a non-profit management, there is a difference since there are two different kinds of funds related to Tapera, which are the Tapera fund (from the public/members) and the BP Tapera fund (from the government to be used as the operational fund for the organization itself). Since there are two kinds of funds, the efficiency of Tapera fund management is 100% since it would only be used only for the members.

Second, a service efficiency is a tool to measure the optimization of fund management according to the benefits delivered compared to the total source of funds. This means the benefits of Tapera is the house financing and the investment return for the members. Meanwhile the fund is sourced from Tapera savings and *Tabungan Perumahan Pegawai Negeri Sipil* (Taperum-PNS) saving. As we could see from the table on **Exhibit F**, the percentage of Tapera fund management service efficiency is increasing throughout the years.

Third, one of the most important ratio analyses is the liquidity ratio which could be measured by the current and quick ratio. This reflects Tapera fund's ability to pay its short-term payables (current liabilities). According to Berger (2008) in Coe (2011) [14], the healthy current and quick ratio for non-profit organization is between 2.0 to 4.0. The result of this research shows that the current and quick ratio of Tapera fund management is acceptable.

Fourth, the operating margin of Tapera fund management could be measured to understand how optimized the program is. The result shows that the operating margin for fund management is nearly 0%, reflecting the balance of income and expenses. The only exception

on the year 2020 where the operating margin is 27.93%, reflecting there is no benefit deliveries available on that year.

Fifth, the debt to service ratio could be measured with the debt ratio and debt-to-equity ratio. The debt ratio of Tapera program is extremely high, ranged from 90% to 100%. Despite that, it is still logical, considering the fund itself mainly sourced from the members who are treated as liabilities. The second is the debt-to-equity ratio, which explains the liabilities of Tapera fund compared to the equity. Since the equity of Tapera fund is only from the reserved surplus, this means a larger number for the debt-to-equity ratio.

5.3 Benefits Delivered

The last indicator of fund management optimization is the benefits successfully delivered to the members. According to the regulations, the members eligible for benefits are those who came from lower-income segment. The table on **Exhibit G** shows the value and the number of delivered benefits as a result from Tapera fund management. For example, the delivery of benefit starts on 2021 and could deliver benefits to more than 79,000 members. As the years go on, there are more than 661,000 members who could gain housing finance benefits from Tapera program by 2035. As a comparison, the backlog in 2035 was estimated to reach 15.5 million of household. This means the Tapera program have a potential to lessen the burden of backlog for about 22.11%.

6 Conclusion

First, the fund collected from the public—or in this context—the members of Tapera, the fund management needs to be optimized. This research shows that this collection step holds a key role to Tapera fund management. From the analysis, it is known that the membership acquisition has an enormous potential on gathering a larger amount of fund. On the longer run, the larger number of memberships Tapera has, the more benefits could be generated through this program.

Second, the optimization of Tapera fund management could be understood by balancing the benefit deliveries with the fund's sustainability. The optimization could be achieved through the fund allocation strategy: the investment, the benefit deliveries, and the reserved funds. Moreover, Tapera fund management also bears several costs, especially related to administration and operation. This research also shows that the range of fund allocation by BP Tapera is logical and on an optimized range.

Third, the Tapera program could deliver benefits for its members through three types of products, which are home ownership credits (KPR), house constructions, and home renovations. The result of this analysis shows that the benefits generated from this program are quite impactful (22.11% of backlog in 2035). However, the delivery itself should be implemented carefully and should be considering the supply side of the housing sector, so that the product delivery is effective to solve the housing problems in Indonesia.

In an effort to provide a sustainable program for the public, the fund management needs to be carefully operated by the stakeholders involved, such as BP Tapera as the managing institution, custodian bank, investment manager, funding banks/financial institutions, to the supervising institutions (OJK and Tapera Committee). Although Tapera could be considered a breakthrough refinement of Indonesia's housing finance program for the low-income segment,

to achieve the purpose and goal of the program itself, the fund management itself needs to be conducted based on the fundamentals and principles as stated in the Law of Tapera.

References

- [1] Badan Pusat Statistik, *Proyeksi Penduduk Indonesia 2010-2035*. Jakarta: Badan Pusat Statistik, 2013.
- [2] UU RI, “Undang-Undang RI Nomor 4 Tahun 2016 Tentang Tabungan Perumahan Rakyat,” 2016.
- [3] Peraturan Pemerintah, “Peraturan Pemerintah Nomor 25 Tahun 2020 Tentang Penyelenggaraan Tabungan Perumahan Rakyat,” 2020.
- [4] S. C.-W. Yeung and R. Howes, “The Role of Housing Provident Fund in Financing Affordable Housing Development in China,” *Habitat Int.*, vol. 30, pp. 343–356, 2006.
- [5] S. Cheng, *The objectives, models, and focus of housing reform in urban China*. Democracy and Construction Press, 1999.
- [6] B. Hu, *China real estate industry under institution reform--theoretical analysis and policy criticism*. Shanghai: Shanghai University of Finance and Economics Press, 2002.
- [7] Y. P. Wang, “Urban housing reform and finance in China: a case study of Beijing,” *Urban Aff. Rev.*, vol. 36, no. 5, pp. 620–645, 2001.
- [8] X. Q. Zhang, “The restructuring of the housing finance system in urban China,” *Cities*, vol. 17, no. 5, pp. 339–348, 2000.
- [9] L. Wang, “Problems of Chinese housing provident funds system,” *Chinese real estate Stud. Ser. 2002/4*, 2002.
- [10] M. C. Xu, “The management system of housing provident fund (1),” *Hous. Real Estate*, vol. 1, pp. 845–864, 1999.
- [11] B. C. Yin, *Introduction to Real Estate Finance*. Fundan University Press, 2000.
- [12] Kementerian Pekerjaan Umum dan Perumahan Rakyat, “Tahun 2020, Kementerian PUPR Alokasikan Anggaran Bantuan Subsidi KPR FLPP Sebesar Rp11 Triliun,” 2019. <https://www.pu.go.id/berita/view/17774/tahun-2020-kementerian-pupr-alokasikan-anggaran-bantuan-subsidi-kpr-flpp-sebesar-rp-11-triliun>.
- [13] Badan Pengelola Tabungan Perumahan Rakyat, *Badan Pengelola Tabungan Perumahan Rakyat*. Jakarta: Badan Pengelola Tabungan Perumahan Rakyat, 2020.
- [14] C. K. Coe, *Nonprofit Financial Management: A Practical Guide*. Hoboken, New Jersey: John Wiley & Sons, Inc., 2011.

Exhibit A Tapera Membership and Saving Estimation

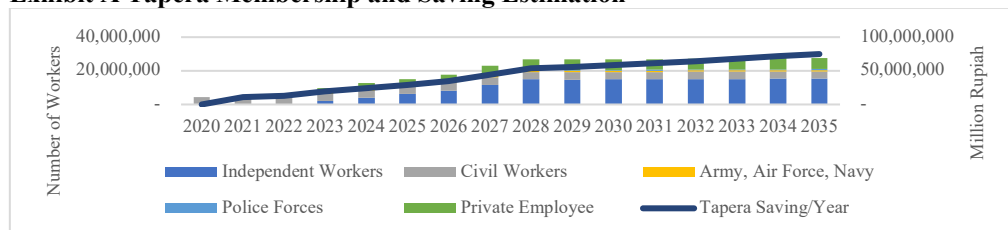


Exhibit B Tapera Fund Allocation Strategy for Optimized Results

Fund Allocation	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Investment	95%	45%	40%	40%	40%	40%	40%	40%	40%	40%	35%	35%	35%	35%	35%	30%
Utilization	0%	50%	55%	55%	55%	55%	55%	55%	55%	55%	60%	60%	60%	60%	60%	65%
Reserves	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Exhibit C Tapera Fund Management Flow

	2020	2021	2022	2023	2024	2025	2026	2027
Beg. Balance	11.000.000	56.360.938	148.592.968	311.248.368	511.978.621	751.663.096		
Investment								
Beg. Balance	10.450.000	22.544.375	59.437.187	108.936.929	179.192.518	225.498.929		
Return	605.055	1.305.319	3.441.413	6.307.448	10.375.247	13.056.388		
Fee – Investment Manager	(104.500)	(225.444)	(594.372)	(1.089.369)	(1.791.925)	(2.254.989)		
Fee – Custodian Bank	(15.675)	(33.817)	(89.156)	(163.405)	(268.789)	(338.248)		
End. Balance	10.934.880	23.590.434	62.195.073	113.991.602	187.507.050	235.962.079		
Benefit Deliveries								
Beg. Balance	0	30.998.516	81.726.132	186.749.021	307.187.173	488.581.012		
Fee – Custodian Bank	0	(46.498)	(122.589)	(280.124)	(460.781)	(732.872)		
Benefit Deliverables	0	(30.951.780)	(81.603.360)	(186.468.780)	(306.726.120)	(487.848.000)		
Rate from banks/financing	0	544.751	1.436.219	3.281.851	5.398.380	8.586.125		
Deposit	0	238	183	117	272	141		
Interest from deposit	0	12	9	6	14	7		
End. Balance	0	545.001	1.436.412	3.281.974	5.398.665	8.586.273		
Cadangan								
Beg. Balance	550.000	2.818.047	7.429.648	15.562.418	25.598.931	37.583.155		
Savings	(138.708)	(682.735)	(1.756.584)	(3.597.251)	(5.756.031)	(8.201.228)		
Investment return	(4.161)	(45.767)	(165.083)	(420.921)	(851.555)	(1.474.787)		
Fee – custodian bank	(550)	(2.818)	(7.430)	(15.562)	(25.599)	(37.583)		
Reserves on deposit	406.580	2.086.727	5.500.551	11.528.684	18.965.746	27.869.557		
Interest from deposit	20.329	104.336	275.028	576.434	948.287	1.393.478		
End. Balance	426.909	2.191.063	5.775.579	12.105.118	19.914.033	29.263.034		
End. Balance	11.361.789	26.326.498	69.407.063	129.378.694	212.819.749	273.811.386		

Exhibit D Tapera Fund Income Statement

IDR millions	2020	2021	2022	2023	2024	2025	2026	2027
Income	625.384	833.869	1.255.727	1.954.419	2.832.369	3.889.858	5.152.669	6.776.300
- Investment return	605.055	592.072	838.651	1.305.319	1.891.709	2.598.006	3.441.413	4.525.789
- Interest rate – benefit delivery	0	15	6	12	16	10	9	7
- Interest rate – reserved funds	20.329	42.116	67.074	104.336	151.172	207.607	275.028	361.737
- Securities	0	199.665	349.996	544.751	789.471	1.084.235	1.436.219	1.888.768
Expenses	(450.725)	(802.479)	(1.249.009)	(1.932.866)	(2.783.059)	(3.795.602)	(4.992.623)	(6.528.379)
- Fee – custodian bank	(16.225)	(33.518)	(53.411)	(83.132)	(120.478)	(165.460)	(219.175)	(288.236)
- Fee – investment manager	(104.500)	(102.258)	(144.845)	(225.444)	(326.720)	(448.706)	(594.372)	(781.656)
- Return for members	(330.000)	(666.703)	(1.050.753)	(1.624.290)	(2.335.860)	(3.181.436)	(4.179.077)	(5.458.487)
Surplus (Deficit)	174.659	31.390	6.718	21.553	49.310	94.256	160.046	247.921
2028	2029	2030	2031	2032	2033	2034	2035	
Income	8.731.829	10.165.739	12.219.866	14.403.154	16.721.927	19.181.896	21.789.645	23.035.998
- Investment return	5.831.792	6.307.448	7.581.987	8.936.618	10.375.247	11.901.405	13.519.147	13.056.388
- Interest rate – benefit delivery	20	6	11	10	14	4	17	7
- Interest rate – reserved funds	466.212	576.434	692.860	816.683	948.287	1.088.022	1.236.288	1.393.478

- Securities	2.433.804	3.281.851	3.945.009	4.649.843	5.398.380	6.192.464	7.034.193	8.586.125
Expenses	(8.364.594)	(10.106.655)	(12.060.468)	(14.103.973)	(16.241.225)	(18.475.496)	(20.810.832)	(22.875.176)
- Fee – custodian bank	(371.412)	(459.091)	(551.859)	(650.457)	(755.168)	(866.251)	(983.999)	(1.108.703)
- Fee – investment manager	(1.007.218)	(1.089.369)	(1.309.497)	(1.543.457)	(1.791.925)	(2.055.510)	(2.334.913)	(2.254.989)
- Return for members	(6.985.964)	(8.558.194)	(10.199.111)	(11.910.058)	(13.694.132)	(15.553.735)	(17.491.920)	(19.511.483)
Surplus (Deficit)	367.235	59.084	159.398	299.181	480.702	706.400	978.813	160.822

Exhibit E Tapera Fund Management Balance Sheet

IDR millions	2020	2023	2026	2029	2032	2034
ASSET						
Current Asset						
Reserved funds	426.909	2.191.063	5.775.579	12.105.118	19.914.033	25.962.043
Total Current Asset	426.909	2.191.063	5.775.579	12.105.118	19.914.033	25.962.043
Noncurrent Asset						
Investment account	10.934.880	23.590.434	62.195.073	113.991.602	187.507.050	244.325.309
Benefit delivery account	-	545.001	1.436.412	3.281.974	5.398.665	7.034.545
Benefits delivered	-	30.951.780	81.603.360	186.468.780	306.726.120	399.670.080
Total Non-current Asset	10.934.880	55.087.215	145.234.844	303.742.356	499.631.836	651.029.934
Total Asset	11.361.789	57.278.278	151.010.423	315.847.474	519.545.869	676.991.977
LIABILITIES						
Investment return payables	12.516	74.645	231.832	544.222	1.036.947	1.474.787
Tapera saving payables	-	549.208	1.628.045	3.473.514	5.636.916	7.236.219
Taperum-PNS saving payables	138.708	133.527	128.539	123.738	119.115	116.130
Total Current Liabilities	151.224	757.380	1.988.416	4.141.474	6.792.978	8.827.136
Tapera saving	-	42.455.483	125.852.917	268.513.342	435.751.003	559.382.073
Taperum-PNS saving	10.722.583	10.322.046	9.936.471	9.565.299	9.207.992	8.977.233
Preserved return for members	313.323	3.509.050	12.694.687	32.415.189	65.642.444	95.968.870
Total Non-Current Liabilities	11.035.906	56.286.579	148.484.075	310.493.829	510.601.438	664.328.176
Total Liabilities	11.187.130	57.043.959	150.472.492	314.635.303	517.394.416	673.155.312
EQUITY						
Reserved surplus	174.659	234.319	537.932	1.212.171	2.151.453	3.836.665
Total Equity	174.659	234.319	537.932	1.212.171	2.151.453	3.836.665
Total Liabilities & Equity	11.361.789	57.278.278	151.010.423	315.847.474	519.545.869	676.991.977

Exhibit F Ratio Analysis for Tapera Fund Management

	2020	2023	2026	2029	2032	2034
EFFICIENCY						
Program efficiency - operating	100,00%	100,00%	100,00%	100,00%	100,00%	100,00%
Program efficiency - services	0,12%	53,49%	54,96%	67,55%	63,76%	65,17%
LIQUIDITY						
Days of cash on hand	346	408	417	440	443	452
Current ratio	2,82	2,90	2,92	2,94	2,95	2,97
Quick Ratio	2,82	2,90	2,92	2,94	2,95	2,97
Net working capital	275.685	1.435.545	3.809.593	8.036.875	13.266.636	17.377.946
OPERATING						
Operating margin	27,93%	5,23%	7,29%	0,97%	7,51%	9,14%
DEBT TO SERVICE						
Debt ratio	98,46%	99,38%	99,21%	99,17%	98,89%	98,59%
Debt to equity ratio	64,05	160,06	124,94	118,82	89,42	69,97

Exhibit G Benefit Deliverables of Tapera Program

IDR millions	2021	2023	2026	2029	2032	2035
Deliverables	10.225.775	28.198.213	74.510.318	187.586.779	283.114.902	454.468.144
Fee custodian bank	(15.339)	(42.297)	(111.765)	(281.380)	(424.672)	(681.702)
Deliverable value (accumulated)	10.210.436	28.155.915	74.398.553	187.305.399	282.690.230	453.786.442
Deliverable per year	10.210.436	8.250.855	18.270.053	61.101.099	39.387.410	84.877.222
No. of Beneficiaries (accumulated)	71.471	197.090	520.790	1.311.137	1.978.830	3.176.505
Beneficiaries per year	71.471	57.754	127.890	427.707	275.710	594.140
Home ownership (60%)	20.420	16.501	36.540	122.202	78.774	169.754
House construction (20%)	17.017	13.751	30.450	101.835	65.645	141.462
Home revitalization (20%)	34.034	27.502	60.900	203.670	131.291	282.924
Beneficiaries value (accumulated)	10.210.080	28.155.600	74.398.500	187.305.300	282.689.880	453.786.300
Beneficiaries value per year	10.210.080	8.250.540	18.270.000	61.101.000	39.387.060	84.877.080
Home ownership (60%)	6.126.000	4.950.300	10.962.000	36.660.600	23.632.200	50.926.200
House construction (20%)	2.042.040	1.650.120	3.654.000	12.220.200	7.877.400	16.975.440
Home revitalization (20%)	2.042.040	1.650.120	3.654.000	12.220.200	7.877.460	16.975.440