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Armenia: Framework for Switch Auction

Draft Report

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**CURRENCY EQUIVALENTS**

(as of December 2017)

 Currency Unit – Dram (AMD)

 AMD1.00 = 0.002 $

 $1.00 = 484.10 AMD

**ABBREVIATIONS**

|  |  |  |
| --- | --- | --- |
| ADB | – | Asian Development Bank |
| AMD | - | Armenian Dram |
| ARM | - | Republic of Armenia |
| ATM | – | Average Time to Maturity |
| CBA | – | Central Bank of Armenia |
| DMO | - | Debt Management Office |
| G-Sec | - | Government Securities |
| LMO | – | Liability Management Operations |
| PD | - | Primary Dealer |
| PDMD | - | Public Debt Management Department |
| MoF | – | Ministry of Finance |
| NASDAQ OMX | – | NASDAQ Stock Exchange Armenia |
| MTDS | – | Medium-Term Debt Management Strategy |
| TA | – | Technical Assistance |
|  |  |  |

**NOTE**

 In this report, $ refers to US Dollars

**CONTENTS**

[I. Introduction](#_Toc506537576) 3

[1. Definition 3](#_Toc506537577)

[2. Policy Objectives 3](#_Toc506537578)

[3. Organization of Bond Switches 4](#_Toc506537578)

[4. Impact of Bond Switches on Counterparties 5](#_Toc506537578)

[5. Selection of Bonds for Switch Auctions 6](#_Toc506537578)

[6. Choice beween Swicth Auctions and Buybacks 6](#_Toc506537578)

[7. Market Infrastructure 7](#_Toc506537578)

[II. Design of Switch Auctions for Public Debt Management in Advanced and Emerging Market Economies 8](#_Toc506537580)

[8. Format of Swicth Auctions 8](#_Toc506537581)

[9. Setting of Price 9](#_Toc506537585)

[10. Bid Amount 9](#_Toc506537585)

[11. Basis of Neutrality and Conversion Ratio 10](#_Toc506537585)

[12. Auction Format 11](#_Toc506537585)

[13. Eligible Participants 11](#_Toc506537585)

[14. Timing of Annoucement 11](#_Toc506537585)

III. Proposed Framework of Switch Operations in Armenia......…………………………….12

[15. Policy Objectives 12](#_Toc506537578)

[16. Bond Selection 12](#_Toc506537581)

[17. Format of Swicth Auctions 13](#_Toc506537581)

[18. Setting of Price 13](#_Toc506537585)

[19. Bid Amount 14](#_Toc506537585)

[20. Basis of Neutrality and Conversion Ratio 14](#_Toc506537585)

[21. Auction Format 14](#_Toc506537585)

[22. Submission of Bids 14](#_Toc506537585)

[23. Eligible Participants 14](#_Toc506537585)

[24. Timing of Annoucement 14](#_Toc506537585)

[25. Annoucement of Results 15](#_Toc506537585)

IV. Analytical Framework of Switch Operations in Armenia....…………………………….16

**FIGURES**

|  |  |  |
| --- | --- | --- |
| Figure 1: | Illustration of Switch Auctions in South Africa during 2016/17 | 4 |
| Figure 2: | Illustration of a Switch Auction in 2011 in Denmark  | 4 |

**TABLES**

|  |  |  |
| --- | --- | --- |
| Table 1: | Country Practice in Switch Auctions Thresholds\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 8 |
| Table 2: | Terms of Switching for Settlement Date on 11 June 2018 | 16  |
| Table 3(a): | Bid for Source Bond AMGN60294193 | 17 |
| Table 3(b): | Bid for Source Bond AMGN36294194 | 17 |
| Table 4(a): | Allocation for Source Bond AMGN60294193 | 18 |
| Table 4(b): | Allocation of Destination Bonds for Bidding on First Source Bond (AMGN60294193) | 18 |
| Table 5(a): | Allocation for Source Bond AMGN36294194 | 19 |
| Table 5(b): | Allocation of Destination Bonds for Bidding on Second Source Bond AMGN36294194 | 19 |
| Table 6: | Allocation of Destination Bonds by Bidders | 20 |
| Table 7: | Pay-off Summary by Bidders | 21 |
| Table 8: | Aggregate Analysis of Source Bond Allocation in Switch Operations | 21 |
| Table 9: | Aggregate Analysis of Destination Bond Allocation in Switch Operations | 22 |

**I. Introduction**

**1. Definition**

1.1 Bond switches or exchanges involves retiring an outstanding bond before its maturity date (source bond) against the issuance of a new bond (destination bond). This paper refers to switches / exchanges as switches.

1.2 Bond switches are usually held on a cash neutral basis and provide no additional funding to the issuer, but they affect the composition (maturity / interest rate) of the debt portfolio by changing the maturity structure of the debt portfolio.

**2. Policy Objectives**

2.1 The principal objective of bond switches is to mitigate refinancing risks in the short-term and/or to smoothen the redemption profile of the debt portfolio. Another objective, for which switch operations are used is to retire illiquid bonds from the market and replace it with new liquid bonds. Figure 1 provide illustration of switch auctions undertaken during 2016/17 in South Africa by retiring bonds maturing within the next four years (source bonds) and replacing them with on-the-run bonds with maturities ranging between 10-32 years. Figure 2 on the other hand illustrates switch auction undertaken in Denmark in 2011 to replace a “off-the-run” bond (source bond) with a 10-year “on-the-run” bond.

2.2 Switch operations therefore serve as an important liability management operations (LMO)

for risk management and market development. As such, both objectives result in enhancing market liquidity, which are closely connected.

* On the one hand, the gradual buyback of bonds as they approach maturity mitigates the refinancing risk to the issuer, and, as a result, enables the issuance of benchmarks of a larger size.
* On the other hand, retiring illiquid off-the-run bonds from the market offers additional issuance opportunities, which enables the faster building of benchmarks. Most issuances involve re-opening of bonds. In both cases, market liquidity is enhanced, which may result in higher bond prices and therefore contributing to lower funding cost for the government.

2.2 Other potential benefits of bond switches include:

* Correct distortions in the secondary market due to central bank purchases of government securities[[1]](#footnote-1).
* The availability of additional opportunities for issuance enables increased stability and regularity in the issuance calendar.
* The ability to retire from the market undervalued bonds and to refinance high-coupon bonds enables the correction of market distortions and the ability to book budget savings.
* Contribute to stabilizing the market during periods of stress by restoring price transparency.

Figure 1: Illustration of Switch Auctions in South Africa during 2016/17

|  |  |
| --- | --- |
| Amount of Source Bonds Switched (R bn.)  | Allocation of Destination Bonds Switched (%) |
|  |  |
| Source: Debt Management Report, 2016-17, South African National Treasury |

Figure 2: Illustration of a Switch Auction in 2011 to Replace off-the-run benchmark bond with an on-the-run 10-year benchmark bond in Denmark



Source: Government Debt Management, Danmarks Nationalbank

**3. Organization of Bond Switches**

3.1 Bond switches can be done in five ways: a tender at a fixed exchange ratio, an auction, an auction combined with a tender offer, two separate auctions, and a bilateral exchange based on negotiated prices[[2]](#footnote-2). This paper focuses on switch auctions based on competitive bidding by various counterparties which is typically done through primary dealers (PDs).

**4. Impact of Bond Switches on Counterparties**

4.1 Impact for investors:

* A bond exchange attracts only those investors who are interested in both selling the old bond and acquiring the new one. The requirement to match the exchange of specific bonds for various investor needs may dampen investor demand in such transactions[[3]](#footnote-3).
* The investors have no interest rate or execution risk because the reinvestment of their funds is automatic[[4]](#footnote-4).
* Switches may help investors in restructuring their portfolio (e.g., when a bond is included in a bond index and is bid strongly as a result).
* However, a switch alters the duration of the debt when the two bonds involved do not have a similar remaining life to maturity. It can be an unintended consequence of the operation, in which case investors may be reluctant to utilize exchanges to avoid any unintended alteration of the duration of their portfolio. To avoid this, some countries with developed debt market offers switch auction with duration neutrality.

4.2. Impact for issuer or Debt Management Office (DMO): A switch operation, like buybacks, exposes the issuer to four risks:

* Market price manipulation after the announcement of the operation. This could be especially relevant in case of price movements between the announcement of, and the close of, the operation leading to market risks. This is the main risk that DMOs consider in respect of switch operations.
* The budgetary cost if a premium has to be paid to obtain a significant amount of the source bond.
* The possibility of locking in an unattractive forward rate for the acquired bond.
* A “reputation risk” if the operation is not successful due to lack of market interest.

4.3 To manage market expectations and associated risks, many DMOs announce that they

have no target amount to exchange or buy back because their principal concern is to be of service to investors by offering them an efficient way to rebalance their securities portfolio. A specific way to address market manipulation by the DMO is to assess the quality of the prices offered by the market by reference to the price levels prevailing in the market before the announcement of the transaction. Active consultation with the PDs on the selection of source and destination bonds involved in the switch operations could facilitate management of reputation risk.

**5. Selection of Bonds for Switch Auctions**

5.1 Selection of Source Bonds for Managing Refinancing Risk: For managing refinancing risks through switch auctions, the source bonds are usually offered for exchange a certain number of times usually 12-18 months before their maturity date. The average reduction in the refinancing risk on the final maturity date of large benchmark bonds is between 30 and 40 percent of the total issued amount.

5.2 Selection of Source Bonds for Retiring Illiquid Bonds: For illiquid bonds, the securities selected for the switch operations are usually chosen by the DMO after consulting with the market, usually PDs.

5.3 Source bonds typically does not include “on-the-run” issues or benchmark bonds as it may act counter to developing or maintaining a benchmark yield curve. Source bonds are therefore “off-the-run bonds” which are less liquid.

5.4 Some countries also use high-coupon bonds as source bonds.

5.5 When retiring a bond from the market, a few DMOs inform the market that they will maintain a sufficient size of the outstanding bond to ensure a minimum tradability. This is to avoid giving investors the sentiment that they are being trapped. However, such announcement can be counterproductive because the risk of confronting an altogether illiquid market is an incentive for investors to sell the relevant securities. The offer of a buyback window for investors who want to sell after bond buyback and exchange operations have ended is perhaps a better procedure. It offers investors a way out, but the price is at the DMO’s discretion.

5.6 Selection of Destination Bonds: Most countries typically issue the destination bond by re-opening an “on-the-run” bond. To manage refinancing risk, the destination bond being issued should have at least the same remaining maturity as the source bound being retired, although the prevalent practice by countries is to typically issue long-term benchmark bonds to lengthen the maturity of the debt profile through a switch operation. Another consideration for selecting a destination bond is to ensure that the coupon rates are not much off-market based on the prevailing interest rates as that may dampen investor demand in such bonds.

**6. Choice between Switch Auctions and Buybacks**

6.1 For countries using both bond switches and buybacks as part of their LMO, the refinancing risk is managed more efficiently by undertaking bond switches first (for example first six months) followed by bond buybacks (for example next six months). Switches are a first choice because they create no refinancing risk. However, buybacks are a more powerful instrument, and they may thus be preferred as the maturity date of the bond approaches.

6.2 For illiquid bonds which creates no refinancing risk in the short term, bond switches are the preferred choice. This is due to there is not much refinancing risk involved for the DMO, and there is no urgency to retire the securities from the market.

**7. Market Infrastructure**

7.1 In most countries, switch auctions are executed via electronic platforms. The most widespread electronic platforms for these activities are Bloomberg and local MTS systems, but several countries have in-house developed systems.

**II. Design of Switch Auctions for Public Debt Management in Advanced and Emerging Market Economies**

The design of the switch auction framework depends on several parameters and could vary depending on country practice as briefly indicated below.

**8. Format of Switch Auctions**

8.1 Given that there are two bonds involved in this switch transaction (source and destination bond), the price of one bond is set by the issuer (Debt Management Office) while the price of other bond is market determined through competitive bidding. Thus, the conversion (exchange) ratio of the bonds being switched is market determined.

8.2 Although most of the advanced economies have used switch operations in the past, they have not used them in recent years except Canada and Sweden. In contrast, a number of emerging market economies uses switch auctions as part of their liability management operations.

|  |
| --- |
| Table 1: Country Practice in Switch Auctions |
|  | Source Bond Price Fixed  | Destination Bond Price Fixed |
| OECD Countries |
|  | Australia | Canada |
|  | Denmark | France |
|  | Hungary | Slovenia |
|  | Iceland |  |
|  | Italy  |  |
|  | Mexico |  |
|  | Poland |  |
|  | Spain |  |
|  | Sweden |  |
| Emerging Market Economies |
|  | Israel | Brazil\* |
|  | Morocco | Indonesia |
|  | South Africa@ | Malaysia |
|  | Thailand |  |

 \*: For Brazil, this applies to inflation-indexed long-term bonds being issued as destination bonds. For short-term bonds (zero coupon and floating rate bonds) issued as destination bonds, source bond prices are fixed.

@: For South Africa, it provides indicative pricing for the source bonds on which investors bid.

8.3 Countries use two methods for conducting auction-based switch operations. Some countries auction the destination bond, while fixing the price of the source bond; and others auction the source bond, while fixing the price of the destination bond. When the destination bond is used for bidding, higher prices (lower yields) will result in greater cash receipts for the government. In contrast, when the source bond is used for bidding, lower prices (higher yields) will result in greater cash receipts for the government.

8.4 The former method is more prevalent in use by countries (Table 1). For emerging market economies, it might be advisable to fix the price of the new destination bond and request offers for the old source bond, since the price of the new on-the-run bond will most likely be known to the market anyhow.

8.5 An issue specific to bond switches is the number of bonds to be included in the exchange. A switch operation may be carried out as a simple exchange of one source bond against another destination bond or as a more complex operation involving multiple source and/or destination bonds. Debt managers try to alleviate the problem of less than desired participation by investors in the switch auction by offering greater flexibility or choice through multiple source and/or destination bonds, although the operational complexity of exchange operations will increase.

8.6 For execution of switch operation with multiple source and/or destination bonds, the number of destination bonds to be issued for a specific source bond are usually indicated as pairs by the DMO.

**9. Setting of Price**

9.1 Clean price is typically used for price setting and bidding. DMO sets either the clean price for source / destination bonds while investors bid on clean prices for destination / source bonds. For settlement purposes, however, dirty prices are used.

9.2 Reference Price: The reference is predominantly the observed market prices (average of market quotes) over a certain period, making allowance for the refinancing cost (particularly for short dated bonds) and/or for internal analytics (cheap/dear analysis).

9.3 For countries which fix the price of destination bonds, the most prevalent approach is to base the prices with respect to the secondary market price and/or most recent “on-the-run” issuance of such bond. However, in Canada, bidding on the source bond is based on a spread versus the destination bond. The valuation method incorporates an internally developed zero-coupon curve model, with references to swap and Treasury bill curves, where appropriate. Results are released on a “best efforts basis”.

9.4 For countries which fix the price of source bonds, most countries base the prices with respect to the secondary market price of such bond. For example in Hungary, the price for the source bond is fixed 5 minutes before the exchange auction. PDs are requested to quote two-way prices for the source bonds. The 2 best and the 2 worst quotes are excluded from the calculation with the fixed price determined as the average of the remaining quotes. However, for the Danish DMO, it announces a price it will pay for the source bond as well as a so-called hedge ratio. In contrast, South Africa provides indicative price and Thailand provides information on indicative yield ranges for destination bonds.

**10. Bid Amount**

10.1 Most countries will bid either on the source bond or the destination bond based on the face value offered for the source bond that they hold. In case of switch auction involving multiple source / destination bonds, for a specific source bond on offer, investors will be required to indicate the bid amounts on the various destination bonds available for such source bond.

**11. Basis of Neutrality and Conversion Ratio**

11.1 Two types of switch operations can be undertaken based on its impact on the neutrality of cash proceeds or duration. Most countries undertake switch operations to ensure neutrality on net cash flows.

11.2 Cash Neutral: A cash neutral switch operation involves equal cash value settlement of bonds resulting in zero cashflow for either counterparty (DMO and investor). For this method, the nominal value of either the source or destination bond is adjusted to ensure cash neutrality. The conversion ratio for this method can be greater than or less than one:

Conversion Ratio = Dirty Price of source bond

Dirty Price of destination bond

11.3 Net cash proceeds to the investor is the difference between the bond values of source and destination bonds. For cash-neutral switch operations, given the difference in market prices between the source and destination bonds, and the minimum size of bids required, in effect there is always some net cash flow involved. The standard practice is to minimize the net cash flow which the government receives.

11.4 Duration Neutral: Few countries like Canada and Malaysia undertake switch operation as duration neutral that results in investors’ receiving an amount of the destination bond that will leave the effective duration of the unchanged[[5]](#footnote-5). Such transaction may involve cash flow implication for either counterparty. The conversion ratio is computed as:

[(Price of Source Bond – 1bp) – (Price of Source Bond + 1bp)] \* (Price of Destination Bond)

[Price of Destination Bond – 1bp) – (Price of Destination Bond + 1bp)] \* (Price of Source Bond)

Where:

Price of Source Bond –1bp : Price of Source bond when yield decreased by 1 bp

Price Source Bond + 1bp: Price of Source bond when yield increased by 1 bp

Price of Destination Bond –1bp: Price of Destination bond when yield decreased by 1 bp

Price Destination Bond +1bp: Price of Destination bond when yield increased by 1bp

Price refers to Dirty Price

11.5 Canada uses switch operations based on duration neutrality to avoid market risks for investors and therefore have cash flow implications for the government. Duration neutral switches minimize market risk because interest rate changes affect both securities involved similarly. They are also attractive to investors because duration neutral switches allow them to maintain portfolio duration.

**12. Auction Format**

12.1 Market practice varies as to whether the auction is a single price or multiple prices[[6]](#footnote-6). Although multiple-price auctions seem to prevail over uniform-price auctions, the choice is country specific with respect to the auction format of standard bond issuance. In countries where the standard auctions follow the uniform-price system, DMOs should consult the market about the potential advantages of standardization.

12.2 Most countries bid based on the clean prices while some countries use yield equivalent of clean prices. In Israel, bids are however placed based on the conversion ratios.

12.3 Some countries like Poland include non-competitive bids for switch operations. In such cases, the non-competitive bids are priced at the average of the competitive bids that has been accepted by the DMO.

**13. Eligible Participants**

13.1 The most common practice is to limit participation in a buyback or exchange event to the primary dealers (PDs). All holders of bonds must then submit their bids through a PD. However, there are exceptions[[7]](#footnote-7).

**14. Timing of Announcement**

14.1 Practiced procedures for switch operations are to provide between 1-3 week’s advance notice. Some countries include them within their annual calendar of planned operations. OECD countries typically undertake switch operations as ad-hoc transactions reflecting their mature government securities markets with few illiquid bonds and also adequate technical expertise residing in such DMOs. For frequent transactions on switch auctions, a calendar may be appropriate to streamline the transactions. To benefit from better pricing, for countries fixing the price of a destination bond, it is preferable for the switch auction to take place after a standard benchmark bond auction.

**III. Proposed Framework of Switch Auctions for Armenia**

Based on the current state of the government securities market in Armenia and the prevalent country practices in switch operations, the following framework is proposed for Armenia.

**15. Policy Objectives**

15.1 The main objective for using switch operations will be to manage refinancing risk and/or to smooth redemption profile. As a secondary objective, switches can also be used for retiring illiquid bonds from the market. The Public Debt Management Department (PDMD) should therefore device a cogent strategy on the mix of the uses for which the switch operation will be used. It is being proposed to limit the use of switch operation for retiring illiquid securities to 20 percent of the overall annual volume of switch operation.

15.2 Given that PDMD is currently using buyback operations, the strategy should also determine the mix of switch and buyback operation to manage refinancing risks and/or to retire illiquid bonds. The use of switch operations should also be aligned with the cash management policy of the government.

**16. Bond Selection**

16.1 The source bonds that will be used for managing refinancing risks shall be limited to existing bonds with a remaining maturity threshold of 18 months during any year. In case of any operation addressed at smoothening the redemption profile, the source bonds can exceed the threshold of 18 months. However, the annual amount of such switches should be limited to less than 25 percent of the overall switches. For switches to be undertaken for retiring illiquid securities, metrics on turnover ratio and bid-ask spreads should be developed to identify such source bonds qualifying for switches. Consultation with the Primary Dealers should be undertaken on a regular basis to identify the source bonds for liquidity purpose.

16.2 A negative list of source bonds should be developed by PDMD that would not be eligible for buying back the bonds as part of switch operations. The negative list for source bonds would include any “on-the-run” bonds and current benchmark bonds during the previous two financial years.

16.3 The destination bond to be issued as part of the switch auction should be recent on-the-run bonds which are designated as benchmark bonds and not as a new line of bond series. A series of switch operations can be undertaken to re-open the same destination bond over time and thereby add to its overall stock. Consultation with the Primary Dealers should be undertaken on a regular basis to identify the destination bonds and therefore assess the demand conditions for such bonds.

16.4 The destination bond will not be re-opened when the coupon rate on such bonds exceed the current yield by 100 basis points. The destination bond will also not be re-opened once the bond assumes a threshold stock to limit refinancing risks associated with benchmark bonds.

16.5 The frequency of switch auctions should be closely aligned to the issuance policy of benchmark bonds to allow greater window for duration of “on-the-run” benchmark bonds based on which the pricing of the destination bonds could be anchored.

16.6 The source bonds repurchased through switches will be cancelled by the government. However, once the government’s cash management capacity strengthens and progress towards active cash management framework, it may be useful to retain the flexibility of keeping the entire portion or a part of it in the books of PDMD, for future cash management purpose by the PDMD.

**17.** **Format of Switch Auctions**

17.1 Given the low level of secondary market activity on government bond market in Armenia, it is proposed to conduct switch operations by fixing the price of the destination bond. Given that the destination bonds will be “on-the-run” benchmark bonds, it will be relatively easier to value the destination bond. Investors will be required to bid on the source bonds.

17.2 The initial switch auctions are proposed to be undertaken based on exchange of one source bond with one destination bond. Once the market adjusts to such operations and adequate demand for such operations are generated from investors, the auction framework can be broadened to provide switching from one source bond to multiple source bonds and subsequently from multiple source bonds to multiple destination bonds.

**18. Setting of Price**

18.1 As used globally, clean price will the basis for fixing price of the source bond and for bidding by investors. Given that the current market practice in Armenia is for investors to submit bids in terms of yields based on clean price equivalent, the same convention will be adopted for investors to submit their bids on source bonds. Existing conventions on bond pricing will be adopted for day count conventions and number of decimal places used for pricing. In case of source bonds with a remaining maturity of less than year, the valuation will be based on T-Bills valuation. The yield-based bids for source bonds will be converted to clean price for auction processing purpose.

18.2 In the absence of a critical mass of secondary market trades, an alternative option for fixing the price of source bonds could be to use the relative price of the above methodology in relation to the median price obtained from the two-way price quotes provided by the PDs.

18.3 For internal operations purpose, PDAMD will be required to arrive at an indicative cut-off price on the source bond based on the secondary market prices, quotes offered by PDs and market consultation before the announcement of the switch operations.

18.4 For settlement purposes, dirty prices will be used based on the existing bond valuation convention.

18.5 Reference Price: Price of destination bonds will be fixed based on the weighted average price of the auction on the most recent “on-the-run” issuance of such bond and average price in the secondary market post issuance. If the “on-the-run” bonds has been issued within two weeks of the switch auction, a weight of 90 percent will be applied to the price of the “on-the-run” issuance and 10 percent on the secondary market prices. For every week beyond the two week issuance window, an additional 10 percent weight will be applied on the secondary market prices and reduced from the “on-the-run” issuance price.

18.6 In case of significant price movements on either source or destination bonds following the announcement of switch auctions which cannot be justified by recent economic development, PDMD will retain the right to cancel the offers either partially or fully in case its indicative cut-off price varies significantly from the bid prices.

18.7 Over time, as technical expertise on executing LMO strengthens within PDMD and secondary market trading improves, the pricing mechanism by PDMD should incorporate refinancing cost for short dated bonds and/or cheap/dear analysis.

**19. Bid Amount**

19.1 Investors will be required to tender their offer of the volume of source bonds based on the face value.

**20. Basis of Neutrality and Conversion Ratio**

20.1 The switch operation is proposed to be conducted based on cash neutral basis. This will ensure that equal cash value settlement of bonds will result in zero cashflow for either counterparty PDMD and investor). For this method, the nominal value of the destination bond will be adjusted to ensure cash neutrality. The conversion ratio for this method can be greater than or less than one:

Conversion Ratio = Dirty Price of source bond

Dirty Price of destination bond

**21. Auction Format**

21.1 In continuity with market convention in Armenia, it is proposed to adopt multiple price auction for switch auctions. Allowing non-competitive bids for switch auctions

**22. Submission of Bids**

22.1 Bids on switch auctions from investors will cover the following information:

* Bid amount for a specific source bond (with break-down on various destination bonds on offer in case of multiple switch auctions)
* Bid yield

**23. Eligible Participants**

23.1 As for buybacks, switch auctions in Armenia will be limited to the primary dealers. However, other holders of source bonds outside the PD system will be eligible to submit their bids through a PD. It will be necessary to amend the regulatory framework for PD system for setting out the rights and obligations of the PDs for participating in switch auctions. Inclusion of non-competitive bidding although not recommended at this stage could be allowed for Central Bank of Armenia for its open market operation requirements.

**24. Timing of Announcement**

24.1 PDMD will be required to provide at least 5 working days’ advance notice on the switch operations disclosing the destination bond/s; the indicative amounts on offer in terms of face value; the auction date and the settlement date. The settlement date is in tune with the current T+n period for standard bond auction.

24.2 Over time, as switch operations gain currency in terms of frequency and expertise within PDMD as well as market acceptance, PDMD can include them within their annual calendar of planned operations. The planning of switch operations could also be gradually included in its quarterly issuance plan. For planning the timing of switch operations, it should be held within four weeks of a standard benchmark bond auction.

24.3 PDMD should announce one business day before the switch auction the source bond/s on offer. The announcement should be made one hour prior to the closing of the business day. Pricing of the destination bonds will be disclosed one hour before the commencement of the switch auction on the same day of the auction.

**25. Announcement of Results**

25.1 PDMD will be required to announce the results of the switch auction within 2 hours of its commencement the same day. The results will be publicly announced in PDMD website and should include the following information:

* Total amount offered
* Total number of bids received
* Total amount of bid received
* Total number of successful bids
* Nominal amount of source bond/s switched
* Nominal amount of destination bond/s switched
* Clean prices / yield (highest, lowest and average) of successful bids on source bond.
* Value of net cash settlement
* Conversion ratio

**IV. Analytical Framework of Switch Auctions for Armenia**

26.1 The analytical framework for switch auction based on two source bonds to two destination bonds are depicted in Table 2-4. Price fixing is done on the destination bonds. The switch operation adopts a cash neutral mechanism whereby face value is rounded up to ten thousand ARM. The settlement date of the switch auction is on 11 June 2018.

26.2 Table 2 provides the terms of the switch auctions targeting retirement of 2 source bonds both maturing on 29 April 2019 for indicative amount of ARM 60 million each. In exchange, three destination bonds are offered, maturing on 29 April 2023, 7 February 2028 and 16 March 2047.

|  |
| --- |
| Table 2: Terms of Switching for Settlement Date on 11 June 2018 |
| Source Bonds:  |  |  |  |
| Bond ISIN | AMGN60294193 | AMGN36294194 |  |
| Maturity Date | 29-Apr-2019 | 29-Apr-2019 |  |
| Source Bond Offer Amount |  60,000,000  |  60,000,000  |  |
| Destination Bonds: |  |  |  |
| Bond ISIN | AMGN60294235 | AMGB30163472 | AMGB20072287 |
| Maturity Date | 29-Apr-2023 | 16-Mar-2047 | 7-Feb-2028 |
| Bond Yield Fixed | 7.2500% | 11.5800% | 9.1800% |
| Equivalent Clean Price | 103.0255% | 111.7357% | 111.4665% |
| Dirty Price | 103.9654% | 114.8091% | 115.2345% |

26.3 Tables 3 (a) and (b) provides bid details on the switch auctions based on bids placed by 5 PDs for the two source bonds AMGN60294193 and AMGN. For the first source bond, a total amount of ARM 77 million is bid on which: the 5 year, 10 year and 30 year destination bonds is bid for ARM 27 million, ARM 16 million and ARM 34 million. For the second source bond, a total amount of ARM 58 million is bid on which: the 5 year, 10 year and 30 year destination bonds is bid for ARM 13 million, ARM 26 million and ARM 19 million.

|  |
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| Table 3(a): Bid for Source Bond AMGN60294193 |
| Bids  | Bidder | Bid Yield | Face Value |  Cumulative FV  | Destination Bond Selected by Bidder |
| 1 | B | 7.6250% |  12,000,000  |  12,000,000  |  AMGB30163472  |
| 2 | D | 7.6200% |  6,000,000  |  18,000,000  |  AMGN60294235  |
| 3 | A | 7.6100% |  4,000,000  |  22,000,000  |  AMGB30163472  |
| 4 | C | 7.6080% |  10,000,000  |  32,000,000  |  AMGN60294235  |
| 5 | E | 7.6050% |  4,000,000  |  36,000,000  |  AMGB20072287  |
| 6 | B | 7.6030% |  8,000,000  |  44,000,000  |  AMGB30163472  |
| 7 | A | 7.5850% |  6,000,000  |  50,000,000  |  AMGN60294235  |
| 8 | B | 7.5800% |  12,000,000  |  62,000,000  |  AMGB20072287  |
| 9 | C | 7.5580% |  5,000,000  |  67,000,000  |  AMGN60294235  |
| 10 | B | 7.5500% |  10,000,000  |  77,000,000  |  AMGB30163472  |

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| Table 3(b): Bid for Source Bond AMGN36294194 |
|  Bids | Bidder | Bid Yield | Face Value |  Cumulative FV  | Destination Bond Selected by Bidder |
| 1 | A | 7.6250% |  10,000,000  |  10,000,000  |  AMGB20072287  |
| 2 | A | 7.6200% |  4,000,000  |  14,000,000  |  AMGB30163472  |
| 3 | B | 7.6100% |  8,000,000  |  22,000,000  |  AMGN60294235  |
| 4 | C | 7.6080% |  5,000,000  |  27,000,000  |  AMGB30163472  |
| 5 | C | 7.6050% |  6,000,000  |  33,000,000  |  AMGB20072287  |
| 6 | D | 7.6030% |  5,000,000  |  38,000,000  |  AMGB30163472  |
| 7 | B | 7.5850% |  8,000,000  |  46,000,000  |  AMGB20072287  |
| 8 | A | 7.5800% |  5,000,000  |  51,000,000  |  AMGN60294235  |
| 9 | B | 7.5580% |  5,000,000  |  56,000,000  |  AMGB30163472  |
| 10 | A | 7.5500% |  2,000,000  |  58,000,000  |  AMGB20072287  |

26.4 Tables 4 (a) and (b) provides bid analysis and allocation result on switch auctions for the first source bond (AMGN60294193). Table 4(a) indicates that based on a cut-off yield of 7.58%, out of total bid amount of ARM 77 million, the entire targeted amount of ARM 60 million in terms of face value is allocated. Based on the allocated yields and the equivalent dirty prices, the government will be required to pay a total amount of ARM 60.2 million to the investors for retiring the bond.

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| Table 4(a): Allocation for Source Bond AMGN60294193 |
| Bid No. | Bidder | Destination Bond | Bid Face Value | Allocated FV | Allocation Yield | Dirty Price per 100 | Pay to Investor |
| 1 | B |  AMGB30163472  |  12,000,000  |  12,000,000  | 7.6250% | 100.3103% |  12,037,236  |
| 2 | D |  AMGN60294235  |  6,000,000  |  6,000,000  | 7.6200% | 100.3145% |  6,018,870  |
| 3 | A |  AMGB30163472  |  4,000,000  |  4,000,000  | 7.6100% | 100.3229% |  4,012,916  |
| 4 | C |  AMGN60294235  |  10,000,000  |  10,000,000  | 7.6080% | 100.3246% |  10,032,460  |
| 5 | E |  AMGB20072287  |  4,000,000  |  4,000,000  | 7.6050% | 100.3271% |  4,013,084  |
| 6 | B |  AMGB30163472  |  8,000,000  |  8,000,000  | 7.6030% | 100.3288% |  8,026,304  |
| 7 | A |  AMGN60294235  |  6,000,000  |  6,000,000  | 7.5850% | 100.3440% |  6,020,640  |
| 8 | B |  AMGB20072287  |  12,000,000  |  10,000,000  | 7.5800% | 100.3482% |  10,034,820  |
| 9 | C |  AMGN60294235  |  5,000,000  |  -  | 7.5580% | 100.3667% |  -  |
| 10 | B |  AMGB30163472  |  10,000,000  |  -  | 7.5500% | 100.3735% |  -  |
| Total |  |  |  |  **60,000,000**  |  |  |  **60,196,330**  |

26.5 Table 4(b) indicates the initial allocation of the destination bonds for successful bidders on the first source bond, based on investor preferences for bidding.

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|  Table 4(b): Allocation of Destination Bonds for Bidding on First Source Bond (AMGN60294193)  |
| **Bidders** | Destination Bonds |
| **AMGB20072287** | **AMGB30163472** | **AMGN60294235** | **Total** |
| A |   | 4,012,916 | 6,020,640 | 10,033,556 |
| B | 10,034,820 | 20,063,540 |   | 30,098,360 |
| C |   |   | 10,032,460 | 10,032,460 |
| D |   |   | 6,018,870 | 6,018,870 |
| E | 4,013,084 |   |   | 4,013,084 |
| Total | 14,047,904 | 24,076,456 | 22,071,970 | 60,196,330 |

26.6 Tables 5 (a) and (b) provides bid analysis and allocation result on switch auctions for the second source bond (AMGN36294194). Table 5(a) indicates that based on a cut-off yield of 7.55%, out of total bid amount of ARM 58 million, in comparison to the targeted amount of ARM 60 million, the entire bid amount of ARM 58 million in terms of face value is allocated. Based on the allocated yields and the equivalent dirty prices, the government will be required to pay a total amount of ARM 58.7 million to the investors for retiring the bond.

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| Table 5(a): Allocation for Source Bond AMGN36294194 |
| Bid No. | Bidder | Destination Bond | Bid Face Value | Allocated FV | Allocation Yield | Dirty Price per 100 | Pay to Investor |
| 1 | A |  AMGB20072287  |  10,000,000  |  10,000,000  | 7.6250% | 101.1479% |  10,114,790  |
| 2 | A |  AMGB30163472  |  4,000,000  |  4,000,000  | 7.6200% | 101.1522% |  4,046,088  |
| 3 | B |  AMGN60294235  |  8,000,000  |  8,000,000  | 7.6100% | 101.1606% |  8,092,848  |
| 4 | C |  AMGB30163472  |  5,000,000  |  5,000,000  | 7.6080% | 101.1623% |  5,058,115  |
| 5 | C |  AMGB20072287  |  6,000,000  |  6,000,000  | 7.6050% | 101.1649% |  6,069,894  |
| 6 | D |  AMGB30163472  |  5,000,000  |  5,000,000  | 7.6030% | 101.1666% |  5,058,330  |
| 7 | B |  AMGB20072287  |  8,000,000  |  8,000,000  | 7.5850% | 101.1818% |  8,094,544  |
| 8 | A |  AMGN60294235  |  5,000,000  |  5,000,000  | 7.5800% | 101.1861% |  5,059,305  |
| 9 | B |  AMGB30163472  |  5,000,000  |  5,000,000  | 7.5580% | 101.2047% |  5,060,235  |
| 10 | A |  AMGB20072287  |  2,000,000  |  2,000,000  | 7.5500% | 101.2115% |  2,024,230  |
| Total |  |  |  |  **58,000,000**  |  |  | **58,678,379**  |

26.7 Table 5(b) indicates the initial allocation of the destination bonds for successful bidders on the second source bond, based on investor preferences for bidding.

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| Table 5(b): Allocation of Destination Bonds for Bidding on Second Source Bond AMGN36294194 |
| **Bidders** | Destination Bonds |
| **AMGB20072287** | **AMGB30163472** | **AMGN60294235** | Total |
| A |  12,139,020  |  4,046,088  |  5,059,305  | 21,244,413 |
| B |  8,094,544  |  5,060,235  |  8,092,848  | 21,247,627 |
| C |  6,069,894  |  5,058,115  |   | 11,128,009 |
| D |   |  5,058,330  |   | 5,058,330 |
| Total |  26,303,458  |  19,222,768  |  13,152,153  | 58,678,379 |

26.8 Based on the information on initial allocation of destination bonds from Tables 4(b) and 5(b) relating to the two source bonds, Table 6 indicates the final allocation for the three destination bonds. The allocation of the face value is rounded to ARM ten thousand units.

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| Table 6: Allocation of Destination Bonds by Bidders |
| **Bidders** | **Dirty Price to Match** | **FV Equivalent** | **Allocation FV** | **Receive from Investor** |
| **Destination Bond AMGB20072287:** |
| A |  12,139,020.00  |  11,676,019.14  |  11,680,000.00  |  12,143,158.72  |
| B |  18,129,364.00  |  17,437,882.22  |  17,440,000.00  |  18,131,565.76  |
| C |  6,069,894.00  |  5,838,378.92  |  5,840,000.00  |  6,071,579.36  |
| D |  -  |  -  |  -  |  -  |
| E |  4,013,084.00  |  3,860,018.81  |  3,870,000.00  |  4,023,460.98  |
| Total |  **40,351,362.00**  |  **38,812,299.09**  |  **38,830,000.00**  |  **40,369,764.82**  |
| **Destination Bond AMGB30163472:** |
| A |  8,059,004.00  |  7,019,481.91  |  7,020,000.00  |  8,059,598.82  |
| B |  25,123,775.00  |  21,883,086.79  |  21,890,000.00  |  25,131,711.99  |
| C |  5,058,115.00  |  4,405,674.29  |  4,410,000.00  |  5,063,081.31  |
| D |  5,058,330.00  |  4,405,861.56  |  4,410,000.00  |  5,063,081.31  |
| E |  -  |  -  |  -  |  -  |
| Total |  **43,299,224.00**  |  **37,714,104.54**  |  **37,730,000.00**  |  **43,317,473.43**  |
| **Destination Bond AMGN60294235:** |
| A |  11,079,945.00  |  9,615,128.28  |  9,620,000.00  |  11,085,558.90  |
| B |  8,092,848.00  |  7,022,938.44  |  7,030,000.00  |  8,100,985.35  |
| C |  10,032,460.00  |  8,706,125.34  |  8,710,000.00  |  10,036,924.95  |
| D |  6,018,870.00  |  5,223,149.32  |  5,230,000.00  |  6,026,764.35  |
| E |  -  |  -  |  -  |  -  |
| Total |  **35,224,123.00**  |  **30,567,341.38**  |  **30,590,000.00**  |  **35,250,233.55**  |
| **Grand Total** |  **118,874,709.00**  |  **107,093,745.01**  |  **107,150,000.00**  |  **118,937,471.80**  |

26.9 Based on a total face value allocation of destination bonds for ARM 107.15 million, investors will be required to pay to the government ARM 118.9 million. The final pay-off amounts by various bidders is summarized in Table 7 which indicates a net payment of ARM 62,762.80 to the government by investors.

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| Table 7: Pay-off Summary by Bidders |
| **Investor** | **Pay to Investor** | **Receive from Investor** | **Net Receipt** |
| A |  31,277,969.00  |  31,288,316.44  |  10,347.44  |
| B |  51,345,987.00  |  51,364,263.10  |  18,276.10  |
| C |  21,160,469.00  |  21,171,585.62  |  11,116.62  |
| D |  11,077,200.00  |  11,089,845.66  |  12,645.66  |
| E |  4,013,084.00  |  4,023,460.98  |  10,376.98  |
| **Total** |  **118,874,709.00**  |  **118,937,471.80**  |  **62,762.80**  |

26.10 Tables 8 and 9 provide an aggregate analysis of the switch operations for the source and destination bonds respectively.

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| Table 8: Aggregate Analysis of Source Bond Allocation in Switch Operations  |
|  | **Source Bonds** |
| ISIN | **AMGN60294193** | **AMGN36294194** | **Total** |
| Maturity Date | 29-Apr-19 | 29-Apr-19 |  |
| Coupon Rate | 8.000000% | 9.000000% |  |
| Coupon Frequency | 2 | 3 |  |
| **Face Value Redeemed** | **60,000,000** | **58,000,000** | **118,000,000** |
| **Clean Value at Cost (AMD)** | **60,000,000.00** | **58,000,000.00** | **118,000,000.00** |
| Cut-off Yield | **7.5800%** | **7.5500%** |  |
| Previous Coupon Date | 29-Apr-18 | 29-Apr-18 |  |
| DSC | 140 | 140 |  |
| DCS | 43 | 43 |  |
| Cut-off Clean Price | 100.3388% | 101.1373% |  |
| Accrued Interest | 0.9399% | 1.0574% |  |
| Gross Price | 101.2787% | 102.1947% |  |
| **Gross Value at Exchange (AMD)** | **60,196,330.00** | **58,678,379.00** | **118,874,709.00** |

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| Table 9: Aggregate Analysis of Destination Bond Allocation in Switch Operations |
|  | **Destination Bonds** |
| ISIN | **AMGN60294235** | **AMGB30163472** | **AMGB20072287** | **Total** |
| Maturity Date | 29-Apr-23 | 16-Mar-47 | 7-Feb-28 |  |
| Coupon Rate | 8.00% | 13.00% | 11.00% |  |
| Coupon Frequency | 2 | 2 | 2 |  |
| **Face Value Tendered / Issued (units)** | **38,830,000** | **37,730,000** | **30,590,000** | **107,150,000** |
| **Clean Value at Cost (AMD)** | **38,830,000.00** | **37,730,000.00** | **30,590,000.00** | **107,150,000** |
| Cut-off Yield | **7.2500%** | **11.5800%** | **9.1800%** |  |
| Previous Coupon Date | 29-Apr-18 | 16-Mar-18 | 07-Feb-18 |  |
| DSC | 140 | 97 | 57 |  |
| DCS | 43 | 87 | 124 |  |
| Clean Price | 103.0255% | 111.7357% | 111.4665% |  |
| Accrued Interest | 0.9399% | 3.0734% | 3.7680% |  |
| Gross Price | 103.9654% | 114.8091% | 115.2345% |  |
| **Gross Value at Exchange (AMD)** | **40,369,764.82** | **43,317,473.43** | **35,250,233.55** | **118,937,472** |

1. This is a derived benefit of such transactions and should not be viewed as the main objective of switch operations. There is a debate as to what extent the DMO should make attempts to correct pricing anomalies or whether it is better to leave them to private market participants. [↑](#footnote-ref-1)
2. Switches based on fixed prices (or fixed exchange ratio) is preferred when the outstanding amount of the source bonds to be bought back is rather low and it is concentrated in the hands of only a couple of investors. In this case it is not worthwhile to launch a switch exchange auction because of the lack of the competition. [↑](#footnote-ref-2)
3. This is often referred to as ‘coincidence of needs’ problem associated with a switch auction whereby to participate in a specific bond exchange operation, existing investors would need to have an interest to trade in the given direction in exactly those exchange bonds on offer. [↑](#footnote-ref-3)
4. This relative advantage over buybacks is likely to be more pronounced in periods of market turmoil, where high interest-rate volatility, wide bid-ask spreads and reduced market depth would tend to make portfolio rebalancing via the secondary market more risky. [↑](#footnote-ref-4)
5. In case of duration neutral switches, the nominal amount of the destination bond will typically be rounded to the nearest amount in line with the standard lot of bonds in the secondary market. Due to the rounding practice, effective duration approximation may not be precisely matched. The DMO may choose not to round the destination bond in order to match duration more precisely. [↑](#footnote-ref-5)
6. The advantage for the issuer of an auction over a fixed-price exchange is that the auction creates no market risk; the risk is borne by the bidders. The size of the transaction can also be larger than in a fixed price exchange because the issuer can adjust the price to the level asked by the market. [↑](#footnote-ref-6)
7. For example, in Denmark, all entities authorized to trade on the Copenhagen Exchange are eligible to participate. In Spain, all market members can participate, although some extra time to bid is given to PDs. [↑](#footnote-ref-7)