



Mastering the Basics of Government Securities Market and Financial Calculations



Course Syllabus

Acknowledgements

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Course presentation

As part of the new training services for its client countries, the DMFAS Programme is offering a learning product on Government Securities Market and Financial Calculations.

Background

Many developing countries have embarked on the long and complex process of developing a government securities market, as these markets can help mobilize resources and diversify the source of financing. One of the challenges that debt managers face in this process is how to use more effectively capital markets to implement the government debt strategy. This requires that the DMO follows an issuance policy whose characteristics are well adapted to the debt strategy targets and to the current market environment. Simultaneously, the market environment should be guided by an appropriate and clear regulatory and operational framework and the DMO operating under strong organizational arrangements.

General objective of the learning product

This DMFAS Programme learning product will specifically aim at strengthening the capacity of the national debt office to assess and select the most beneficial/cost-effective terms of debt securities and to issue these through an issuance policy in line with the debt strategy. It is mainly intended to developing countries or countries with economies in transition that need to respond to the challenges posed by a government securities market which is still nascent or at an early stage but will also benefit countries which seek to deepen their market.

To do so, it will first equip front/middle office staff with basic knowledge and skills in the field of capital markets and government securities, including characteristics of debt securities, market players, basic financial calculations, issuance mechanisms and international standards. Participants will thus get familiar with commonly used debt securities and issuance mechanisms and will be able to perform securities related calculations.

As a result of the learning intervention, it is expected that participants will be able to assess the strengths and weaknesses of the current sovereign securities policy and find potential areas for improvement.

Target audience

Target audience

At the **individual level**, this learning product is mainly intended for staff from the front and middle office who are involved in the elaboration and implementation of the issuance policy or sovereign securities policy.

At the **institutional level**, this learning product is targeting countries that have at least a nascent capital market and whose debt office is already elaborating and/or implementing an issuance policy, or is planning to elaborate one.

Staff from the back office in charge of recording debt securities and auctions could also benefit from the self-study modules related to types of debt securities, fundamental financial calculations, types of issuance mechanism and debt securities management operations.

For cases where the country is not issuing any government securities but the debt office wishes to introduce its staff to the fundamentals of government securities markets, the possibility to adapt this course could be explored with the DMFAS Programme.

Prerequisite knowledge and selection of participants

Prerequisite knowledge

The on-line course module on financial calculations requires participants to be proficient with Excel's basic mathematical formulas and functions, in particular subtractions, additions, divisions, multiplications and exponentiation.

This is an **essential prerequisite** for the successful completion of this module, as participants will be asked to use and create mathematical formulas and financial functions in Excel.

Selection of participants

The identification and selection of participants will be made by the debt management office in close collaboration with the DMFAS Programme, based on the profiles of participants collected and communicated by the national institution.

The successful completion of the on-line course will be a prerequisite to attend the workshop: this will guarantee that workshop participants have the minimum required knowledge to benefit fully from the workshop activities.

Course outline and objectives

This course will consist of modules delivered through distance learning, to be complemented by a highly interactive workshop.

On-line course outline

Module 1 - week 1: Types of debt securities

Module 2 - week 2: Market players

Module 3 - week 3 and 4: Fundamental financial calculations

Module 4 - week 5: Types of issuance mechanisms

Module 5 - week 6: Liability management operations on debt securities (optional)

Workshop outline

Review of the five modules, including case studies, practical exercises and work group sessions. (Refer to the *Workshop programme* section for more details.)

Learning objectives

Upon successful completion of the course, participants should be able to:

- Propose the most beneficial/cost-effective terms for debt securities and issuance mechanism under various assumptions
- Calculate all financial flows and most commonly used cost/risk indicators of debt securities
- Appreciate the role of market players in debt securities markets and define the market players' characteristics
- Under various conditions, recognize the need for debt liability management operations and apply the most appropriate operation at the right timing
- Produce an assessment of the strengths and weaknesses of the current issuance policy and find potential areas for improvement

Application objectives

When returning to their workplace, participants should be able to:

- Review the current debt securities portfolio and assess its composition as well as its cost / risk profile
- Review current issuance mechanism used and provide an assessment of its effectiveness and suggest possible areas of improvement
- Assess the role of current market players and identify possible needs for improving investors relations
- Review current practices in liability management operations and suggest areas for improvement

Impact objectives

Within the year following the learning programme, it is expected that the debt management office has revised its sovereign securities policy in light of the suggestion formulated at the end of the workshop or has documented the market or internal reasons impeding such an action.

Syllabus of the on-line course

Module 1 (week 1) Types of debt securities

Learning objectives

Learners will be able to:

1. Differentiate between debt securities, non-debt securities and other debt instruments
2. Name the most commonly used types of debt securities
3. Describe the financial characteristics of the various debt securities
4. Explain how these instruments are managed in DMFAS

Estimated time: 10 hours

Module 2 (week 2) Market players

Learning objectives

Learners will be able to:

1. List the key market players involved in government debt securities markets
2. Explain the roles and objectives of each market player as well as its contribution to the effective market functioning
3. Recognize the importance for the DMO to develop smooth interaction with market players
4. Interpret credit ratings attributed by main rating agencies

Estimated time: 10 hours

MODULE CONTENT

Unit 1 Definition of debt securities

Unit 2 Overview of the debt securities markets

- Primary market
- Secondary market

Unit 3 Types of debt securities

- Fixed coupon, floating rate, index linked, zero coupon, callable bonds, strips, perpetual, foreign bonds, etc.
- Sukuk

Unit 4 Types of fees and commissions, and tax policies

Unit 5 The management of debt securities in DMFAS

MODULE CONTENT

Unit 1 Securities issuers, investors and intermediaries

- Securities issuers (central government, central bank, provincial state, local government)
- Securities investors
- Secondary market participants
- Primary dealers

Unit 2 Other market players

- Investor relations office
- Clearing and settlement entities
- Rating agencies
- Market regulators

Module 3 (week 3-4) Fundamental financial calculations

Learning objectives

Learners will be able to:

1. Calculate future and present values
2. Calculate the YTM of a security and recognize its importance as cost indicator
3. Describe the term structure of interest rates and explain how to build a yield curve
4. Describe basic/cost risk indicators used for debt securities (including duration, modified duration and convexity) and explain how to apply them

Estimated time: 14 hours

Module 4 (week 5) Types of issuance mechanisms

Learning objectives

Learners will be able to:

1. Describe the most commonly used issuance mechanisms
2. Identify when best to use the different issuance mechanisms
3. Describe best practices with regard to issuance calendars and auction results
4. Explain the pros and cons of using primary dealers
5. Explain how auctions are managed in DMFAS

Estimated time: 10 hours

MODULE CONTENT

Unit 1 Basics of financial math

- Simple and compound interest rates
- Present value and future value

Unit 2 Securities valuation

- T-bills valuation
- Bond valuation

Unit 3 Yield curves

- The yield curve: shapes and theories
- Deriving a yield curve: bootstrapping

Unit 4 Securities risk measures

- Duration
- Convexity

MODULE CONTENT

Unit 1 Issuance mechanisms

- Overview of issuance mechanisms: auctions, syndications, tap sales, private placement and retail issuance
- The use of market-based mechanisms for debt issuance

Unit 2 Auctions

- Single-price and multiple-price auctions
- Bidding requirements
- Non-competitive bids
- Defining an issuance calendar and announcing auction results

Unit 3 Syndication and retail issuance

Unit 4 Use of primary dealers

- Advantages and drawbacks of using primary dealers
- The role of primary dealers in the issuance of government securities

Unit 5 The management of auctions in DMFAS

Module 5, optional (week 6)

Liability management operations on debt securities

Learning objectives

Learners will be able to:

1. Describe operations commonly-used to manage debt securities
2. Identify situations where to use them and the intended consequences

Estimated time: 6 hours

MODULE CONTENT

Unit 1 Types of liability management operations on debt securities

- Buyback and bond exchanges
- Reopenings
- Interest and currency swaps

Unit 2 Why and when to use liability management operations on debt securities

- Justification for buyback and bond exchange operations
- Justification for reopenings
- Justification for interest rate and currency swaps

Workshop programme

The workshop will be highly interactive, including case studies, practical exercises and work group sessions. It will assist participants in reviewing securities issued by their national institution and performing standard market calculations.

The workshop will culminate in a final challenge where participants working in groups will have to assess their current sovereign securities policy and find potential areas for improvements and, then, present their work to the rest of the group.

The workshop programme will be adapted to the specific needs of the institution, as determined by the needs assessment and discussions between DMFAS Project manager and the institution.

	Day 1	Day 2	Day 3	Day 4
09.00-10.30	Registration Opening ceremony Presentation of the workshop	 Discussion: Current debt securities portfolio	Review of Module 3: Fundamental financial calculations	Review of Module 4: Types of issuance mechanisms
10.30-10.45	TEA BREAK	TEA BREAK	TEA BREAK	TEA BREAK
10.45-12.30	Overview of government debt securities markets: characteristics and global trends; national context	 Discussion: Analysis of current key market players in country X	Review of Module 3: Fundamental financial calculations	Review of Module 4: Types of issuance mechanisms
12.30-14.00	LUNCH	LUNCH	LUNCH	LUNCH
14.00-15.15	Review of Module 1: Type of debt securities	 Case study: Examples of other country cases	 Exercises: Apply financial calculations	 Case study: Examples of other countries practices  Discussion: Current issuance mechanism used
15.15-15.30	TEA BREAK	TEA BREAK	TEA BREAK	TEA BREAK
15.30-16.45	Review of Module 2: Market players	 Workgroup session: Evaluate possible improvements to current debt securities policy	 Exercises: Apply financial calculations	 Workgroup session: Evaluate possible improvements to current issuance policy
16.45-17.00	Navigation meeting	Navigation meeting	Navigation meeting	Navigation meeting

	Day 5	Day 6	Day 7	Day 8
09.00-10.30	Review of Module 5: Liability management operations on debt securities	Revision of elements taught during week 1	Use of DMFAS for management of debt securities and auctions	 Presentation of workgroups
10.30-10.45	TEA BREAK	TEA BREAK	TEA BREAK	TEA BREAK
10.45-12.30	Review of Module 5: Liability management operations on debt securities	 Working groups: Assess current issuance policy and find potential areas for improvements	 Working groups: Assess current issuance policy and find potential areas for improvements	 Presentation of workgroups
12.30-14.00	LUNCH	LUNCH	LUNCH	LUNCH
14.00-15.15	 Role play: Define your issuance policy	 Working groups: Assess current issuance policy and find potential areas for improvements	 Working groups: Assess current issuance policy and find potential areas for improvements	Presentation of course evaluation results
15.15-15.30	TEA BREAK	TEA BREAK	TEA BREAK	TEA BREAK
15.30-16.45	 Role play: Define your issuance policy	 Working groups: Assess current issuance policy and find potential areas for improvements	Course evaluation	Wrap up and closing ceremony
16.45-17.00	Navigation meeting	Navigation meeting	Navigation meeting	Navigation meeting

			
Activity	Case study	Discussion	Group activity

Methodology and delivery modes

The whole course takes place over a period of two months and is delivered through a mix of distance learning (on-line course) and face-to-face instruction during a workshop.

On-line course

The first part of the course will be delivered on-line over a period of five or six weeks, depending on whether the optional module on *Liability management operations on debt securities* is included or not.

The distance learning component will consist of five self-study and self-paced learning modules that will allow learners to grasp key concepts of capital markets and government securities and to study at their own pace. Learners will have an opportunity to relate the course's content to real-life situations through assignments (including discussion forums). This learning format gives the flexibility of learning in one's own time and environment, but also makes learners primarily responsible for their own learning.

The total estimated duration of the on-line course is 50 hours for the five modules, based on required readings and assignments. Learners need to set aside approximately ten non-consecutive hours each week to study.

A pre-test will take place at the start of each module, followed by a post-test at the end of each module: this will allow learners to measure their growth in knowledge and understanding as a result of the course.

Materials will be posted on-line on a weekly basis (except for Module 3 which requires two weeks of self-study). Learners will be expected to complete a module and its related test within the one/two week period allocated to the module.

Learners will need an internet connection to access the material and participate in the discussion forums as well as speakers to listen to audio files. The following software is also required to read material and perform activities: Adobe Reader and Excel.

On-line modules will be delivered on the following web page: dmfaslearning.coursesites.com. Selected participants will be invited to register upon receiving an invitation email.

Workshop

For maximum impact, the eight-day workshop will follow shortly the distance learning component. It will give learners an opportunity to apply their knowledge through highly interactive activities, including discussions, role plays, case studies, practical exercises and work group sessions.

As mentioned previously, the workshop will be adapted to the specific needs of the institution, as determined by the needs assessment and discussions between DMFAS Project manager and the institution.

Follow-up workshop

Upon request, a follow-up workshop can be organized to take stock of achievements and progress made by the institution with regard to its sovereign securities policy.

Grading policy and course completion

Learners are eligible for a course certificate upon successful completion of the on-line course and workshop.

The successful completion of the on-line course requires:

- The completion of the pre-test for each module (no passing grade is required)
- The completion of assignments (e.g. submission of papers, completion of exercises, participation to discussion forums, etc.)
- An 80% passing grade on each of the module's post-test (learners can repeat the test up to 2 times)

Test scoring

A system of partial points and point deduction is used for questions that require multiple answers. This means that a portion of the total points is awarded for each correct answer and that points are deducted for incorrect answers.

The successful completion of the on-line course is a prerequisite to attend the workshop.

The successful completion of the workshop requires:

- full attendance of the workshop
- active participation to the work group activities

The final decision on the course certificates will be made by the DMFAS Programme trainer, in consultation with the distance learning moderator and/or instructor, if different.

Course moderator and instructor

To be specified for each course.