CENTRO DE ESTUDIOS MONETARIOS LATINOAMERICANOS

OVERVIEW OF THE COURSE AND FINANCIAL PROGRAMMING

Course on Financial Programming: The Case of Costa Rica

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Hugo Juan-Ramon

Layout of the Course

➢ **Instructor:** Hugo Juan-Ramon; Argentinean, Ph.D. in Economics, University of Chicago; ex IMF staff (WHD and ICD). Also worked as consultant at the IDB and the WB, and as adjunct professor at the American University and George Washington University.

➢ **Program:**

✓ *Plenary sessions*: Analysis and projections of the real, external, fiscal, and monetary sectors, as well as other topics such as financial soundness indicators and stress test.

✓ *Group sessions*: Workshops, each group will work on a diagnostic of the Costa Rican economy at end 2012, projections of a baseline scenario for 2013, and policies chosen for the program scenario.

✓ *Presentation (Friday afternoon):* Each group will present (plenary session, 20 minutes) their diagnostic and quantitate results.

➢ **Participants:** Please introduced yourselves and state your expectations for the course.

The Course Learning Objectives

➢ Understand the design and process of formulating a financial programming.

➢ Understand macroeconomic accounts: Concepts, identities, resource constraints; and analytic presentations—IMF Manuals—of the real, external, fiscal, and monetary sectors, and interrelation among them.

➢ Familiarize with key macroeconomic behavioral relations and projection techniques.

➢ Projections under baseline and program scenarios, and iterations to achieve consistency.

➢ Understand policy trade-offs and the role of financing in economic adjustment programs.

➢ Understand the concepts of internal and external balances, the consequences of large, permanent imbalances, and the need of adjustment measures to reach both balances.

Financial Programming: General Considerations

➢ Financial programming (FP) is a short-term (1 year) macroeconomic program designed to correct current (or potential) internal and/or external imbalances. It is a comprehensive set of coordinated policies aimed at achieving a final objective of addressing the internal and external imbalances.

➢ Causes of imbalances: Cyclical fluctuations, unexpected shocks (temporary, permanent), inappropriate policies, structural constraints.

➢ FP affects aggregate demand—thus output and employment—through fiscal, monetary and exchange rate policies. FP might include M- L-T supply-side policies (structural reforms).

➢ FP Policies: i) Fiscal: Expenditures (consumption, investment), revenues (tax rates, tax admin.); ii) Monetary: Controlling expansion of credit, money supply, or ST interest rate level; iii) Exchange rate: Avoid (or correct) large, persistent RER misalignment.

Financial Programming: General Considerations (Cont.)

➤ To gain intuition, financial programming could be briefly summarized as follows:

(1) BOP = ΔNFA

(2) $\Delta M^d = \Delta M^s \rightarrow \Delta M^d = \Delta NDCg + \Delta DCp + \Delta NFA$

(3) Fiscal Deficit = Financing $\rightarrow$ Fiscal Def = $\Delta NDCg + \Delta Bg$

These three equations can be expressed as:

Fiscal Def = $\Delta M^d - \Delta DCp + \Delta Bg - \Delta NFA$

This equation, representing equations 1-3, gives the gist of financial programming.

This summary equation basically tells the projections, calculations, assumptions one has to make (all terms on the RHS) to determine what would be a maximum feasible fiscal deficit.

Financial Program Steps: Diagnostic, Scenarios

➢ *Diagnostic*: Based on recent historical data and events, and baseline scenario.

➢ *Baseline scenario*: Projection under the assumption of unchanged policies.

   ✓ Diagnostic: Useful to identify macro imbalances, its causes, and to design policy measures.

➢ *Program scenario*: Projection with changed policies to address problems identified in the diagnostic and baseline scenario. Steps:

   ✓ Select short-term objectives (need to prioritize) and medium-term objectives to anchor expectations and to stimulate potential real GDP.

   ✓ Select and quantify a set of coherent policies,

   ✓ Project using identities and "appropriate," empirically sound, behavioral relations, and iterate to achieve accounting and analytical coherence; akin to general equilibrium.

Financial Program: Hands-On

➢ **Phase 1: Primary, external, predetermined, and unobserved variables**

▪ **Projections (primary) of three key variables** (input to construct or project other variables)
1. RGDP growth (usually supply-side GDP: Σ VA of productive sectors),
2. Inflation (end of period: Dec-Dec, and year average),
3. Either average RER or nominal exchange rate (end of period and average).

▪ **External environment** (exogenous; also input to construct or project other variables)
  ✓ From WEO: RGDP growth of commercial partners, international prices of import and export, external interest rate.

▪ **Predetermined variables** (exogenous; also input to construct or project other variables)

✓ Stock at end t-1 of key variables such as domestic and foreign public debt, gross international reserves, foreign direct investment (liabilities and assets).

▪ **Unobserved variables** (also input to construct or project other variables)

✓ Cannot be measured directly, have to be constructed; e.g., potential RGDP, natural rate of unemployment, natural real interest rate, equilibrium-RER, cyclically adjusted fiscal balance.

Financial Program: Hands-On (Cont.)

➢ **Phase 2: Variables derived using theory, assumptions, and phase 1 projections**

✓ If Avg RER projected in phase 1, then project Avg NER (relative PPP), then e.o.p. NER.

✓ If Avg NER projected in phase 1 (UIP), then project Avg RER (relative PPP) and e.o.p. NER.

✓ Project either relative prices for exports and imports or a proxy for both (REER); and deflators for private and public consumption and investment, exports and imports,

✓ Project the GDP deflator as a weighted average of GDP components' deflators (first approximation: Use weights from previous year).

✓ Project indicators useful to project tax revenue (e.g., effective tax rate, elasticity of revenue w.r.t. a proxy tax base). Revenue series adjusted for past tax measures.

✓ Project indicators useful to project monetary aggregates (e.g., money velocity, multiplier)

✓ Project the effective interest rate relevant for domestic and external debt.

Financial Program: Hands-On (Cont.)

➢ **Phase 3: Project sectoral, above-the-line variables** (Use behavioral relations, assumptions, and phases 1, 2 projections):

➢ Project nominal GDP from the supply side using the projected real GDP and its deflator (nominal GDP usually an input for projecting some fiscal and monetary variables).

➢ Project real exports and imports. Key effects in those demand: *Income* and *substitution;* variables that capture those effects have been projected phases 1, 2.

➢ Project fiscal variables using policies (unchanged or changed), public investment programs, effective tax rates (or other methods) and proxy tax bases.

➢ Project the desired *average real broad money* using an estimated demand function or the velocity approach. Key determinants: RGDP and the opportunity cost of holding broad money. Then project the *end of period nominal broad money*.

➢ Project real private consumption and investment. Project real GDP from the demand side and reconcile this projection with that from the supply side.

Financial Program: Hands-On (Cont.)

➢ **Phase 4: Project sectoral, below-the-line variables** (financing):

✓ In baseline: some of the financing item could be a residual (interpretation)

✓ In program: Assess *availability* and *feasibility* of financing. The first relates to a market constraint, the second to sustainability consideration.

✓ Project public and private sectors domestic and external financing: loans and bonds, loans from IFI, FDI.

✓ External financing transactions are also captured in the financial account (FA) of the BOP.

✓ The FA of the BOP should show *functional classification* (FDI, portfolio investment, …), *institutional units* (central gov, banks, private sector), and *instruments* (bonds, loans).

Financial Program: Hands-On (Cont.)

➤ **Phase 4: Project sectoral, below-the-line variables** (financing) (Cont.):

❑ IMF and exceptional financing: Transactions undertaken to meet *BOP needs*.

➤ BOP needs: "A situation where sufficient financing on affordable terms cannot be obtained to meet international payment obligations." (IMF Factsheet, October 2008).

➤ Exceptional financing: Government-to-government grants and loans, and rescheduling or forgiveness of debt falling due in the current period.

➤ Public debt management: Adequate debt structure by currency, maturity, cost.

▪ A government might have zero overall fiscal balance and still have financing activities due to debt management: e.g., repaying some debt by incurring in new debt.

Financial Program: Hands-On (Cont.)

➢ **Phase 5: Iterations** (Due to possible *accounting* and *analytical* inconsistencies in a first projections, iterations might be needed), for example:

▪ *Identities*: E.g., i) the projected saving-investment gap should be equal to the projected CA of the BOP, ii) budget constraints must hold; role of residuals.

▪ *Interrelation*: E.g., the public sector financing (from domestic and external banking) should be consistent with the monetary sector and with the BOP.

▪ *General accepted theory*: E.g., it would be inconsistent if: i) private consumption and investment increases at the same time that the real interest rate increases, tax increases, ii) the trade balance improves when domestic currency is becoming grossly overvalued in real terms.

➢ **Phase 6: Announcing and monitoring the program**

✓ After the final iteration, the program is announced to the public (for example, in January of the program year) and the authorities start its implementation.

✓ The authorities and the IMF monitor the economy and the program (quarterly targets) and, if necessary, the authorities (in consultation with the IMF) will make adjustments due to unexpected shocks, optimistic assumptions, or projection errors.

Financial Program: Hands-On (Cont.)

➤ **Sequencing of projections in the Excel file**

Real sector → Fiscal Sector → Monetary Sector → External Sector (BOP)

➤ **Excel-based model vs general equilibrium (GE) model**

✓ Projections: assumptions, simple calculations, trend forecasting of adjusted or unadjusted series (level, ratio, log), single regressions, or general equilibrium (GE) models.

✓ GE models project a few variables—RGDP growth, inflation, RER, NER, interest rate, BOP current account—and assume financing is available. *Warning: data availability and quality ("GIGO" effect), financing might not be available.*

✓ Excel-based FP Files complement GE models because it: i) assesses the consistency of the GE model's projections, ii) projects the rest of the variables, iii) projects and analyzes the financing requirements of the program, iv) generate the flow of funds matrix.

✓ *Sometimes a projection is more a matter of algebra and common sense than econometrics.*

Programa Financiero

□ **Política fiscal**

Multiplicador fiscal

Instrumentos de política fiscal	→	Resultado Fiscal (primario, global)	→	Demanda agregada (C, I, DE)	→

Inflación

□ **Política monetaria**

Esquema de metas de agregados monetarios

Instrumentos de política monetaria	→	Activos domésticos netos (OMA)	→	Base monetaria, circulante	→	Pasivos SB con el sector privado (M3)	→

Crecimiento

RIN, deuda externa

Esquema de metas de inflación
Tasa de interés de política

□ **Política cambiaria coherente con los objetivos**

Sector monetario

Supuestos/Objetivos del programa financiero

Demanda de dinero:
Preferencias del sector privado, nivel de actividad económica, inflación, tasa de interés, etc.

Oferta de dinero:
Política monetaria del Banco Central, expectativas, preferencias de los bancos (crédito) y del sector privado (depósitos o moneda), política fiscal

nivel y costo del crédito, expectativas consumo e inversión privados

Evaluar si los resultados son coherentes analíticamente con los objetivos finales

Medidas de   política monetaria

Sector Monetario

☐ **Política monetaria (metas de agregados monetarios)**

Instrumentos	Metas operativas	Metas intermedias	Objetivos de política
- OMAs - Redescuento - Reporto	- Base monetaria - Reservas bancarias - Circulante	- M1, M2, M3 - Crédito al sector privado	-Δ% PIB real -Inflación -Deuda externa -Reservas

Banco central

RIN (AEN)

AIN
  Crédito neto SPNF
  Crédito bancos
  Crédito sector
  privado
Otros activos netos

BASE MONETARIA

Reservas bancarias
  Efectivo
  Depósitos de los
    bancos
Circulante

Sistema bancario

AEN

AIN
  Crédito neto SPNF
  Crédito sector
  privado
Otros activos netos

M2 (M3) =

M1
  Circulante
  Depósitos vista
Cuasidinero
Otros pasivos
  monetarios

Sector Fiscal

Supuestos/Objetivos del programa financiero

Ingresos – Gastos

Resultado fiscal

Necesidades de financiamiento

Comparar

Medidas de PF

Resultado objetivo

Financiamiento viable y sostenible

Doméstico
  Sistema bancario
  Banco central
  Resto SB
  No bancario
Externo

Doméstico
  Sistema bancario
  Banco central
  Resto SB
  No bancario
Externo
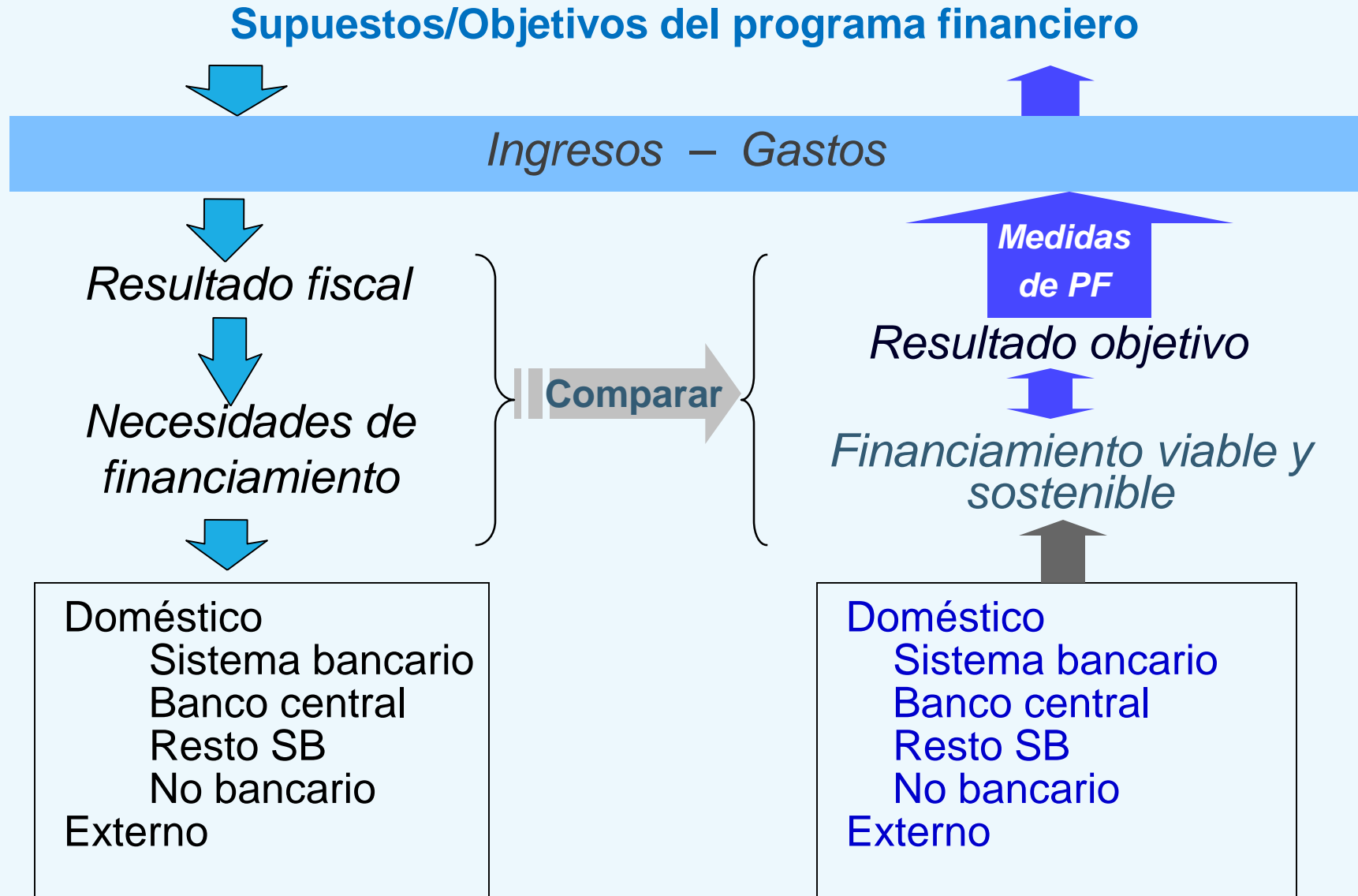
Sector externo: Balanza de Pagos

Supuestos/Objetivos del programa financiero

Cuenta corriente (CC)

Necesidades de financiamiento:
Cuenta Capital y Financiera
Sector público
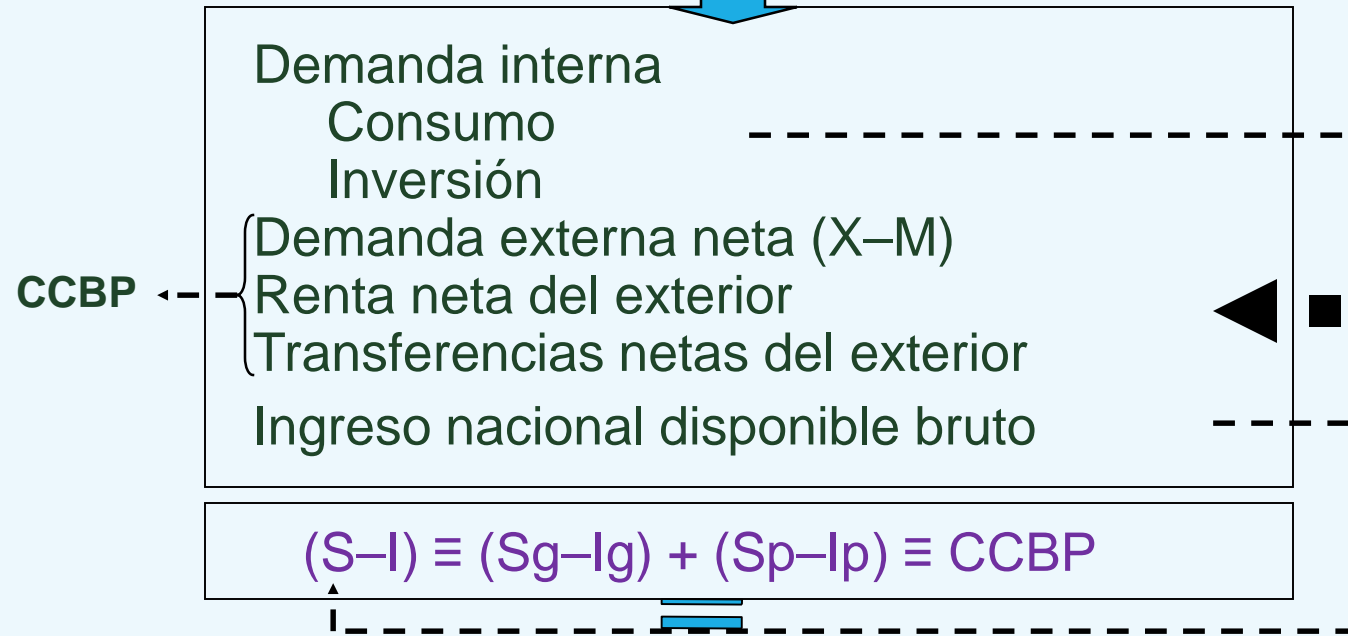Sector privado
Variación RIN

Comparar con el financiamiento viable y sostenible (objetivo de variación deuda externa, y/o RIN)

Necesidad de cambios en las medidas de política
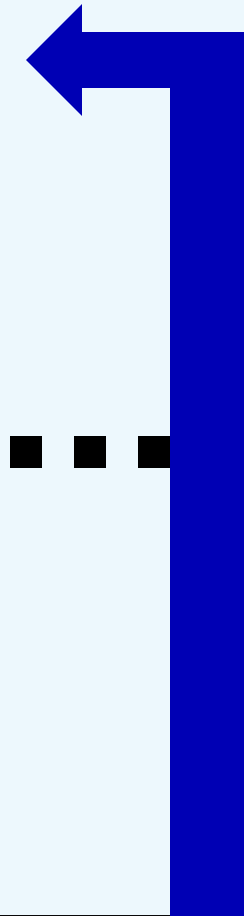
Sector Real

Supuestos/Objetivos del programa financiero

Demanda interna
  Consumo
  Inversión
Demanda externa neta (X–M)
Renta neta del exterior
Transferencias netas del exterior

Ingreso nacional disponible bruto

CCBP

$(S–I) \equiv (Sg–Ig) + (Sp–Ip) \equiv CCBP$

Evaluación de los resultados obtenidos para los componentes de la demanda interna, sobre todo los del sector privado: ¿son razonables desde el punto de vista analítico?

Necesidad de Cambios en las medidas de política

Todos los Sectores

BP
CC
CCF
ΔRIN*

Fiscal
Resultado Global*
Financiamiento*

Objetivos
- -Crecimiento
- -Inflación
- -RIN/DeudaX

Monetario
ΔM3
Crédito*