

## The Stock–Flow Consistent Approach



# The Stock–Flow Consistent Approach

Selected Writings of Wynne Godley

Edited by

Marc Lavoie

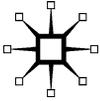
*Professor, Department of Economics, University of Ottawa, Canada*

and

Gennaro Zezza

*Professor, Department of Economics, University of Cassino, Italy*

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First published 2012 by  
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ISBN 978-1-349-33275-5 ISBN 978-0-230-35384-8 (eBook)  
DOI 10.1057/9780230353848

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources. Logging, pulping and manufacturing processes are expected to conform to the environmental regulations of the country of origin.

A catalogue record for this book is available from the British Library.

Library of Congress Cataloging-in-Publication Data

Godley, Wynne.

The stock-flow consistent approach : selected writings of Wynne Godley / edited by Marc Lavoie and Gennaro Zezza.

p. cm.

Includes bibliographical references and index.

1. Macroeconomics. 2. Stock-flow analysis. 3. National income—Accounting. I. Lavoie, M. (Marc) II. Zezza, Gennaro. III. Title.

HB172.5.G623 2011

339—dc23

2011030614

10 9 8 7 6 5 4 3 2 1  
21 20 19 18 17 16 15 14 13 12

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# Acknowledgments

The following copyrights and permissions are acknowledged gratefully by the editors of the volume.

Chapter 1: Ken J. Coutts, Wynne Godley and Graham D. Gudgin (1985) 'Inflation Accounting of Whole Economic Systems.' *Studies in Banking and Finance* [Supplement to *Journal of Banking and Finance*, Amsterdam: North Holland] 9(2) (June): 93–114. Copyrights belonging to the authors. Permission granted by K.J. Coutts and G.D. Gudgin.

Chapter 2: Wynne Godley (1993) 'Time, Increasing Returns and Institutions in Macroeconomics.' In S. Biasco, A. Roncaglia and M. Salvati (eds), *Market and Institutions in Economic Development: Essays in Honour of Paolo Sylos Labini* (Basingstoke: Palgrave Macmillan), pp. 59–82. Copyrights belonging to the author.

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Chapter 4: Wynne Godley (2004) 'Weaving Cloth from Graziani's Thread: Endogenous Money in a Simple (but Complete) Keynesian Model.' In R. Arena and N. Salvadori (eds), *Money, Credit and the Role of the State: Essays in Honour of Augusto Graziani* (Aldershot: Ashgate), pp. 127–135. Reprinted by permission of the Publishers. Copyright © 2004.

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# Notation

We chose to use a common notation for all chapters which is as close as possible to the one used in Godley and Lavoie (2007), *Monetary Economics*.

As a general rule, lower-case variables correspond to variables measured as quantities, prices, interest rates etc., while uppercase variables correspond to aggregates measured at current prices.

A star (\*) denotes a target value for a variable, while an <sup>e</sup> superscript denotes an expected value.

Symbol	Description
$B_S$	Treasury bills supplied by government
$B_d, B_{hd}$	Bills demanded by households
$B_h, B_{hh}$	Bills held by households
$B_b, B_{bd}$	Bills actually demanded by banks
$B_\$, B_\&, B_\#$	Bills issued by the \$, &, # countries, respectively
$B_{ij}$	Bills issued by the j-th country and held by the i-th country's households, with $i, j = \$, \&, \#$
$BECEB_i$	Bills held by the ECB, and issued by the i-th country, with $i = \$, \&, \#$
$BFED_\$$	Bills held by the central bank of the \$ country, issued by the \$ country
$C, C_d$	Consumption goods demand by households, in nominal terms
$c, c_d$	Consumption goods demand by households, in real terms
$C_S$	Consumption goods supply by firms, in nominal terms
$CAB$	Current account balance
$CG$	Capital gains
$CG^e$	Expected capital gains of the current period
$DEBT$	Sum of the debts of the private sector, government sector and foreign sector
$DEF$	Government deficit
$DF$	Debt of the financial sector (Chapter 10)
$DP$	Debt of the private sector (Chapter 10)
$E$	Value of equities

---

Symbol	Description
$e_s$	Number of stock equities supplied by firms
$e_d$	Number of firms equities demanded by households
$EC$	Contributions for social insurance
$FT$	Total profits of firms, inclusive of interest payments on inventories
$\hat{f}t$	Total profits of firms in real terms, inclusive of interest payments on inventories
$FTnipa$	Profits, as measured by national accountants
$F, F_f$	Realized entrepreneurial profits of production firms
$F$	Sum of bank and firm profits
$F_e$	Expected entrepreneurial profits of firms
$FN$	Profits of firms, net of interest payments to banks
$\hat{f}n$	Profits of firms in real terms, net of interest payments to banks
$F_f^T$	Target entrepreneurial profits of production firms
$FD, FD_f$	Realized dividends of production firms
$FU, FU_f$	Realized retained earnings of production firms
$FU_f^T$	Target retained earnings of production firms
$Fb$	Realized profits of banks
$F_b^T$	Target profits of banks
$FD_b$	Dividends of banks
$FECB$	Profits of the ECB
$Fi$	Profits of the central bank distributed to the government of the $i$ -th country, with $i = \$, \#, \&$
$G$	Pure government expenditures in nominal terms
$g$	Pure government expenditures in real terms
$g_T$	Real total government expenditures (inflation accounted)
$GG$	Government expenditures on goods
$GS$	Government expenditures on services
$GT$	Total government expenditures, inclusive of interest payments on debt
$GD$	Government debt (public debt)
$gd$	Government debt in real terms
$GL$	Gross lending to the private sector (Chapter 10)
$gr$	Steady-state growth rate of the economy
$gr_g$	growth rate of pure government expenditures in real terms
$gr_k$	Growth rate of net capital accumulation
$H, H_s$	High-powered money, or cash money, supplied by the central bank

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Symbol	Description
$H\$, H\&, H\#$	Cash money in the \$, &, # countries, respectively
$H i_d$	Cash money demanded by households in the $i$ -th country, with $I = \$; \&; \#$
$H b_d$	Reserves demanded by banks
$H h_s$	Cash money supplied to households by the central bank
$H b_s$	Reserves supplied to banks by the central bank
$H_d$	Cash money demanded by households
$H_h, H_{hh}$	Cash money held by households
$H C$	Historic costs
$H C^e$	Expected historic costs
$H U C$	Historic unit cost
$H U C^e$	Expected historic unit cost
$H W C$	Historic wage cost
$i, i_d$	New fixed capital goods demanded by firms (investment flow), in real terms
$I_d$	New fixed capital goods demanded by firms (investment flow), in nominal terms
$I_s, I$	New fixed capital goods supplied by firms, in nominal terms
$i k$	Incremental investment/sales ratio ( $= i/\Delta s$ )
$i n$	Realized stock of inventories, in real terms
$i n^e$	Short-run target level (expected level) of inventories, in real terms
$i n^T$	Long-run target level of inventories, in real terms
$I N$	Realized stock of inventories, at current unit costs
$I M$	Imports, in nominal terms
$I M_C$	Imports of computers
$I M_N$	Imports of other goods and services
$I M_O$	Imports of oil
$i m$	Real imports
$I N T_h$	Interest payments received by households
$I N T_f$	Interest payments paid by firms
$I N T_g$	Interest payments paid by the government
$i n t^e$	Interest payments expected by households (Chapter 3)
$i n t^T$	Interest payments planned by firms (Chapter 3)
$K$	Value of fixed capital stock, in nominal terms
$k$	Fixed capital stock, in real terms (number of machines)

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Symbol	Description
$kf$	Fixed capital stock, in real terms (number of machines) of firms
$kb$	Fixed capital stock, in real terms (number of machines) of banks
$L, L_d$	Loans demanded by firms to private banks
$L_s$	Loans supplied by banks to firms
$l$	Leverage ratio = $L/K$
$M_s$	Money supplied by the government (Chapter 3) or the banks
$M_d, M_{hd}$	Money deposits demanded by households
$M, M_h, M_{hh}$	Money deposits actually held by households
$M1$	Checking account money deposits of households
$m_h$	Real money balances held by households
$ML$	Mean lag
$mc$	Marginal cost
$mpk$	Marginal product of capital
$mpl$	Marginal product of labour
$N, N_d$	Demand for labour
$N_s$	Supply of labour
$NAFA$	Net acquisition of financial assets from the private sector
$NIT$	Net indirect taxes
$NHUC$	Normal historic unit cost
$NUC$	Normal unit costs
$OTG$	Other net transfers from the government to the private sector
$p$	Price level
$p_b$	Price of bonds (Chapter 3)
$p_h$	Real price of a (second-hand) house
$ps$	Price index of sales
$pk$	Price of fixed capital goods
$p_e, p_{ef}$	Price of firms equities
$pr$	Labour productivity, or trend labour productivity
$PX$	Private expenditures (consumption, investment and change in inventories)
$px$	Private expenditures in real terms
$q$	The valuation ratio of firms (Tobin's $q$ ratio)
$Ra$	Random number modifying expectations
$REP$	Repayments of private debt

---

Symbol	Description
$r, r_b$	Nominal rate of interest on bills
$ri$	Rate of interest on bills in the $i$ -th country, with $i = \$, \#, \&$
$rr_b$	Real rate of interest on bills
$r_e$	Rate of return on equities
$r_f$	Rate of profit (= $FT/K_{-1}$ )
$r_l$	Rate of interest on bank loans
$rr_l$	Real rate of interest on bank loans
$rm$	Rate of interest on deposits
$rr_m$	Real rate of interest on term deposits
$rr_c$	Real rate of interest on bank loans, deflated by the cost of inventories index
$r_k$	Dividend yield (or rate of cash flow = $FU/K-1$ )
$S$	Sales in nominal terms
$SC$	Sales valued at cost
$S^e$	Expected sales in nominal terms
$s$	Realized real sales (in widgets)
$s^e$	Expected real sales
$s_f$	Ratio of retained profits to profits net of interest payments (Chapter 6)
$SAV_h$	Household saving
$T$	Taxes
$TRpf$	Net transfers from the private to the foreign sector
$TRgf$	Net transfers from the government to the foreign sector
$u$	Rate of capacity utilization
$UB$	Unemployment benefits
$UC$	Unit cost of production
$V, V_h$	Wealth of households, in nominal terms
$Vi$	Wealth of households in the $i$ -th country, where $i = \$, \&, \#$
$Vi_G$	Net worth of the government sector in the $i$ -th country, where $i = \$, \&, \#$
$VECB$	Net worth of the ECB
$V^e$	Expected wealth of households, in nominal terms
$VF$	Net financial wealth held abroad
$Vnc$	Wealth of households, net of cash
$Vnc^e$	Expected wealth of households, net of cash
$v$	Wealth of households in real terms
$W$	Nominal wage rate
$WB, WB_d, WB_s$	The wage bill

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Symbol	Description
$X$	Exports in nominal terms
$XA$	Exports of agricultural goods
$XC$	Exports of computers
$XN$	Exports of other goods and services
$x$	Real exports
$xr\$$	Dollar exchange rate: value of one dollar expressed in euro
$xr\text{€}$	Euro exchange rate: value of one euro expressed in dollars
$Y$	National income, in nominal terms
$Y^d$	Aggregate demand
$Y^s$	Aggregate supply
$Y_{fc}$	Full-capacity output
$Y_f$	Household income
$Y_{sa}$	National income including stock appreciation
$Y_{hr}$	Regular income of households
$Y_{hs}$	Haig–Simons nominal income (including all capital gains)
$y$	Real output
$y_{fc}$	real full capacity output
$Y_{pf}$	Factor income paid abroad
$Y_{fp}$	Factor income received from abroad
$YD$	Disposable income of households
$YD^e$	Expected disposable income
$YD_g$	Disposable income of the government
$YD_{hs}$	Haig–Simons nominal disposable income (including all capital gains)
$YD_r$	Regular disposable income
$YD_r^e$	Expected regular disposable income
$YD_{sa}$	Private disposable income, including stock appreciation
$yd^e$	Expected real disposable income
$ydr$	Realized real regular disposable income
$yd_r^e$	Expected real regular disposable income
$yd, yd_{hs}$	Haig–Simons realized real disposable income (including inflation losses)
$yd_{hse}$	Haig–Simons expected real disposable income
$YP$	Nominal personal income
$z$	Dichotomic variable or some numerical parameter

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## Greek letters

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Symbol	(greek letter)	Description
$\alpha$	(alpha)	Consumption parameters
$\alpha_0$		Autonomous consumption
$\alpha_1$		Propensity to consume out of regular income
$\alpha_2$		Propensity to consume out of past wealth
$\alpha_3$		Implicit target wealth to disposable income ratio of households
$\beta$	(beta)	Reaction parameter related to expectations
$\gamma$	(gamma)	Partial adjustment function that applies to inventories and fixed capital
$\varepsilon$	(epsilon)	Another reaction parameter related to expectations
$\theta$	(theta)	Personal income tax rate
$\lambda$	(lambda)	Reaction parameters in the portfolio choice of households
$\mu$	(mu)	Import propensity or parameter
$\xi$	(xi)	Reaction parameter tied to changes in interest rates/share of investment that can be financed externally (Chapter 2) or by issuing equities (Chapter 6)
$\pi$	(pi)	Price inflation rate
$\pi'$		$\pi' = \Delta p/p$
$\pi^T$		Target inflation rate
$\pi_c$		Inflation rate of unit costs
$\sigma$	(sigma)	Various measures of inventories to output (or sales) ratio
$\sigma_s$		Realized (past period) inventories to sales ratio
$\sigma_{se}$		Expected (past period) inventories to sales ratio
$\sigma^N$		Normal (past period) inventories to sales ratio
$\sigma^T$		Target (current) inventories to sales ratio
$\tau$	(tau)	Sales tax rate
$\varphi$	(phi)	Costing margin in pricing
$\phi$		Share of entrepreneurial profits in sales
$\psi$	(psi)	Target retained earnings to lagged investment ratio/ratio of retained profits (Chapter 2)

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# Contributors

**Ken Coutts** is Assistant Director of Research at the Faculty of Economics in the University of Cambridge. His main research interests include open-economy models of debt dynamics, visible and invisible earnings in the balance of payments, macroeconomic policy, and industrial pricing behaviour, particularly, within the context of open economies. Ken Coutts was a long-time member of the Cambridge Economic Policy Group and of Department of Applied Economics, where he produced several works in collaboration with Wynne Godley, including *Industrial Pricing in the United Kingdom* (1978). With Bob Rowthorn and Bill Martin, he has recently written about the prospects for the UK balance of payments.

**Wynne Godley** was Director of the Department of Applied Economics at the University of Cambridge, UK, from 1970 to 1989, and a Professor of Applied Economics from 1980 to 1993. Subsequently, he was Distinguished Scholar at the Levy Economics Institute of Bard College, New York, USA, and then a Visiting Research Associate at the Cambridge Endowment for Research in Finance. Besides his theoretical work, Godley is mainly known for his numerous public interventions on public policy as long-time leader of the Cambridge Economic Policy Group, and for having identified, in the late 1990s, the unsustainable processes that eventually led to the Global Financial Crisis.

**Graham Gudgin** is Honorary Research Associate at the Centre for Business Research, in the Judge Business School at the University of Cambridge and Senior Economic Advisor with Oxford Economics. He worked with Wynne Godley as a member of the Cambridge Economic Policy Group from 1978 to 1985. He moved to Northern Ireland in 1985 from Cambridge as Director of the Northern Ireland Economic Research Centre, a post which he held until 1998 when he was seconded as Special Adviser to the Northern Ireland First Minister on economic policy. He is the author of a large number of books, reports and journal articles on regional economic growth in the UK and on the growth of small firms, and has also written widely on electoral systems and gerrymandering. He is currently working with Ken Coutts on an assessment of the macro-economic impact of market liberalization policies in the UK over the past 30 years.

**Marc Lavoie** is Professor in the Department of Economics at the University of Ottawa, where he started teaching in 1979. Besides having published over 175 papers in refereed journals and book chapters, he has written a number of books, among which are *Foundations of Post-Keynesian Economic Analysis* (1992) and *Introduction to Post-Keynesian Economics* (2006) (with French, Spanish, Japanese and Chinese versions). With Wynne Godley he co-authored three articles and one book chapter, as well as *Monetary Economics: An Integrated Approach to Money, Income, Production and Wealth* (2007). His work spans across many fields, including monetary economics, macroeconomics, growth theory, pricing theory, consumer theory, the economics of language and sports economics.

**Anwar Shaikh** is Professor of Economics at the Graduate Faculty of Political and Social Science of the New School University, Associate Editor of the *Cambridge Journal of Economics*, and was a Senior Scholar and member of the Macro Modeling Team at the Levy Economics Institute of Bard College from 2000 to 2005. He is the author of three books, the most recent being *Globalization and the Myths of Free Trade* (2007). Recent articles include 'The First Great Depression of the 21st Century', *Socialist Register 2011* (Fall 2010) and 'Reflexivity, Path-Dependence and Disequilibrium Dynamics', *Journal of Post Keynesian Economics* (Fall 2010).

**Gennaro Zezza** is Associate Professor at the University of Cassino, Italy, and Research Scholar at the Levy Economics Institute of Bard College. He is a member of the Levy Institute's Macro-Modeling Team and co-author of its Strategic Analysis reports, which deals with medium-term projections of the U.S. and the world economy. From 1987 onwards, Zezza worked with Godley in the United Kingdom, Denmark, Italy and the United States on theoretical and empirical stock-flow-consistent models. His other research interests include economic growth, monetary economics, econometrics, poverty and vulnerability. He has several publications in edited books and journals, including *Metroeconomica* and the *Journal of Post Keynesian Economics*. He holds a degree in Economics from the University of Naples.