Chapter 5

How to Solve the Fiscal Problems In the Current Financial Crisis

5.1 Introduction: Why Separately vs. Endogenously towards Fiscal Policy?

This chapter moves to a whole sketch of fiscal policy, by measuring and interpreting the endogenous costs of capital by country and sector, and approaches how to solve fiscal problems. A related endogenous equation and its reduced hyperbola are used for this purpose, with the KEWT database. Statistics data and related databases are not fitted for essentially solving fiscal problems. This chapter begins with why the KEWT database is most directly policy-oriented, compared with the current databases. Each chapter after chapter 5 discusses a focused issue step by step, gradually towards a total version and, essentially answers unsolved economic problems at the macro level.

A system for national accounts (SNA, 1993) aims at records/recording and presents a base for statistics. The purpose of recording is right at the SNA. Statistics data are available, in addition to the SNA data recorded by country, at the current worldwide databases such that Penn World Table (PWT and EPWT), BEA, NBER, KOF, DDGG, EU KLEMS of the Conference Board, Real-Time, Time-Use, OECD, UN and UNU, IMF and the World Bank, and KEWT.[1]

Questions: Could the SNA and worldwide databases answer policy-problems to avoid symptomatic treatments to the financial crises and not to repeat bubbles and heavy burden of deficit? Are the database and the solution of economic policies really independent? These questions might be answered solely by setting up another system that aims at policy-

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[1] For detail, See Chapter 6; PWT 7.0 and, EPWT, v. 4.0: http://www.pwt.econ.upenn.edu
BEA: http://www.bea.gov; KOF: http://globlization.kof.ethz.ch; NBER: http://nber.org;
Time-Use: http://www.timeuse.org/information/links; OECD: http://OECD.com;
ddgg to 10 sectors: http://www.ggde.net/dseries/10-sector.html;
EU KLEMS: http://www.euklems.net/euk09i.shtml;
Real-Time: http://www.philadelphiafed.org/research-and-data/;
UN: http://unstats.un.org/unsd/snaama/selectionbasicFact.asp;
IMF: http://imf.org; World Bank: http://data.worldbank.org; KEWT 7.13: http://riee.tv

oriented sub-system. This is the author's viewpoint. For example, the use of the KEWT database, as expressed by the endogenous system and based on the real assets. The policy-oriented sub-system will cooperate with the SNA and reinforce the SNA. Leaders, policy-makers, and people urgently demand not mere analyses but essential solutions. And, worldwide databases, SNA statistics, economic policies, and the KEWT database reinforce each other--win and win! These expressions are the author's reply at the *EES*.

For solving the above problems, the following recognition may be effective as the first step. This recognition is to review the background of the literature, the SNA, and databases, without any preconception. The capitalism started with macro demand and supply by goods and by money. The market principles have been the second best since there has appeared no first-best historically. This recognition will be correct. The market principles are connected with individual utility function. This function aims at maximizing individual consumption. Thus maximum consumption has been a principal objective of econometrics since Samuelson, P. A. (97-120, 1941) clarified a framework of competitive statics and dynamics. Arrow, K. J. and Debreu, G. (265-290, 1954) published a decisive article for equilibrium. Since Klein, L. R. (1-12, 39-57, 1950), econometrics has spread as a great methodology. The equilibrium based on the market principles--the author calls it the price-equilibrium--has remained since economics started. In the last one decade, the methodology of econometrics has stepped into delicate relationships between deficit, votes, and democracy, as shown at some of academic conferences.

Nevertheless, why has bubbles been repeated after the 1950s? Three grounds are (1) a rough relationship between individual utility and maximized consumption via the capital-labor ratio and in the price-equilibrium, (2) the use of final consumption at households just after the redistribution of income caused by government spending and deficit before redistribution, and (3) the use of deficit as the difference between cash flow-in and –out, under an assumption that government does produce no return. Meade, J. E. (1960, 1962) and Meade, J. E. and Stone, J. R. N. (1969) advocated the income equality of income, expenditures, and output. Yet, this equality is not realized in statistics and databases since the SNA is records-oriented. Wages or compensation and profits or returns are charming objectives in econometrics.

Denote that α or $1-\alpha$ is the relative share of capital or labor,

$\Omega = \Omega^* = \Omega_0$ is the capital-output ratio, and $r = r^* = r_0$ is the rate of return in the endogenous-equilibrium. Then, $\alpha = \Omega \cdot r$ presents the best clue to an integrated set of policies that connect real-assets polices with financial, market, central, local/private banks, and other policies to environmental and human society. Nevertheless, statistics and databases, based on records, are unable to accurately measure $\alpha = \Omega \cdot r$.

The KEWT database has repeatedly proved the following fact, by comparing actual data with endogenous data: Estimated data and ratios derived using econometrics are always within a certain range of endogenous data and ratios in a moderate equilibrium. A moderate equilibrium is directly measured by seven endogenous parameters[2] and also indirectly by principal variables such as $\alpha = \Omega \cdot r$ and the growth rates of output and output per capita, g_Y^* and g_y^*. Therefore, econometrics, the current databases, and the KEWT database are colleagues to reinforce each other and thus, econometrics in reality will progress more peacefully for the world economies by country. This is because the rate of change in population in equilibrium equals the actual growth rate of population when the endogenous-equilibrium prevails and because causes of deflation under heavy deficit accumulation are clarified by seven endogenous parameters, with endogenous equations and the corresponding hyperbolic equations. For the rate of inflation or a minus inflation (=deflation), a hyperbola of the rate of return to the ratio of net investment to output in equilibrium, $r^*(i)$, measures an optimum range of equilibrium endogenously.

The current databases present either an internal rate of return in the discrete time using actual statistics, or Log growth in real-time in the continuous time. Neo- and New- Keynesians pursue the discrete case while Neoclassicists the continuous case. Both cannot be wholly united except for the endogenous system as long as the author has investigated after the 1950s. This is because a discrete Cobb-Douglas (C-D) production function does not hold without clarifying hidden seven endogenous parameters as formed in the endogenous system. A fact is that there is no evidence to prove the relationship between the rate of return, r^*, and the growth rate of output, g_Y^*, in the literature.

Phelps, E. S. (638-643, 1961) proves the existence of the golden rule at the golden age, but without evidences. The relationship between r^* and g_Y^* is a tie in reality. The tie is divided into two; the exogenous

[2] THREE: the ratio of net investment to output, the rate of change in population, and the relative share of capital, and FOUR: the qualitative net investment coefficient, the relative share of capital, the capital-output ratio, and the speed year coefficient.

Phelps coefficient and the author's endogenous Phelps coefficient, $\alpha/(i\cdot\beta^*)$; $r^* = (\alpha/i\cdot\beta^*)g_Y^*$, where β^* is the quantitative net investment coefficient, $i = I/Y$ is the ratio of net investment to output, and endogenous output, $Y = W + \Pi = C + S$, satisfies three equality of income, expenditures, and output, purely endogenously. 'Purely endogenous' holds only when externalities and assumptions completely disappear and only under scientific proofs of mathematicians at the endogenous system. A variety of denotations is used for 'endogenous growth' in the literature but, each definition remains partial. Net investment after capital consumption is involved in the balance of payments and deficit but, it should be purely endogenous in the open structure of the balance of payments,[3] $(S - I) = (S_G - I_G) + (S_{PRI} - I_{PRI})$ at the real assets.

The qualitative net investment coefficient, $1 - \beta^*$, is deeply involved in the rate of technological progress, $g_A^* = i(1 - \beta^*)$. $g_A^* = i(1 - \beta^*)$ holds endogenously while Solow's (1956) and Swan's (1956) exogenously. Upon measure of $g_A^* = i(1 - \beta^*)$, the marginal productivity of capital (MPK) equals the rate of return and the marginal productivity of labor (MPL) equals the wage rate and also, the marginal rate of substitution is measured as 1.0 by year. These values are confirmed using recursive programming by the same year. As a result, perfect competition is released from an assumption, which the literature does not realize commonly and universally by country. This shows a limit of individual utility equation at the micro level, indispensably.

Lastly, as a result, the neutrality of the financial assets to the real assets is complete at the endogenous system, as proved in KEWTs 3.09 to 6.12, each year (one at *Int Adv Econ Res* 16: 282-296; related cells of 65 countries and, the other at KEWT 6.12). This neutrality integrates not only the real and financial assets as the first policy category but also financial, monetary, central bank and private bank policies, and others, as the second policy category. Endogenous 'policies,' based on rival capital and labor at KEWT, work cooperatively with external strategies, based on non-rival education, R&D, learning by doing, and human capital. The core is the government sector that controls the total economy as a whole. The government sector is solely expressed just before the redistribution of income to households and enterprises at the private sector.

[3] Why is the growth rate of output in equilibrium the highest at $S_G - I_G = 0$? The question is proved by using this equation. When $S_G - I_G = 0$ appears, the ratio of net investment to output, $i = I/Y$, locates at the top of a parabolic convex, since the higher the $i = I/Y$, the higher the rate of technological progress is, as shown by $g_A^* = i(1 - \beta^*)$ below.

Define government spending, $E_G = C_G + I_G$. Then, $T_{AX} - E_G = (S_G - I_G)$ endogenously holds; C_G is consumption and S_G is saving at the government sector. Thus, $T_{AX} = C_G + S_G$ holds, and therefore, $T_{AX} = Y_G$ holds endogenously. As a result, when deficit, ΔD is zero, $T_{AX} = C_G + I_G$ holds since $T_{AX} - \Delta D = C_G + I_G$. $T_{AX} = C_G + I_G$ is derived: The higher the size of government, Y_G/Y, the more the net investment.

Back to a hyperbola, $r^*(i)$; the higher the net investment the lower the rate of return in equilibrium is. These two implies that a goal of two category-integrated policies requires a direction towards a maximized rate of return with a minimized net investment, or the goal should realize an optimum range of the endogenous-equilibrium by using a lower rate of $i = I/Y$. The optimum range is realized by directly adjusting seven endogenous parameters. The speed years for convergence and principal variables express fundamental results; endogenous-shocks bring about close-to-disequilibrium or net investment approaching close to zero, each simultaneously by country. The author indicates that if endogenous results hardly exist, the second best market principles must work alone; with repeating bubbles and symptomatic treatments and, without sustainable growth.

5.2 Evidences to an Integrated Set of Policies: Using the Cost of Capital at KEWT

This chapter empirically presents two sets of evidences by country. For developed countries, the US, Australia, Japan, France, Germany, the UK, Canada, Italy; And, for developing countries, Spain, China, India, Brazil, Mexico, Russia, South Africa, each for 1990-2012. These two evidence sets are: (1) The cost of capital as the rate of return less the growth rate of output, $CC = C\ of\ C = r^* - g_Y^*$, using KEWT database by country; (2) The rate of return to net investment using a hyperbola, $r^*(i)$, with endogenous rate of inflation or deflation. (1) and (2) are interrelated endogenously. (1) measures the causes of inflation and deflation at the real-assets and (2) presents an optimum range of rate of return to net investment and clarifies the ground hidden behind financial, market, and central and local bank policies.

This section shows evidences of the cost of capital, where the nominal rate=the real rate + the rate of inflation or deflation, whose first setting was Fisher, I. (1907, 87-116). Evidences are shown by **Tables 1, 2, 3**, and **4**. Suppose that the rate of return at the G sector is minus due to heavy deficit by year. Then, even if the rate of return at the PRI sector is high, the rate of return at the total economy becomes extremely low. If the rate of return at the PRI sector is low due to crowding out, the rate of return at the total economy becomes much close to zero, as shown in Japan. For evidences of the above facts, Tables 1, 2, 3, and 4 each compare the cost of capital in the G sector with that in the PRI sector; accordingly, at the total economy as the weighted aggregate or average.

Let the author explain the logics behind the evidences shown in the four tables. The rate of return and the growth rate of output are connected with $\alpha/(i \cdot \beta^*)$ in $r^* = (\alpha/i \cdot \beta^*)g_Y^*$. Suppose $\alpha = i \cdot \beta^*$ is 1.0. Then, the cost of capital is zero, which is not realized. $\alpha < i \cdot \beta^*$ and $\alpha > i \cdot \beta^*$ are in reality. A hyperbola of $\beta^*(i)$ shows that the higher the $i = I/Y$ the more ineffective (or lower) endogenous technological progress is. The contents of technological progress must be selected severely between the G and PRI sectors and towards earth environmental cooperation. The hyperbola type of $\beta^*(i)$ is the same as that of $r^*(i)$ as explained at the next section; since the type is expressed by $y = \frac{cx+d}{ax}$, where b=0 and accordingly the vertical asymptote is zero, VA=0. The above fact indicates that net investment by country should be low and if it is high bubbles will be repeated. A sustainable technological progress is the goal of an integrated set of policies for real, fiscal, financial markets, and central and local banks, and others.

The $\alpha/(i \cdot \beta^*)$ is the endogenous Phelps coefficient and determines the level of the cost of capital. Besides, the rate of inflation or deflation is measured by the rate of return less the horizontal asymptote; $r^* - HA_{r^*(i)}$ (see soon below). Further, a sign to bubbles is expressed by the valuation ratio as the rate of return divided by the cost of capital, $v^* = r^*/(r^* - g_Y^*)$. When the valuation ratio is abnormal or shows a shock similarly to the speed years for convergence, the endogenous-equilibrium is uncontrollable by policy-makers. Many countries have the valuation ratio abnormal often in the last 23 years, 1990-2012, as shown each by the third row of Tables 1, 2, 3, and 4. Most of developed countries have shown a negative rate of inflation or deflation. This is traced back to deficits accumulated beyond government savings (see Note 3). And, a sign of bubbles is foreseen by the valuation ratio. If the valuation ratio begins to rapidly rise, financial and market symptomatic treatments are required not to repeat bubbles. Bubbles are a common source of declining fortune of a country. Symptomatic treatments should be used for oppressing bubbles. Symptomatic treatments aiming at economic recovery, however, are impossible since a low rate of return is a result of accumulated deficits and debts. Central bank's attitude aiming at against inflation follows the above logic and evidences.

5.3 Evidences to an Integrated Set of Policies: Using a Hyperbola, $r^*(i)$

The endogenous system is geometrically strengthened by twelve hyperbolas reduced from corresponding endogenous equations in the endogenous-equilibrium.[4] The processes to form endogenous equations were wholly proved step by step, as summarized in a working paper (Feb, 2011). The $r^*(i)$ presents a method for controlling the rate of inflation and deflation, by moving the current level of $i = I/Y$. Seven endogenous parameters lead the endogenous-equilibrium to a balanced and moderate level. Deflation appears only when accumulated deficits or debts are extreme, as explained above.

The maximum utility theory is able to protect its thought by cooperating with $r^*(i)$. The concept of maximum and minimum in the literature is illustrated by the parabolic curve, convex and concave, only at the 1st quadrant but, evidences are not enough under the uses of prevailing Log growth and the real-time of Croushore, D., and Stark, T. (493-501, 2003). In the case of $r^*(i)$, a maximum rate of return and a minimum net investment are in reality at an optimum range of $r^*(i)$ at the 1st and 4th quadrants. Evidences show that the maximum rate of return is realized when deficit is zero. Accordingly, questions regarding 'deficit and growth' and 'increase in taxes and decrease in deficit' are accurately answered with the endogenous size of government of $T_{AX}/Y = (C_G + S_G)/Y$ (see Note 3).

Figures 2 and **3** each show $r^*(i)$ of 12 countries, corresponding with Tables 1, 2, 3, and 4. These figures were drawn helped with Tomoda

[4] Twelve hyperbolas reduce to six forms by type. (1) $y = \frac{1}{ax+b}$: 1-1 $speed(i)$ and 1-3 $speed(n)$; (2) $y = \frac{cx+d}{ax}$: 2-1 $r^*(i)$. 6-1 $\beta^*(i)$; (3) $y = \frac{cx+d}{b}$: 2-3 $r^*(n)$; (4) $y = \frac{cx}{ax+b}$: 3-1 $\Omega^*(i)$. 4-1 $i(n)$. 4-3 $\Omega^*(\beta^*)$; (5) $y = \frac{d}{ax+b}$: 3-3 $\Omega^*(n)$; (6) $y = \frac{cx+d}{ax+b}$: 5-1 $\beta^*(n)$. 5-3 $\widetilde{\beta^*}(n)$, where. 6-3 $\alpha(i)$. 6-4 $\alpha(i)$. This chapter only uses (2) $y = \frac{cx+d}{ax}$, where VA=0 and HA≠0. $\widetilde{\beta^*} \equiv 1 - \beta^*$ and $\widetilde{\alpha^*} \equiv 1 - \alpha^*$ are not always needed for graphing. Also, see Figure 4 for the G sector.

Katsuhisa's 'specified' software to hyperbolas. Tomoda K. and his lifework have developed 'general' software, aiming at mathematical education at all high schools in Japan. The final form for any type of hyperbolas is shown by $\left(\mathrm{y}-\frac{\mathrm{c}}{\mathrm{a}}\right)\left(\mathrm{x}+\frac{\mathrm{b}}{\mathrm{a}}\right)=\frac{\mathrm{f}}{\mathrm{a}}$, where the horizontal asymptote (HA) is given by $\frac{\mathrm{c}}{\mathrm{a}}$, and the vertical asymptote (VA) is given by $\frac{-\mathrm{b}}{\mathrm{a}}$. Tomoda K., in his software, only uses a standard type of $\mathrm{y}=\frac{\mathrm{cx+d}}{\mathrm{ax+b}}$ and sets 'hyperbolic_all.gps.' There are five types of $\mathrm{y}=\frac{\mathrm{cx+d}}{\mathrm{ax+b}}$ in hyperbolas (see Note 4): If a=0, $\mathrm{y}=\frac{\mathrm{cx+d}}{\mathrm{b}}$; if b=0, $\mathrm{y}=\frac{\mathrm{cx+d}}{\mathrm{ax}}$; if c=0, $\mathrm{y}=\frac{\mathrm{d}}{\mathrm{ax+b}}$; if d=0, $\mathrm{y}=\frac{\mathrm{cx}}{\mathrm{ax+b}}$; and if c=d=0, $\mathrm{y}=\frac{1}{\mathrm{ax+b}}$.

Look at Figures 2 and 3. First of all, a hyperbola stays at the 1st and 4th quadrants, differently from parabolic convex or concave. At the current endogenous net investment, 2010, the rate of return in equilibrium shows minus at most developed countries. The rate of return never rides over the 3rd quadrant since a minus net investment implies a bankruptcy or default of a country (historically, see Reinhart Carmen. M., and Rogoff, Kenneth, S., 2011). When a hyperbola stays at the 1st and 4th quadrant, the rate of inflation or deflation is the same, regardless of whether the rate of return is plus or minus. This is the characteristic of $r^*(i)$. The same is true at $r_G^*(i_G)$ at the G sector.

Figure 4 shows $r_G^*(i_G)$, for comparison: The G sector fluctuates much more than the PRI sector and the total economy. Policy-makers in reality must compare $r_G^*(i_G)$ with $r_{PRI}^*(i_{PRI})$ at the PRI sector. Public/ government investment is often huge at the young economic stage while foreign direct investment must be steady at the PRI sector.

Technology-oriented $\beta^*(i)$ has the same characteristic as $r^*(i)$. $\beta^*(i)$, $\beta_G^*(i_G)$, and $\beta_{PRI}^*(i_{PRI})$ are most influentially related to dynamic balance between the G and PRI sectors in the long run. Upon technological progress, as a result, it is possible for policy-makers to adjust an integrated set of policies by country in the long run.

For severe evidences, back to Figures 2 and 3, to inspect surprising differences by country for twelve countries. These differences show a reporting by country. The horizontal asymptote of $HA_{r^*(i)}$ differs by country surprisingly. This fact not only shows the problem of $r^{*}(i)$ to inflation or deflation but also the results of an integrated set of policies and sustainable level of growth power by country. For $r^{*}-HA_{r^{*}(i)}$, as the endogenous rate of inflation or deflation, it is proved that the differences between $r^{*}-HA_{r^{*}(i)}$ and the consumers price index, *CPI*, and other external indicators are not so much in spite of the national taste, culture, and history. Then, why do the level of an integrate set of policies differ so much between countries? A reason is the differences of leadership, speed of decision-making, and the behaviors to votes and democracy, as scientifically estimated by the current econometric methodology.

The KEWT database accurately proves by country the neutrality of the financial assets to the real assets with evidences of endogenous values and ratios and external items such as the exchange rate, ten year debt yield, money supply, *CPI*, and others available at *IFSY*, IMF. Therefore, an integrated set of policies has bright future in reality when an integrated set of policies becomes alive.

5.4 Conclusions

Could the endogenous system and its KEWT database solve problems related to fiscal policy and repeating bubbles? A condition is required: The price-equilibrium is replaced by the endogenous-equilibrium. The price-equilibrium partially holds by market, but it is difficult to consistently measure the price level by year and over years. The endogenous-equilibrium contrarily holds wholly as a system by country and with seven endogenous parameters and all the variables by country, sector, and year and over years. The goal of the endogenous system is a balanced moderate equilibrium and its sustainable robust policies. And, policy-results are each by each measured at the KEWT database, with what is required urgently by country

This chapter focused two: the cost of capital and the hyperbola of the rate of return to net investment to output in equilibrium. An optimum range of this hyperbola is another expression of a balanced moderate equilibrium. An optimum range explains the ground of the endogenous cost of capital and clarifies the situation brought by fiscal policy. Fiscal policy has been a sister of financial and market policies but now, a core or mater of an integrated set of policies to the real and financial assets when the endogenous-system reinforces the current worldwide databases available today. The minus interest rate, the deflation rate, bubbles, and no growth and returns, all of these are results. Do not stick to results but remove true causes. Causes are finally expressed by seven endogenous parameters. These parameters must be within a range of moderation and be controllable by policy-makers. A truth: Execute and solved.

Conclusively, Chapter 5 confirms a fact that Money-neutral is tightly connected with Deficit-neutral with *RRR* (the real rate of return)=0. This chapter deepened its process step by step, using the cost of capital and fundamental variables. If deficit=0, the nominal growth rate of output=the rate of inflation/deflation=0. It implies that the cost of capital=0. Then, the valuation ratio=1.0 ($v^* = r^*/(r^* - g_Y^*)$). The endogenous Phelps coefficient, $\alpha/(i \cdot \beta^*)$, becomes independent of r^* and g_Y^*. It implies that policy-makers are more relaxed under no inflation/deflation and no assets-bubbles.

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Chapter 5

For readers' convenience: contents of tables and figures hereunder

Table CC1 Endogenous inflation/deflation and the cost of capital by sector: the US, Australia, Japan, 1990-2012

Pacific	$HA_{r^*(i)}$	r^*-$HA_{r^*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
1. the US	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0338	0.0497	1.29	0.0385	(0.0375)	0.0791	0.0646	(0.0575)	0.1388
1991	0.0243	0.0518	1.35	0.0383	(0.0413)	0.0978	0.0563	(0.0696)	0.1328
1992	0.0241	0.0586	1.30	0.0452	(0.0463)	0.1105	0.0637	(0.0726)	0.1469
1993	0.0375	0.0326	1.67	0.0196	(0.0340)	0.0452	0.0420	(0.0612)	0.1048
1994	0.0422	0.0258	1.90	0.0136	(0.0204)	0.0298	0.0358	(0.0452)	0.0843
1995	0.0400	0.0179	2.96	0.0060	(0.0105)	0.0140	0.0195	(0.0289)	0.0484
1996	0.0398	0.0166	3.40	0.0049	(0.0093)	0.0102	0.0166	(0.0213)	0.0394
1997	0.0395	0.0148	4.82	0.0031	0.0018	0.0040	0.0113	0.0048	0.0162
1998	0.0395	0.0145	5.75	0.0025	0.0056	0.0013	0.0094	0.0186	0.0051
1999	0.0420	0.0136	6.52	0.0021	0.0113	(0.0001)	0.0085	0.0298	(0.0003)
2000	0.0443	0.0140	5.46	0.0026	0.0255	(0.0010)	0.0107	0.0495	(0.0052)
2001	0.0466	0.0174	2.65	0.0066	0.0122	0.0056	0.0242	0.0284	0.0234
2002	0.0502	0.0191	2.15	0.0089	(0.0022)	0.0194	0.0323	(0.0133)	0.0518
2003	0.0532	0.0196	2.00	0.0098	(0.0056)	0.0344	0.0364	(0.0421)	0.0728
2004	0.0538	0.0168	2.30	0.0073	(0.0163)	0.0166	0.0307	(0.0567)	0.0746
2005	0.0548	0.0156	2.50	0.0062	(0.0113)	0.0126	0.0282	(0.0399)	0.0617
2006	0.0542	0.0143	2.81	0.0051	(0.0087)	0.0094	0.0244	(0.0289)	0.0502
2007	0.0536	0.0166	2.22	0.0074	(0.0012)	0.0142	0.0316	(0.0077)	0.0489
2008	0.0564	0.0231	1.63	0.0141	(0.0023)	(1.1285)	0.0487	(0.0256)	0.0829
2009	0.0411	0.0449	1.25	0.0360	(0.0064)	(0.0277)	0.0690	(0.1050)	0.1763
2010	0.0486	0.0355	1.33	0.0268	(0.0056)	(0.0285)	0.0634	(0.0810)	0.1720
2011	0.0488	0.0383	1.29	0.0296	(0.0054)	(0.0289)	0.0673	(0.0719)	0.1971
2012	0.0322	0.0512	1.38	0.0371	(0.0082)	(0.0461)	0.0605	(0.0645)	0.2015
Pacific	$HA_{r^*(i)}$	r^*-$HA_{r^*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
3. Australi	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0359	0.0103	(2.26)	(0.0046)	0.0227	(0.0075)	(0.0204)	0.0401	(0.0401)
1991	0.0250	0.0108	(5.23)	(0.0021)	0.0080	(0.0031)	(0.0068)	0.0100	(0.0122)
1992	0.0252	0.0109	(8.82)	(0.0012)	(0.0227)	0.0017	(0.0041)	(0.0391)	0.0064
1993	0.0261	0.0087	(5.37)	(0.0016)	(0.0218)	0.0018	(0.0065)	(0.0563)	0.0081
1994	0.0273	0.0070	(2.24)	(0.0031)	(0.0170)	(0.0010)	(0.0153)	(0.0496)	(0.0057)
1995	0.0246	0.0110	(8.37)	(0.0013)	(0.0129)	0.0015	(0.0043)	(0.0375)	0.0051
1996	0.0257	0.0114	(14.71)	(0.0008)	(0.0030)	(0.0002)	(0.0025)	(0.0092)	(0.0007)
1997	0.0261	0.0112	(40.63)	(0.0003)	0.0052	(0.0017)	(0.0009)	0.0162	(0.0057)
1998	0.0317	0.0092	(4.39)	(0.0021)	0.0150	(0.0072)	(0.0093)	0.0693	(0.0315)
1999	0.0300	0.0087	(3.37)	54.9542	0.0009	(0.0037)	(0.0115)	0.0044	(0.0160)
2000	0.0300	0.0099	(5.59)	(0.0018)	0.0080	(0.0046)	(0.0071)	0.0326	(0.0184)
2001	0.0220	0.0178	(37.84)	(0.0005)	0.0132	(0.0046)	(0.0011)	0.0309	(0.0102)
2002	0.0306	0.0100	(7.85)	(0.0013)	0.0100	(0.0041)	(0.0052)	0.0373	(0.0172)
2003	0.0311	0.0097	(4.01)	(0.0024)	0.0107	(0.0061)	(0.0102)	0.0443	(0.0256)
2004	0.0314	0.0106	(3.59)	(0.0029)	0.0134	(0.0070)	(0.0117)	0.0484	(0.0286)
2005	0.0367	0.0128	(6.37)	(0.0020)	0.0145	(0.0070)	(0.0078)	0.0591	(0.0266)
2006	0.0339	0.0152	(8.33)	(0.0018)	0.0211	(0.0089)	(0.0059)	0.0722	(0.0281)
2007	0.0367	0.0162	(7.92)	(0.0020)	0.0199	(0.0090)	(0.0067)	0.0705	(0.0288)
2008	0.0480	0.0196	24.74	0.0008	0.0374	(0.0030)	0.0027	0.0558	(0.0119)
2009	0.0356	0.0175	(33.03)	(0.0005)	(0.0042)	0.0007	(0.0016)	(0.0145)	0.0020
2010	0.0443	0.0187	7.80	0.0024	(0.0065)	0.0065	0.0081	(0.0308)	0.0193
2011	0.0551	0.0193	4.64	0.0042	(0.0040)	0.0086	0.0160	(0.0235)	0.0280
2012	0.0499	0.0141	27.85	0.0005	(0.0032)	0.0024	0.0023	(0.0205)	0.0093
Asian	$HA_{r^*(i)}$	r^*-$HA_{r^*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
10. Japan	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0309	0.0036	24.18	0.0001	(0.0030)	0.0016	0.0014	(0.0225)	0.0175
1991	0.0312	0.0034	10.10	0.0003	(0.0021)	0.0019	0.0034	(0.0214)	0.0197
1992	0.0377	0.0036	2.99	0.0012	(0.0018)	0.0032	0.0138	(0.0208)	0.0364
1993	0.0326	0.0022	3.53	0.0006	(0.0013)	0.0019	0.0099	(0.0203)	0.0295
1994	0.0276	0.0018	4.68	0.0004	(0.0012)	0.0015	0.0063	(0.0198)	0.0233
1995	0.0271	0.0017	5.74	0.0003	(0.0012)	0.0012	0.0050	(0.0194)	0.0209
1996	0.0256	0.0016	7.60	0.0002	(0.0012)	0.0010	0.0036	(0.0188)	0.0181
1997	0.0290	0.0017	4.25	0.0004	(0.0010)	0.0011	0.0072	(0.0151)	0.0217
1998	0.0203	0.0015	6.23	0.0002	(0.0031)	0.0024	0.0035	(0.0454)	0.0347
1999	0.0151	0.0021	14.75	0.0001	(0.0047)	0.0023	0.0012	(0.0299)	0.0210
2000	0.0160	0.0018	16.78	0.0001	(0.0027)	0.0022	0.0011	(0.0304)	0.0209
2001	0.0125	0.0020	121.38	0.0000	(0.0044)	0.0017	0.0001	(0.0226)	0.0146
2002	0.0104	0.0024	11.93	0.0002	(0.0040)	0.0045	0.0011	(0.0279)	0.0192
2003	0.0105	0.0024	9.00	0.0003	(0.0024)	0.0105	0.0014	(0.0266)	0.0190
2004	0.0109	0.0023	6.59	0.0004	(0.0104)	0.0022	0.0020	(0.0216)	0.0174
2005	0.0105	0.0020	6.13	0.0003	(0.0036)	0.0020	0.0020	(0.0170)	0.0143
2006	0.0125	0.0000	4.75	0.0000	(0.0001)	0.0000	0.0026	(0.0127)	0.0124
2007	0.0120	0.0012	3.62	0.0003	(0.0011)	0.0008	0.0036	(0.0073)	0.0107
2008	0.0108	0.0007	5.42	0.0001	(0.0010)	0.0006	0.0021	(0.0140)	0.0123
2009	0.0104	0.0003	2.11	0.0001	(0.0003)	(0.0015)	0.0051	(0.0325)	0.0286
2010	0.0104	0.0001	2.33	0.0001	(0.0001)	(0.0022)	0.0045	(0.0294)	0.0262
2011	0.0116	(0.0003)	1.96	(0.0002)	0.0003	0.0050	0.0058	(0.0300)	0.0288
2012	0.0141	(0.0023)	1.51	(0.0015)	0.0014	0.0061	0.0078	(0.0313)	0.0335

Data source: KEWT 6.12-1, -2, -3, -4 and -5, by country and sector, 1990-2012, whose original data are from *International Financial Statistics Yearbook*, IMF

Table CC2 Endogenous inflation/deflation and the cost of capital by sector: France, Germany, the UK, 1990-2012

Euro	$HA_{r^*(i)}$	$r^*-HA_{r^*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
4. France	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0517	0.0081	3.1333	0.0026	(0.0026)	0.0064	0.0191	(0.0261)	0.0408
1991	0.0515	0.0100	2.2966	0.0044	(0.0023)	0.0079	0.0268	(0.0149)	0.0475
1992	0.0520	0.0135	1.7132	0.0079	(0.0145)	0.0198	0.0382	(0.0738)	0.0941
1993	0.0525	0.0247	1.2457	0.0199	(0.0127)	0.1742	0.0620	(0.1016)	0.1466
1994	0.0550	0.0166	1.3535	0.0123	(0.0099)	0.0777	0.0529	(0.0967)	0.1337
1995	0.0642	0.0191	1.2633	0.0151	(0.0155)	0.0644	0.0659	(0.1177)	0.1699
1996	0.0545	0.0351	1.1397	0.0308	(0.0119)	(0.8949)	0.0786	(0.0891)	0.1780
1997	0.0491	0.0293	1.1398	0.0257	(0.0074)	(1.1363)	0.0688	(0.0564)	0.1459
1998	0.0582	0.0125	1.3014	0.0096	(0.0042)	0.0306	0.0543	(0.0384)	0.1126
1999	0.0651	0.0100	1.3766	0.0072	(0.0026)	0.0172	0.0545	(0.0276)	0.1030
2000	0.0731	0.0070	1.5759	0.0044	(0.0002)	0.0064	0.0508	(0.0015)	0.0818
2001	0.0612	0.0094	2.2607	0.0042	(0.0034)	0.0058	0.0312	(0.0108)	0.0557
2002	0.0556	0.0147	1.9263	0.0076	(0.0105)	0.0160	0.0365	(0.0445)	0.0804
2003	0.0496	0.0215	1.8742	0.0115	(0.0153)	0.0299	0.0380	(0.0591)	0.0906
2004	0.0478	0.0333	1.4248	0.0234	(0.0227)	0.0486	0.0569	(0.0554)	0.1182
2005	0.0599	0.0229	1.4601	0.0157	(0.0102)	0.0285	0.0567	(0.0345)	0.1061
2006	0.0593	0.0148	1.8177	0.0082	(0.0064)	0.0134	0.0408	(0.0237)	0.0751
2007	0.0583	0.0094	2.6457	0.0035	(0.0036)	0.0068	0.0256	(0.0232)	0.0511
2008	0.0580	0.0091	2.5233	0.0036	(0.0055)	0.0079	0.0266	(0.0388)	0.0603
2009	0.0620	0.0173	1.4592	0.0118	(0.0155)	0.0496	0.0544	(0.1199)	0.1473
2010	0.0624	0.0166	1.4811	0.0112	(0.0249)	0.0321	0.0534	(0.1241)	0.1486
2011	0.0510	0.0236	1.8690	0.0126	(0.0286)	0.0340	0.0399	(0.0886)	0.1085
2012	0.0476	0.0270	1.7123	0.0158	(0.0331)	0.0390	0.0436	(0.0847)	0.1119

Euro	$HA_{r^*(i)}$	$r^*-HA_{r^*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
5. German	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0381	0.0105	5.6943	0.0018	(0.0027)	0.0030	0.0085	(0.0195)	0.0128
1991	0.0278	0.0066	(5.6596)	(0.0012)	(0.0068)	(0.0002)	(0.0061)	(0.0446)	(0.0008)
1992	0.0275	0.0065	(7.4385)	(0.0009)	(0.0094)	0.0004	(0.0046)	(0.0554)	0.0022
1993	0.0241	0.0075	(32.7856)	(0.0002)	(0.0094)	0.0017	(0.0010)	(0.0554)	0.0069
1994	0.0319	0.0026	(44.3751)	(0.0001)	(0.0020)	0.0002	(0.0008)	(0.0240)	0.0022
1995	0.0315	0.0029	(17.3839)	(0.0002)	(0.0027)	0.0002	(0.0020)	(0.0335)	0.0024
1996	0.0292	0.0031	61.4383	0.0001	(0.0037)	0.0007	0.0005	(0.0430)	0.0067
1997	0.0290	0.0032	100.0799	0.0000	(0.0026)	0.0004	0.0003	(0.0241)	0.0037
1998	0.0306	0.0023	(49.3372)	(0.0000)	(0.0002)	0.0000	(0.0007)	(0.0042)	0.0002
1999	0.0652	0.0028	6.0499	0.0005	(0.0004)	0.0007	0.0112	(0.0115)	0.0159
2000	0.0607	0.0023	(14.6271)	(0.0002)	(0.0002)	(0.0001)	(0.0043)	(0.0063)	(0.0041)
2001	0.0489	0.0103	6.7734	0.0015	(0.0127)	0.0050	0.0087	(0.0839)	0.0278
2002	0.0537	0.0038	2.9493	0.0013	(0.0074)	0.0032	0.0195	(0.1192)	0.0481
2003	0.0509	0.0019	2.7072	0.0007	(0.0043)	0.0019	0.0195	(0.1305)	0.0509
2004	0.0520	0.0017	1.7163	0.0010	(0.0036)	0.0021	0.0313	(0.1283)	0.0650
2005	0.0529	(0.0003)	1.6240	(0.0002)	0.0007	(0.0004)	0.0324	(0.1154)	0.0635
2006	0.0622	(0.0034)	1.5480	(0.0022)	0.0034	(0.0032)	0.0380	(0.0540)	0.0574
2007	0.0842	(0.0055)	1.5398	(0.0035)	(0.0013)	(0.0040)	0.0512	0.0183	0.0581
2008	0.0757	(0.0060)	1.6617	(0.0036)	(0.0010)	(0.0043)	0.0419	0.0124	0.0484
2009	0.0573	(0.0102)	1.3074	(0.0078)	0.0222	(0.0136)	0.0360	(0.0938)	0.0639
2010	0.0581	(0.0062)	1.4490	(0.0043)	0.0152	(0.0088)	0.0358	(0.1330)	0.0724
2011	0.0645	(0.0095)	1.5794	(0.0060)	0.0029	(0.0077)	0.0348	(0.0153)	0.0456
2012	0.0627	(0.0085)	1.4552	(0.0058)	(0.0012)	(0.0066)	0.0373	0.0068	0.0438

E U	$HA_{r^*(i)}$	$r^*-HA_{r^*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
6. the UK	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.1201	0.0042	1.6058	0.0026	0.0029	0.0029	0.0774	0.0295	0.1141
1991	0.1372	0.0089	1.2459	0.0071	(0.0009)	0.0118	0.1172	(0.0134)	0.2023
1992	0.1507	0.0210	1.1209	0.0187	(0.0218)	0.0375	0.1532	(0.1401)	0.3409
1993	0.1515	0.0276	1.1123	0.0248	(0.0593)	0.0466	0.1610	(0.1936)	0.3818
1994	0.1355	0.0245	1.1278	0.0217	(0.0229)	0.0500	0.1419	(0.1527)	0.3236
1995	0.1217	0.0097	1.4004	0.0069	(0.0108)	0.0180	0.0939	(0.1503)	0.2421
1996	0.1221	0.0103	1.3668	0.0075	(0.0144)	0.0141	0.0968	(0.1068)	0.2155
1997	0.1079	0.0138	1.4265	0.0097	(0.0039)	0.0194	0.0853	(0.0411)	0.1569
1998	0.1128	0.0096	1.4001	0.0069	0.0045	0.0079	0.0874	0.0276	0.1219
1999	0.1217	0.0097	1.4673	0.0066	0.0112	0.0065	0.0896	0.0477	0.1127
2000	0.1297	0.0102	1.3988	0.0073	0.0129	0.0069	0.1000	0.0612	0.1192
2001	0.1314	0.0172	1.2934	0.0133	0.0134	0.0136	0.1149	0.0476	0.1446
2002	0.1348	0.0253	1.1908	0.0213	(0.0068)	0.0329	0.1345	(0.0420)	0.2099
2003	0.1331	0.0301	1.1704	0.0257	(0.0078)	0.0643	0.1394	(0.0756)	0.2352
2004	0.1342	0.0321	1.1786	0.0272	(0.0107)	0.0553	0.1411	(0.0762)	0.2405
2005	0.1408	0.0388	1.1538	0.0337	(0.0120)	0.0992	0.1557	(0.1030)	0.2803
2006	0.1374	0.0273	1.2613	0.0216	(0.0225)	0.0294	0.1306	(0.0626)	0.2196
2007	0.1246	0.0263	1.2918	0.0204	(0.0102)	0.0323	0.1168	(0.0520)	0.1933
2008	0.1163	0.0487	1.1426	0.0426	(0.0294)	0.0871	0.1444	(0.1218)	0.2661
2009	0.0563	0.1361	1.0478	0.1299	(0.1896)	0.3440	0.1836	(0.3394)	0.4246
2010	0.1122	0.0740	1.1014	0.0672	(0.0992)	0.1704	0.1690	(0.3011)	0.3877
2011	0.0317	0.1524	1.0905	0.1397	(0.2067)	0.3002	0.1688	(0.2506)	0.3620
2012	0.0958	0.1097	1.1164	0.0983	(0.0944)	0.1944	0.1841	(0.1851)	0.3562

Data source: KEWT 6.12-1, -2, -3, -4, and -5, by country and sector, 1990-2012, whose original data are from *International Financial Statistics Yearbook*, IMF

Table CC3 Endogenous inflation/deflation and the cost of capital by sector: China, India, Brazil, 1990-2012

Asia	$HA_{r*(i)}$	r^*-$HA_{r*(i)}$	$v^*=r^*/(r^*$-$g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
7. China	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0933	0.0166	5.89	0.0028	0.0018	0.0030	0.0186	0.0134	0.0194
1991	0.0994	0.0159	5.58	0.0028	0.0013	0.0032	0.0207	0.0121	0.0222
1992	0.1140	0.0136	7.05	0.0019	0.0012	0.0020	0.0181	0.0102	0.0187
1993	0.1363	0.0126	11.79	0.0011	0.0028	0.0009	0.0126	0.0295	0.0104
1994	0.1615	0.0139	5.18	0.0027	0.0016	0.0028	0.0339	0.0189	0.0354
1995	0.1346	0.0134	4.78	0.0028	0.0010	0.0028	0.0309	0.0083	0.0325
1996	0.1278	0.0133	4.69	0.0028	0.0031	0.0028	0.0301	0.0309	0.0297
1997	0.1271	0.0145	3.28	0.0044	0.0008	0.0045	0.0432	0.0054	0.0464
1998	0.1172	0.0131	3.35	0.0039	(0.0025)	0.0042	0.0389	(0.0172)	0.0441
1999	0.1094	0.0095	4.25	0.0022	(0.0059)	0.0028	0.0280	(0.0531)	0.0360
2000	0.1042	0.0123	5.06	0.0024	(0.0115)	0.0034	0.0230	(0.0788)	0.0332
2001	0.1081	0.0085	5.34	0.0016	(0.0097)	0.0021	0.0218	(0.0759)	0.0304
2002	0.1123	0.0078	5.17	0.0015	(0.0063)	0.0020	0.0232	(0.0742)	0.0327
2003	0.1242	0.0071	5.54	0.0013	(0.0030)	0.0016	0.0237	(0.0446)	0.0302
2004	0.1388	0.0069	5.15	0.0013	(0.0005)	0.0014	0.0283	(0.0073)	0.0310
2005	0.1433	0.0073	3.75	0.0020	(0.0007)	0.0021	0.0402	(0.0105)	0.0441
2006	0.1488	0.0079	3.14	0.0025	0.0003	0.0025	0.0499	0.0036	0.0529
2007	0.1659	0.0080	2.88	0.0028	0.0074	0.0024	0.0604	0.0609	0.0573
2008	0.1672	0.0076	3.08	0.0025	0.0020	0.0024	0.0568	0.0293	0.0573
2009	0.1738	0.0065	4.16	0.0016	(0.0007)	0.0018	0.0433	(0.0211)	0.0500
2010	0.1697	0.0062	4.39	0.0014	(0.0003)	0.0015	0.0400	(0.0075)	0.0444
2011	0.1422	0.0246	5.60	0.0044	0.0003	0.0046	0.0298	0.0017	0.0318
2012	0.1419	0.0078	5.31	0.0015	(0.0011)	0.0016	0.0282	(0.0177)	0.0322

Asia	$HA_{r*(i)}$	r^*-$HA_{r*(i)}$	$v^*=r^*/(r^*$-$g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
8. India	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0282	0.0175	(4.32)	(0.0041)	(0.0292)	0.0159	(0.0106)	(0.1594)	0.0301
1991	0.0305	0.0183	(10.31)	(0.0018)	(0.0229)	0.0129	(0.0047)	(0.1131)	0.0268
1992	0.0377	0.0168	(5.27)	(0.0032)	(0.0220)	0.0073	(0.0103)	(0.1102)	0.0204
1993	0.0387	0.0181	(9.97)	(0.0018)	(0.0264)	0.0169	(0.0057)	(0.1477)	0.0413
1994	0.0521	0.0189	(18.64)	(0.0010)	(0.0164)	0.0108	(0.0038)	(0.1077)	0.0314
1995	0.0597	0.0222	(20.93)	(0.0011)	(0.0175)	0.0094	(0.0039)	(0.0951)	0.0295
1996	0.0431	0.0290	(6.50)	(0.0045)	(0.0265)	0.0098	(0.0111)	(0.0953)	0.0210
1997	0.0489	0.0294	(9.57)	(0.0031)	(0.0332)	0.0055	(0.0082)	(0.0623)	0.0159
1998	0.0430	0.0232	(5.56)	(0.0042)	(0.0342)	0.0047	(0.0119)	(0.0774)	0.0143
1999	0.0508	0.0173	(7.03)	(0.0025)	(0.0339)	0.0041	(0.0097)	(0.0826)	0.0178
2000	0.0522	0.0178	(12.09)	(0.0015)	(0.0265)	0.0058	(0.0058)	(0.0905)	0.0235
2001	0.0522	0.0156	(15.27)	(0.0010)	(0.0203)	0.0063	(0.0044)	(0.0975)	0.0266
2002	0.0637	0.0165	45.16	0.0004	(0.0168)	0.0076	0.0018	(0.0974)	0.0348
2003	0.0761	0.0173	11.58	0.0015	(0.0094)	0.0065	0.0081	(0.0654)	0.0323
2004	0.1162	0.0187	5.75	0.0033	(0.0041)	0.0070	0.0235	(0.0403)	0.0446
2005	0.1101	0.0176	7.26	0.0024	(0.0040)	0.0057	0.0176	(0.0391)	0.0372
2006	0.1134	0.0167	9.12	0.0018	(0.0023)	0.0037	0.0143	(0.0213)	0.0267
2007	0.1142	0.0160	11.87	0.0013	(0.0031)	0.0033	0.0110	(0.0285)	0.0255
2008	0.1033	0.0150	25.85	0.0006	(0.0070)	0.0054	0.0046	(0.0787)	0.0360
2009	0.0988	0.0145	38.80	0.0004	(0.0085)	0.0061	0.0029	(0.0899)	0.0412
2010	0.1038	0.0151	13.53	0.0011	(0.0072)	0.0055	0.0088	(0.0655)	0.0407
2011	0.1047	0.0142	31.78	0.0004	(0.0065)	0.0038	0.0037	(0.0583)	0.0306
2012	0.1032	0.0000	32.01	0.0000	0.0000	0.0000	0.0032	(0.0510)	0.0265

W. Hemisphe	$HA_{r*(i)}$	r^*-$HA_{r*(i)}$	$v^*=r^*/(r^*$-$g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
3. Brazil	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0587	0.0112	(1.96)	(0.0057)	(0.0455)	0.0007	(0.0356)	(0.1717)	0.0051
1991	0.2083	0.0417	1.64	0.0254	(0.0471)	0.0525	0.1526	(0.3218)	0.3023
1992	0.1758	0.0392	1.66	0.0237	(0.0477)	0.0467	0.1297	(0.2688)	0.2537
1993	0.0312	0.0156	20.52	0.0008	(0.0481)	0.0220	0.0023	(0.1824)	0.0608
1994	0.0838	0.0181	4.74	0.0038	(0.0454)	0.0173	0.0215	(0.2330)	0.1004
1995	(0.0142)	0.0324	(1.73)	(0.0188)	(0.0901)	(0.0039)	(0.0106)	(0.0372)	(0.0024)
1996	0.0092	0.0124	(4.31)	(0.0029)	(0.0250)	0.0048	(0.0050)	(0.0478)	0.0082
1997	0.0110	0.0122	(3.41)	(0.0036)	(0.0330)	0.0076	(0.0068)	(0.0734)	0.0138
1998	0.0104	0.0136	(9.49)	(0.0014)	(0.0401)	0.0127	(0.0025)	(0.0799)	0.0215
1999	0.0133	0.0119	(3.90)	(0.0030)	(0.0357)	0.0023	(0.0065)	(0.0450)	0.0054
2000	0.0139	0.0157	(55.38)	(0.0003)	(0.0046)	0.0009	(0.0005)	(0.0081)	0.0018
2001	0.0115	0.0198	3.77	0.0053	(0.0147)	0.0124	0.0083	(0.0263)	0.0189
2002	0.0098	0.0226	2.53	0.0090	(0.0122)	0.0150	0.0128	(0.0168)	0.0219
2003	0.0133	0.0217	2.54	0.0085	(0.0551)	0.0240	0.0137	(0.0749)	0.0406
2004	0.0214	0.0172	3.64	0.0047	(0.0156)	0.0101	0.0106	(0.0316)	0.0233
2005	0.0223	0.0180	2.81	0.0064	(0.0277)	0.0181	0.0143	(0.0681)	0.0393
2006	0.0269	0.0160	3.02	0.0053	(0.0124)	0.0118	0.0142	(0.0379)	0.0301
2007	0.0330	0.0128	4.42	0.0029	(0.0024)	0.0049	0.0104	(0.0099)	0.0167
2008	0.0399	0.0100	15.13	0.0007	(0.0049)	0.0041	0.0033	(0.0378)	0.0168
2009	0.0397	0.0135	2.98	0.0045	(0.0072)	0.0105	0.0178	(0.0380)	0.0366
2010	0.0441	0.0102	7.93	0.0013	0.0019	0.0011	0.0068	0.0103	0.0057
2011	0.0326	0.0299	10.23	0.0029	(0.0056)	0.0067	0.0061	(0.0143)	0.0130
2012	(0.0559)	0.1833	1.17	0.1565	(0.0219)	0.2533	0.1088	(0.0205)	0.1530

Data source: KEWT 6.12-1, -2, -3, -4, and -5, by country and sector, 1990-2012, whose original data are *International Financial Statistics Yearbook*, IMF

Chapter 5

Table CC4 Endogenous inflation/deflation and the cost of capital by sector: Mexico, Russia, South Africa, 1990-2012

Pacific	$HA_{r*(i)}$	r^*-$HA_{r*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
5. Mexico	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0544	0.0299	3.13	0.0095	(0.0196)	0.0187	0.0269	(0.0789)	0.0487
1991	0.0612	0.0349	2.33	0.0150	0.0411	0.0063	0.0413	0.1543	0.0161
1992	0.0835	0.0526	1.71	0.0307	0.1398	0.0181	0.0795	0.2211	0.0503
1993	0.0589	0.0220	184.49	0.0001	0.0147	(0.0041)	0.0004	0.0668	(0.0142)
1994	0.0621	0.0178	(21.32)	(0.0008)	0.0079	(0.0032)	(0.0037)	0.0413	(0.0138)
1995	0.0728	0.0166	21.05	0.0008	0.0038	(0.0007)	0.0042	0.0300	(0.0032)
1996	0.1105	0.0221	5.87	0.0038	0.0067	0.0027	0.0226	0.0487	0.0154
1997	0.1239	0.0186	6.21	0.0030	0.0008	0.0035	0.0229	0.0071	0.0259
1998	0.0815	0.0151	(8.37)	(0.0018)	(0.0007)	(0.0025)	(0.0115)	(0.0060)	(0.0148)
1999	0.0788	0.0150	(17.79)	(0.0008)	0.0002	(0.0020)	(0.0053)	0.0016	(0.0108)
2000	0.0753	0.0174	(11.23)	(0.0016)	0.0018	(0.0046)	(0.0083)	0.0158	(0.0206)
2001	0.0355	0.0467	(6.53)	(0.0071)	0.0023	(0.0135)	(0.0126)	0.0056	(0.0214)
2002	0.0637	0.0143	11.87	0.0012	(0.0016)	0.0023	0.0066	(0.0152)	0.0098
2003	0.0709	0.0124	(80.21)	(0.0002)	0.0008	(0.0012)	(0.0010)	0.0070	(0.0070)
2004	0.0774	0.0150	5.43	0.0028	0.0012	0.0024	0.0170	0.0132	0.0112
2005	0.0718	0.0118	(22.22)	(0.0005)	0.0017	(0.0034)	(0.0038)	0.0187	(0.0200)
2006	0.0844	0.0127	71.42	0.0002	(0.0007)	0.0001	0.0014	(0.0073)	0.0009
2007	0.0799	0.0124	(71.58)	(0.0002)	(0.0023)	0.0007	(0.0013)	(0.0182)	0.0054
2008	0.0718	0.0118	(12.79)	(0.0009)	(0.0004)	(0.0019)	(0.0065)	(0.0038)	(0.0116)
2009	0.0476	0.0106	(5.42)	(0.0020)	(0.0030)	(0.0017)	(0.0108)	(0.0216)	(0.0082)
2010	0.0485	0.0110	(6.96)	(0.0016)	(0.0042)	(0.0002)	(0.0086)	(0.0306)	(0.0011)
2011	0.0541	0.0113	(9.66)	(0.0012)	(0.0034)	(0.0001)	(0.0068)	(0.0264)	(0.0003)
2012	0.0526	0.0115	(11.18)	(0.0010)	(0.0030)	(0.0001)	(0.0057)	(0.0229)	(0.0004)
E. Europe	$HA_{r*(i)}$	r^*-$HA_{r*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
7. Russia	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1995	0.0508	(0.0010)	(1.1544)	0.0009	0.0026	0.0003	(0.0431)	(0.1726)	(0.0139)
1996	0.0542	(0.0007)	(1.4247)	0.0005	0.0037	(0.0007)	(0.0375)	(0.3538)	0.0423
1997	0.0356	(0.0029)	(0.8488)	0.0034	0.0206	(0.0028)	(0.0386)	(0.2881)	0.0294
1998	0.0344	(0.0024)	(264.11)	0.0000	0.0226	(0.0056)	(0.0001)	(0.2861)	0.0770
1999	0.1519	(0.0116)	1.3456	(0.0086)	0.0044	(0.0126)	0.1042	(0.0598)	0.1481
2000	0.6182	(0.0225)	1.1571	(0.0195)	(0.0204)	(0.0191)	0.5148	0.6026	0.4901
2001	0.4445	(0.0170)	1.3100	(0.0130)	(0.0240)	(0.0108)	0.3264	0.4739	0.2875
2002	0.3537	(0.0183)	1.3204	(0.0139)	(0.2321)	(0.0048)	0.2540	0.9458	0.1062
2003	0.3539	(0.0173)	1.3410	(0.0129)	(0.0219)	(0.0110)	0.2510	0.3986	0.2185
2004	0.3642	(0.0155)	1.3244	(0.0117)	(0.1335)	(0.0057)	0.2633	0.8643	0.1507
2005	0.3739	(0.0125)	1.2838	(0.0098)	(0.0258)	(0.0049)	0.2815	0.9867	0.1291
2006	0.3590	(0.0057)	1.3432	(0.0043)	(0.0201)	(0.0009)	0.2630	1.1630	0.0589
2007	0.3090	(0.0013)	1.5780	(0.0008)	(0.0085)	(0.0002)	0.1950	0.9240	0.0507
2008	0.3047	0.0005	1.6154	0.0003	0.0018	0.0001	0.1889	0.7452	0.0820
2009	0.1716	0.0002	1.5108	0.0001	(0.0003)	0.0002	0.1137	(0.2702)	0.1928
2010	0.2066	(0.0012)	1.6951	(0.0007)	(0.0001)	(0.0008)	0.1212	0.0124	0.1447
2011	0.2719	(0.0042)	1.6949	(0.0025)	(0.0363)	(0.0015)	0.1579	0.3294	0.1168
2012	0.2488	(0.0070)	1.8165	(0.0038)	(0.0114)	(0.0025)	0.1332	0.3109	0.0921
Africa	$HA_{r*(i)}$	r^*-$HA_{r*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
18. South A	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0434	0.1628	1.8081	0.0900	(0.4649)	0.1770	0.1140	(0.4769)	0.2361
1991	0.1133	0.1085	1.3316	0.0815	(0.6254)	0.1345	0.1666	(0.6263)	0.3134
1992	0.1361	0.1031	1.2607	0.0818	(0.2922)	0.1919	0.1897	(0.8622)	0.4103
1993	0.1389	0.0693	1.4312	0.0484	(0.3357)	0.1092	0.1455	(0.8254)	0.3451
1994	0.1372	0.0576	1.5926	0.0362	(0.1579)	0.1105	0.1224	(0.7311)	0.3327
1995	0.1229	0.0444	2.3135	0.0192	(0.4142)	0.0414	0.0723	(0.5106)	0.1825
1996	0.1171	0.0427	2.0313	0.0210	(0.1126)	0.0461	0.0787	(0.3997)	0.1749
1997	0.1327	0.0269	1.7514	0.0154	(0.0774)	0.0244	0.0912	(0.2778)	0.1593
1998	0.1125	0.0305	2.0509	0.0149	(0.0320)	0.0240	0.0697	(0.1489)	0.1129
1999	0.1025	0.0311	1.9494	0.0160	(0.0352)	0.0217	0.0685	(0.1043)	0.1002
2000	0.1049	0.0248	1.9681	0.0126	(0.0145)	0.0192	0.0659	(0.0858)	0.0969
2001	0.0928	0.0327	2.0505	0.0160	(0.0298)	0.0190	0.0612	(0.0573)	0.0815
2002	0.0986	0.0258	2.0821	0.0124	(0.0382)	0.0143	0.0598	(0.0695)	0.0788
2003	0.0919	0.0292	2.2557	0.0130	(0.0547)	0.0212	0.0537	(0.1822)	0.0922
2004	0.0933	0.0216	3.0330	0.0071	(0.0231)	0.0113	0.0379	(0.1069)	0.0619
2005	0.0940	0.0241	2.5142	0.0096	0.0032	0.0089	0.0470	0.0061	0.0499
2006	0.0955	0.0208	3.0892	0.0067	0.0424	0.0043	0.0377	0.0795	0.0274
2007	0.0871	0.0149	15.582	0.0010	0.0592	(0.0034)	0.0065	0.2300	(0.0257)
2008	0.0795	0.0125	(12.03)	(0.0010)	0.0110	(0.0026)	(0.0076)	0.0747	(0.0196)
2009	0.0734	0.0160	4.3787	0.0037	(0.1285)	0.0117	0.0204	(0.3871)	0.0719
2010	0.0709	0.0134	5.6561	0.0024	(0.0213)	0.0056	0.0149	(0.1307)	0.0354
2011	0.0659	0.0353	18.387	0.0019	(0.2996)	0.0171	0.0055	(0.4245)	0.0547
2012	0.0718	0.0353	6.0692	0.0058	(0.3031)	0.0154	0.0176	(0.3412)	0.0534

Data source: KEWT 6.12-1, -2, -3, -4, and -5, by country and sector, 1990-2012, whose original data are *International Financial Statistics Yearbook*, IMF

Table CC5 Endogenous inflation/deflation and the cost of capital by sector: Canada, Italy, Spain, 1990-2012

Pacific	$HA_{r*(i)}$	$r^*-HA_{r*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
2. Canada	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0219	0.0116	(3.41)	(0.0034)	(0.0539)	0.0030	(0.0098)	(0.1309)	0.0088
1991	0.0252	0.0138	7.34	0.0019	(0.0805)	0.0099	0.0053	(0.1577)	0.0299
1992	0.0251	0.0171	3.70	0.0046	(0.1067)	0.0148	0.0114	(0.1743)	0.0391
1993	0.0254	0.0151	3.93	0.0039	(0.0828)	0.0132	0.0103	(0.1682)	0.0370
1994	0.0226	0.0119	461.65	0.0000	(0.0658)	0.0066	0.0001	(0.1377)	0.0203
1995	0.0240	0.0091	89.27	0.0001	(0.0245)	0.0041	0.0004	(0.0943)	0.0149
1996	0.0223	0.0106	14.96	0.0007	(0.0120)	0.0030	0.0022	(0.0413)	0.0091
1997	0.0254	0.0081	(7.50)	(0.0011)	0.0082	(0.0026)	(0.0045)	0.0360	(0.0107)
1998	0.0250	0.0079	(6.75)	(0.0012)	0.0175	(0.0032)	(0.0049)	0.0527	(0.0142)
1999	0.0287	0.0086	(21.62)	(0.0004)	0.0301	(0.0031)	(0.0017)	0.0801	(0.0147)
2000	0.0384	0.0113	4.71	0.0024	0.0446	(0.0012)	0.0106	0.1159	(0.0057)
2001	0.0287	0.0126	5.81	0.0022	0.0092	0.0005	0.0071	0.0477	0.0015
2002	0.0280	0.0103	10.43	0.0010	0.0096	(0.0006)	0.0037	0.0406	(0.0020)
2003	0.0276	0.0110	10.37	0.0011	0.0091	(0.0006)	0.0037	0.0407	(0.0019)
2004	0.0297	0.0117	7.53	0.0016	0.0373	(0.0013)	0.0055	0.0676	(0.0050)
2005	0.0312	0.0120	8.87	0.0014	0.0319	(0.0023)	0.0049	0.0889	(0.0086)
2006	0.0294	0.0117	20.04	0.0006	0.0402	(0.0039)	0.0021	0.1040	(0.0142)
2007	0.0304	0.0116	(161.64)	(0.0001)	0.0298	(0.0035)	(0.0003)	0.0806	(0.0131)
2008	0.0305	0.0114	(86.52)	(0.0001)	0.0049	(0.0012)	(0.0005)	0.0264	(0.0041)
2009	0.0230	0.0111	(43.12)	(0.0003)	(0.0066)	0.0040	(0.0008)	(0.0454)	0.0089
2010	0.0237	0.0097	(6.15)	(0.0016)	(0.0088)	0.0027	(0.0054)	(0.0621)	0.0071
2011	0.0242	0.0086	(4.35)	(0.0020)	(0.0081)	0.0001	(0.0075)	(0.0435)	0.0003
2012	0.0363	0.0079	(3.50)	(0.0023)	(0.0035)	(0.0017)	(0.0126)	(0.0278)	(0.0087)

Euro	$HA_{r*(i)}$	$r^*-HA_{r*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
8. Italy	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0743	0.0028	7.1624	0.0004	(0.0227)	0.0105	0.0108	(0.1341)	0.5291
1991	0.0945	(0.0204)	4.2508	(0.0048)	0.1452	(0.0611)	0.0174	(0.1304)	0.3773
1992	0.0695	0.0026	3.0988	0.0008	(0.0117)	0.0067	0.0233	(0.1135)	0.2889
1993	0.0631	0.0065	2.0582	0.0032	(0.0297)	0.0150	0.0338	(0.0961)	0.2517
1994	0.0642	0.0049	2.1487	0.0023	(0.0196)	0.0105	0.0321	(0.0940)	0.2200
1995	0.0812	0.0027	2.8415	0.0009	(0.0089)	0.0044	0.0295	(0.1000)	0.1977
1996	0.0692	0.0025	2.2440	0.0011	(0.0052)	0.0055	0.0319	(0.1047)	0.1870
1997	0.0788	(0.0090)	2.1757	(0.0042)	0.0042	(0.0088)	0.0321	(0.0174)	0.0886
1998	0.0666	(0.0019)	2.2837	(0.0008)	0.0016	(0.0020)	0.0284	(0.0311)	0.0897
1999	0.0685	(0.0004)	1.7135	(0.0002)	0.0003	(0.0003)	0.0397	(0.0355)	0.0517
2000	0.0724	(0.0015)	1.8357	(0.0008)	0.0004	(0.0013)	0.0386	(0.0307)	0.0518
2001	0.0600	0.0070	2.1120	0.0033	(0.0088)	0.0088	0.0317	(0.1515)	0.0682
2002	0.0539	0.0121	2.2990	0.0052	(0.0124)	0.0103	0.0287	(0.0874)	0.0524
2003	0.0593	0.0096	1.9582	0.0049	(0.0045)	0.0068	0.0352	(0.0328)	0.0489
2004	0.1521	(0.0855)	1.4783	(0.0578)	0.1467	(0.0933)	0.0450	(0.1010)	0.0748
2005	0.0074	0.0621	3.2198	0.0193	(0.1151)	0.0578	0.0216	(0.1606)	0.0606
2006	0.0551	0.0118	2.4636	0.0048	(0.0150)	0.0084	0.0271	(0.0771)	0.0490
2007	0.0517	0.0118	2.5006	0.0047	(0.0066)	0.0089	0.0254	(0.0493)	0.0426
2008	0.0548	0.0128	2.0550	0.0062	(0.0083)	0.0132	0.0329	(0.0710)	0.0581
2009	0.0614	0.0217	1.3411	0.0162	(0.0105)	0.0682	0.0619	(0.1166)	0.1097
2010	0.0662	0.0138	1.5362	0.0090	(0.0083)	0.0231	0.0521	(0.0948)	0.0934
2011	0.0575	0.0284	1.4256	0.0199	(0.0118)	0.0599	0.0602	(0.0851)	0.1020
2012	0.0465	0.0291	1.2663	0.0230	(0.0076)	0.1074	0.0597	(0.0606)	0.0958

Euro	$HA_{r*(i)}$	$r^*-HA_{r*(i)}$	$v^*=r^*/(r^*-g_Y^*)$	CC^*_{REAL}	$CC^*_{REAL(G)}$	$CC^*_{REAL(PRI}$	$CC^*_{NOMINAL}$	$CC^*_{NOMI(G)}$	$CC^*_{NOMI(P)}$
14. Spain	max. endo. in	REAL	to bubbles	*REAL*	G	PRI	*NOMINAL*	G	PRI
1990	0.0783	0.0029	(15.9885)	(0.0002)	(0.0034)	0.0013	(0.0051)	(0.0532)	0.0460
1991	0.1097	0.0028	11.3612	0.0002	(0.0026)	0.0012	0.0099	(0.0501)	0.0604
1992	0.0647	0.0022	10.8362	0.0002	(0.0045)	0.0017	0.0062	(0.0780)	0.0614
1993	0.0636	0.0040	2.7250	0.0015	(0.0179)	0.0058	0.0248	(0.1400)	0.1214
1994	0.0654	0.0050	2.2748	0.0022	(0.0262)	0.0078	0.0309	(0.1622)	0.1366
1995	0.0611	0.0046	3.5371	0.0013	(0.0124)	0.0050	0.0186	(0.1066)	0.0834
1996	0.0600	0.0044	3.1483	0.0014	(0.0136)	0.0051	0.0205	(0.1157)	0.0870
1997	0.0600	0.0036	3.2756	0.0011	(0.0052)	0.0025	0.0194	(0.0486)	0.0516
1998	0.0575	0.0037	3.9342	0.0009	(0.0042)	0.0015	0.0156	(0.0194)	0.0318
1999	0.0637	0.0047	3.1847	0.0015	(0.0059)	0.0022	0.0215	(0.0521)	0.0345
2000	0.0676	0.0073	2.8446	0.0026	0.0091	0.0017	0.0263	0.0664	0.0184
2001	0.0576	0.0205	2.3879	0.0086	0.0301	0.0052	0.0327	0.0971	0.0207
2002	0.0517	0.0243	2.5332	0.0096	0.0807	0.0042	0.0300	0.1094	0.0150
2003	0.0513	0.0289	2.2749	0.0127	0.0509	0.0074	0.0352	0.1131	0.0213
2004	0.0579	0.0279	2.4268	0.0115	0.0476	0.0061	0.0354	0.1267	0.0192
2005	0.0578	0.0200	4.6057	0.0043	0.1257	(0.0035)	0.0169	0.2039	(0.0155)
2006	0.0545	0.0137	(23.5026)	(0.0006)	0.1874	(0.0085)	(0.0029)	0.2847	(0.0484)
2007	0.0519	0.0133	(10.5470)	(0.0013)	0.2396	(0.0088)	(0.0062)	0.2925	(0.0495)
2008	0.0576	0.0183	3.4660	0.0053	(0.0305)	0.0083	0.0219	(0.0941)	0.0363
2009	0.0464	0.0252	1.8095	0.0139	(0.0597)	0.0505	0.0396	(0.3726)	0.1044
2010	0.0523	0.0303	1.4492	0.0209	(0.0704)	0.0523	0.0570	(0.3259)	0.1191
2011	0.0208	0.0626	1.3613	0.0460	(0.0648)	0.3191	0.0613	(0.3275)	0.1338
2012	0.0079	0.0695	1.2161	0.0571	(0.0268)	(0.0906)	0.0636	(0.3074)	0.1500

Data source: KEWT 6.12-1, -2, -3, -4, and -5, by country and sector, 1990-2012, whose original data are *International Financial Statistics Yearbook*, IMF

Chapter 5

Table H6 Hyperbola elements, a, b, c, d, and $i = I/Y$ at $y = (cx + d)/ax$ formed for the rate of return, $r^*(i)$: the US, Australia, Japan, France, Germany, the UK, 1990-2012

1. the US	a	b	c	d	i=I/Y	**2. Australi**	a	b	c	d	i=I/Y
1990	0.7149	0.00	0.0241	0.0015	0.0420	**1990**	0.6965	0.00	0.0250	0.0015	0.2127
1991	0.7496	0.00	0.0182	0.0016	0.0422	**1991**	0.7321	0.00	0.0183	0.0011	0.1385
1992	0.7493	0.00	0.0180	0.0017	0.0388	**1992**	0.7325	0.00	0.0185	0.0011	0.1321
1993	0.6950	0.00	0.0261	0.0014	0.0632	**1993**	0.7243	0.00	0.0189	0.0009	0.1381
1994	0.6739	0.00	0.0284	0.0013	0.0741	**1994**	0.7174	0.00	0.0196	0.0009	0.1695
1995	0.6648	0.00	0.0266	0.0011	0.0904	**1995**	0.7331	0.00	0.0180	0.0010	0.1287
1996	0.6627	0.00	0.0264	0.0010	0.0944	**1996**	0.7292	0.00	0.0187	0.0011	0.1265
1997	0.6592	0.00	0.0260	0.0010	0.1030	**1997**	0.7269	0.00	0.0190	0.0010	0.1222
1998	0.6600	0.00	0.0260	0.0010	0.1077	**1998**	0.7053	0.00	0.0224	0.0011	0.1621
1999	0.6527	0.00	0.0274	0.0010	0.1147	**1999**	0.7096	0.00	0.0213	0.0010	0.1634
2000	0.6500	0.00	0.0288	0.0011	0.1165	**2000**	0.7115	0.00	0.0213	0.0011	0.1508
2001	0.6541	0.00	0.0305	0.0011	0.0976	**2001**	0.7535	0.00	0.0166	0.0016	0.1224
2002	0.6513	0.00	0.0327	0.0011	0.0916	**2002**	0.7083	0.00	0.0217	0.0010	0.1447
2003	0.6466	0.00	0.0344	0.0011	0.0900	**2003**	0.7071	0.00	0.0220	0.0011	0.1623
2004	0.6412	0.00	0.0345	0.0011	0.0998	**2004**	0.7080	0.00	0.0223	0.0013	0.1699
2005	0.6374	0.00	0.0350	0.0011	0.1061	**2005**	0.6975	0.00	0.0256	0.0016	0.1800
2006	0.6370	0.00	0.0345	0.0010	0.1115	**2006**	0.7088	0.00	0.0240	0.0018	0.1705
2007	0.6419	0.00	0.0344	0.0010	0.0970	**2007**	0.7014	0.00	0.0257	0.0021	0.1829
2008	0.6459	0.00	0.0364	0.0011	0.0767	**2008**	0.6745	0.00	0.0324	0.0026	0.1974
2009	0.6923	0.00	0.0284	0.0013	0.0403	**2009**	0.7073	0.00	0.0252	0.0021	0.1731
2010	0.6713	0.00	0.0326	0.0012	0.0504	**2010**	0.6840	0.00	0.0303	0.0022	0.1732
2011	0.6712	0.00	0.0328	0.0012	0.0474	**2011**	0.6578	0.00	0.0362	0.0024	0.1862
2012	0.7200	0.00	0.0232	0.0019	0.0512	**2012**	0.6696	0.00	0.0334	0.0020	0.2079

3. Japan	a	b	c	d	i=I/Y	**4. France**	a	b	c	d	i=I/Y
1990	0.7005	0.00	0.0216	0.0006	0.2389	**1990**	91.6837	0.00	(0.5705)	0.0008	0.1387
1991	0.7012	0.00	0.0219	0.0005	0.2225	**1991**	95.1715	0.00	(0.6008)	0.0007	0.1245
1992	0.6632	0.00	0.0250	0.0005	0.1974	**1992**	97.9841	0.00	(0.6054)	0.0006	0.1066
1993	0.6935	0.00	0.0226	0.0003	0.1840	**1993**	98.3616	0.00	(0.5148)	0.0004	0.0780
1994	0.7211	0.00	0.0199	0.0002	0.1737	**1994**	102.6038	0.00	(0.4808)	0.0004	0.0865
1995	0.7240	0.00	0.0196	0.0002	0.1793	**1995**	108.2856	0.00	(0.4668)	0.0004	0.0908
1996	0.7318	0.00	0.0187	0.0002	0.1804	**1996**	110.4845	0.00	(0.5086)	0.0003	0.0754
1997	0.7113	0.00	0.0206	0.0002	0.1797	**1997**	114.1802	0.00	(0.4369)	0.0002	0.0692
1998	0.7594	0.00	0.0154	0.0002	0.1478	**1998**	118.9436	0.00	(0.3712)	0.0002	0.0815
1999	0.7907	0.00	0.0119	0.0002	0.1327	**1999**	18.6856	0.00	(0.0520)	0.0002	0.0766
2000	0.7855	0.00	0.0125	0.0002	0.1377	**2000**	19.6449	0.00	(0.0526)	0.0003	0.1056
2001	0.8084	0.00	0.0101	0.0002	0.1210	**2001**	20.2500	0.00	(0.1104)	0.0005	0.0868
2002	0.8233	0.00	0.0085	0.0002	0.1005	**2002**	20.7707	0.00	(0.1528)	0.0006	0.0847
2003	0.8224	0.00	0.0086	0.0002	0.0994	**2003**	21.0916	0.00	(0.2197)	0.0008	0.0786
2004	0.8186	0.00	0.0090	0.0002	0.0982	**2004**	21.7318	0.00	(0.2244)	0.0008	0.0784
2005	0.8221	0.00	0.0087	0.0002	0.0924	**2005**	22.4775	0.00	(0.1693)	0.0006	0.0848
2006	0.8092	0.00	0.0101	0.0000	0.0889	**2006**	23.3226	0.00	(0.1637)	0.0006	0.0910
2007	0.8117	0.00	0.0098	0.0001	0.0853	**2007**	24.3639	0.00	(0.1510)	0.0006	0.1040
2008	0.8203	0.00	0.0089	0.0000	0.0867	**2008**	24.7748	0.00	(0.1441)	0.0006	0.1029
2009	0.8233	0.00	0.0086	0.0000	0.0556	**2009**	23.6084	0.00	(0.1321)	0.0004	0.0686
2010	0.8236	0.00	0.0086	0.0000	0.0583	**2010**	24.0817	0.00	(0.1344)	0.0004	0.0708
2011	0.8147	0.00	0.0095	(0.0000)	0.0550	**2011**	24.7394	0.00	(0.2863)	0.0009	0.0868
2012	0.7989	0.00	0.0113	(0.0001)	0.0400	**2012**	24.9576	0.00	(0.2936)	0.0009	0.0785

5. German	a	b	c	d	i=I/Y	**6. the UK**	a	b	c	d	i=I/Y
1990	22.5838	0.00	(0.2186)	0.0014	0.1611	**1990**	7.4248	0.00	(0.0110)	0.0001	0.0858
1991	28.2292	0.00	(0.2469)	0.0012	0.1514	**1991**	7.5397	0.00	(0.0120)	0.0001	0.0517
1992	30.3474	0.00	(0.2490)	0.0010	0.1414	**1992**	7.6003	0.00	(0.0155)	0.0001	0.0317
1993	31.0755	0.00	(0.2612)	0.0009	0.1197	**1993**	7.9433	0.00	(0.0200)	0.0001	0.0301
1994	32.4785	0.00	(0.0970)	0.0004	0.1343	**1994**	8.6083	0.00	(0.0218)	0.0001	0.0301
1995	35.4005	0.00	(0.1202)	0.0004	0.1345	**1995**	9.6011	0.00	(0.0255)	0.0002	0.0656
1996	35.9664	0.00	(0.1202)	0.0004	0.1195	**1996**	10.1620	0.00	(0.0269)	0.0002	0.0621
1997	36.5329	0.00	(0.1269)	0.0004	0.1217	**1997**	11.0455	0.00	(0.0443)	0.0003	0.0625
1998	37.2681	0.00	(0.0951)	0.0003	0.1308	**1998**	11.6586	0.00	(0.0311)	0.0002	0.0615
1999	19.5465	0.00	(0.0485)	0.0003	0.1299	**1999**	12.1136	0.00	(0.0368)	0.0002	0.0743
2000	19.8111	0.00	(0.0532)	0.0004	0.1634	**2000**	12.5353	0.00	(0.0359)	0.0002	0.0713
2001	20.0821	0.00	(0.1903)	0.0011	0.1201	**2001**	12.8863	0.00	(0.0494)	0.0002	0.0592
2002	20.4198	0.00	(0.0537)	0.0002	0.0971	**2002**	13.3392	0.00	(0.0525)	0.0002	0.0437
2003	20.6608	0.00	(0.0256)	0.0001	0.0886	**2003**	14.0634	0.00	(0.0598)	0.0002	0.0396
2004	20.9482	0.00	(0.0152)	0.0000	0.0604	**2004**	14.7396	0.00	(0.0700)	0.0002	0.0415
2005	21.2892	0.00	0.0026	(0.0000)	0.0557	**2005**	15.0516	0.00	(0.0760)	0.0002	0.0387
2006	21.9754	0.00	0.0264	(0.0001)	0.0578	**2006**	16.1178	0.00	(0.0908)	0.0003	0.0571
2007	22.2286	0.00	0.0435	(0.0001)	0.0756	**2007**	17.2085	0.00	(0.1025)	0.0003	0.0572
2008	22.9927	0.00	0.0566	(0.0002)	0.0781	**2008**	17.1168	0.00	(0.1018)	0.0002	0.0325
2009	23.0733	0.00	0.0546	(0.0001)	0.0342	**2009**	15.8466	0.00	(0.0937)	0.0001	0.0111
2010	24.0730	0.00	0.0464	(0.0001)	0.0473	**2010**	16.7812	0.00	(0.1111)	0.0002	0.0256
2011	25.0241	0.00	0.0884	(0.0002)	0.0591	**2011**	17.3453	0.00	(0.2132)	0.0002	0.0169
2012	25.6228	0.00	0.0683	(0.0001)	0.0494	**2012**	17.0290	0.00	(0.1910)	0.0003	0.0290

Table H7 Hyperbola elements, a, b, c, d, and $i = I/Y$ at $y = (cx + d)/ax$ formed for the rate of return, $r^{*}(i)$: China, India, Brazil, Mexico, Russia, South Africa, 1990-2012

7. China	a	b	c	d	i=I/Y	**8. India**	a	b	c	d	i=I/Y
1990	0.5794	0.0000	0.0541	0.0028	0.2951	**1990**	0.7145	0.00	0.0201	0.0018	0.1451
1991	0.5709	0.0000	0.0568	0.0027	0.2993	**1991**	0.7018	0.00	0.0214	0.0017	0.1316
1992	0.5524	0.0000	0.0630	0.0025	0.3306	**1992**	0.6740	0.00	0.0254	0.0018	0.1573
1993	0.5258	0.0000	0.0716	0.0025	0.3855	**1993**	0.6686	0.00	0.0259	0.0018	0.1458
1994	0.5012	0.0000	0.0810	0.0026	0.3665	**1994**	0.6365	0.00	0.0332	0.0020	0.1699
1995	0.5361	0.0000	0.0722	0.0021	0.2987	**1995**	0.6254	0.00	0.0374	0.0026	0.1892
1996	0.5440	0.0000	0.0695	0.0021	0.2848	**1996**	0.6668	0.00	0.0288	0.0033	0.1716
1997	0.5440	0.0000	0.0692	0.0020	0.2574	**1997**	0.6556	0.00	0.0320	0.0035	0.1816
1998	0.5551	0.0000	0.0651	0.0018	0.2517	**1998**	0.6559	0.00	0.0282	0.0025	0.1646
1999	0.5646	0.0000	0.0618	0.0014	0.2649	**1999**	0.6283	0.00	0.0319	0.0019	0.1708
2000	0.5711	0.0000	0.0595	0.0019	0.2755	**2000**	0.6318	0.00	0.0330	0.0019	0.1706
2001	0.5649	0.0000	0.0610	0.0014	0.2880	**2001**	0.6306	0.00	0.0329	0.0016	0.1674
2002	0.5566	0.0000	0.0625	0.0013	0.3012	**2002**	0.6192	0.00	0.0394	0.0019	0.1875
2003	0.5363	0.0000	0.0666	0.0013	0.3369	**2003**	0.6039	0.00	0.0460	0.0021	0.2054
2004	0.5135	0.0000	0.0713	0.0013	0.3620	**2004**	0.5573	0.00	0.0648	0.0028	0.2663
2005	0.5050	0.0000	0.0724	0.0013	0.3404	**2005**	0.5649	0.00	0.0622	0.0027	0.2699
2006	0.4962	0.0000	0.0738	0.0013	0.3260	**2006**	0.5613	0.00	0.0637	0.0027	0.2883
2007	0.4760	0.0000	0.0790	0.0013	0.3321	**2007**	0.5606	0.00	0.0640	0.0027	0.3020
2008	0.4727	0.0000	0.0790	0.0013	0.3475	**2008**	0.5745	0.00	0.0593	0.0026	0.2984
2009	0.4539	0.0000	0.0789	0.0012	0.4143	**2009**	0.5805	0.00	0.0573	0.0025	0.2949
2010	0.4551	0.0000	0.0772	0.0012	0.4203	**2010**	0.5738	0.00	0.0596	0.0025	0.2905
2011	0.4772	0.0000	0.0678	0.0050	0.4236	**2011**	0.5727	0.00	0.0600	0.0025	0.3092
2012	0.4870	0.0000	0.0691	0.0015	0.4052	**2012**	0.5729	0.00	0.0591	0.0000	0.3092

9. Brazil	a	b	c	d	i=I/Y	**10. Mexic**	a	b	c	d	i=I/Y
1990	0.0638	0.0000	0.0194	0.0037	0.2243	**1990**	0.6508	0.00	0.0354	0.0025	0.1302
1991	0.3291	0.0000	0.0120	0.0017	0.1087	**1991**	0.6300	0.00	0.0385	0.0024	0.1105
1992	0.3437	0.0000	0.0112	0.0015	0.1005	**1992**	0.5993	0.00	0.0501	0.0033	0.1047
1993	0.0741	0.0000	0.0154	0.0018	0.1232	**1993**	0.5973	0.00	0.0352	0.0020	0.1539
1994	0.1806	0.0000	0.0133	0.0020	0.1403	**1994**	0.5858	0.00	0.0364	0.0017	0.1651
1995	0.0338	0.0000	0.0558	0.0063	0.1294	**1995**	0.5533	0.00	0.0403	0.0015	0.1600
1996	0.0412	0.0000	0.0165	0.0019	0.1280	**1996**	0.5127	0.00	0.0567	0.0022	0.1915
1997	0.0451	0.0000	0.0171	0.0021	0.1367	**1997**	0.4998	0.00	0.0619	0.0020	0.2108
1998	0.0463	0.0000	0.0161	0.0018	0.1186	**1998**	0.5251	0.00	0.0428	0.0015	0.1940
1999	0.0496	0.0000	0.0161	0.0020	0.1381	**1999**	0.5281	0.00	0.0416	0.0014	0.1784
2000	0.0534	0.0000	0.0170	0.0019	0.1224	**2000**	0.5378	0.00	0.0405	0.0017	0.1800
2001	0.0583	0.0000	0.0149	0.0012	0.0853	**2001**	0.6843	0.00	0.0243	0.0046	0.1441
2002	0.0659	0.0000	0.0136	0.0009	0.0649	**2002**	0.5639	0.00	0.0359	0.0011	0.1381
2003	0.0749	0.0000	0.0129	0.0008	0.0649	**2003**	0.5459	0.00	0.0387	0.0011	0.1618
2004	0.0849	0.0000	0.0123	0.0010	0.0825	**2004**	0.5465	0.00	0.0423	0.0012	0.1436
2005	0.0932	0.0000	0.0112	0.0008	0.0725	**2005**	0.5583	0.00	0.0401	0.0012	0.1764
2006	0.1018	0.0000	0.0103	0.0008	0.0780	**2006**	0.5567	0.00	0.0470	0.0014	0.1982
2007	0.1133	0.0000	0.0096	0.0009	0.0944	**2007**	0.5697	0.00	0.0455	0.0014	0.2018
2008	0.1277	0.0000	0.0091	0.0011	0.1214	**2008**	0.5865	0.00	0.0421	0.0014	0.2034
2009	0.1346	0.0000	0.0084	0.0008	0.0893	**2009**	0.6324	0.00	0.0301	0.0011	0.1686
2010	0.1563	0.0000	0.0084	0.0010	0.1158	**2010**	0.6333	0.00	0.0307	0.0012	0.1674
2011	0.1670	0.0000	0.0248	0.0029	0.1102	**2011**	0.6267	0.00	0.0339	0.0013	0.1789
2012	0.1484	0.0000	0.0231	0.0005	0.0209	**2012**	0.6324	0.00	0.0333	0.0013	0.1757

11. Russia	a	b	c	d	i=I/Y	**12. S.Afric**	a	b	c	d	i=I/Y
	0.0000	0.0000	0.0000	0.0000	0.0000	**1990**	5.8848	0.00	(0.4126)	0.0041	0.0608
	0.0000	0.0000	0.0000	0.0000	0.0000	**1991**	6.8477	0.00	(0.1714)	0.0013	0.0507
	0.0000	0.0000	0.0000	0.0000	0.0000	**1992**	7.4993	0.00	(0.1487)	0.0010	0.0476
	0.0000	0.0000	0.0000	0.0000	0.0000	**1993**	8.5366	0.00	(0.1718)	0.0014	0.0668
	0.0000	0.0000	0.0000	0.0000	0.0000	**1994**	9.4626	0.00	(0.2011)	0.0017	0.0815
1995	8.2656	0.0000	0.0159	(0.0003)	0.1719	**1995**	10.5083	0.00	(0.2747)	0.0028	0.1146
1996	11.6435	0.0000	0.0157	(0.0002)	0.1595	**1996**	11.6131	0.00	(0.2595)	0.0021	0.1009
1997	13.9609	0.0000	0.0911	(0.0008)	0.1331	**1997**	12.7939	0.00	(0.1510)	0.0011	0.0937
1998	15.3240	0.0000	0.0358	(0.0001)	0.0590	**1998**	13.6257	0.00	(0.2209)	0.0016	0.1012
1999	27.6062	0.0000	0.0833	(0.0002)	0.0536	**1999**	14.7545	0.00	(0.2311)	0.0014	0.0909
2000	33.9653	0.0000	0.1102	(0.0003)	0.0968	**2000**	16.6005	0.00	(0.2108)	0.0011	0.0922
2001	44.4956	0.0000	0.1971	(0.0005)	0.1317	**2001**	17.9836	0.00	(0.3158)	0.0015	0.0902
2002	55.7356	0.0000	0.2696	(0.0005)	0.1125	**2002**	20.4222	0.00	(0.2888)	0.0012	0.0939
2003	68.2218	0.0000	0.3295	(0.0005)	0.1194	**2003**	21.5448	0.00	(0.3734)	0.0016	0.0986
2004	87.0805	0.0000	0.3640	(0.0005)	0.1181	**2004**	23.5946	0.00	(0.3727)	0.0017	0.1196
2005	109.8339	0.0000	0.3336	(0.0003)	0.1091	**2005**	25.9925	0.00	(0.4089)	0.0016	0.1105
2006	135.6091	0.0000	0.2203	(0.0002)	0.1235	**2006**	28.7737	0.00	(0.4475)	0.0018	0.1264
2007	167.5971	0.0000	0.0941	(0.0001)	0.1604	**2007**	32.6416	0.00	(0.5184)	0.0022	0.1618
2008	210.7391	0.0000	(0.0512)	0.0000	0.1681	**2008**	36.4535	0.00	(0.5717)	0.0024	0.1772
2009	214.3240	0.0000	(0.0163)	0.0000	0.0955	**2009**	37.8152	0.00	(0.5173)	0.0015	0.1250
2010	219.8866	0.0000	0.1205	(0.0001)	0.1309	**2010**	41.8239	0.00	(0.5128)	0.0014	0.1286
2011	240.1007	0.0000	0.3308	(0.0001)	0.1054	**2011**	45.0583	0.00	(1.7411)	0.0046	0.1421
2012	261.4440	0.0000	0.5562	(0.0003)	0.1367	**2012**	47.2124	0.00	(1.5981)	0.0039	0.1379

Chapter 5

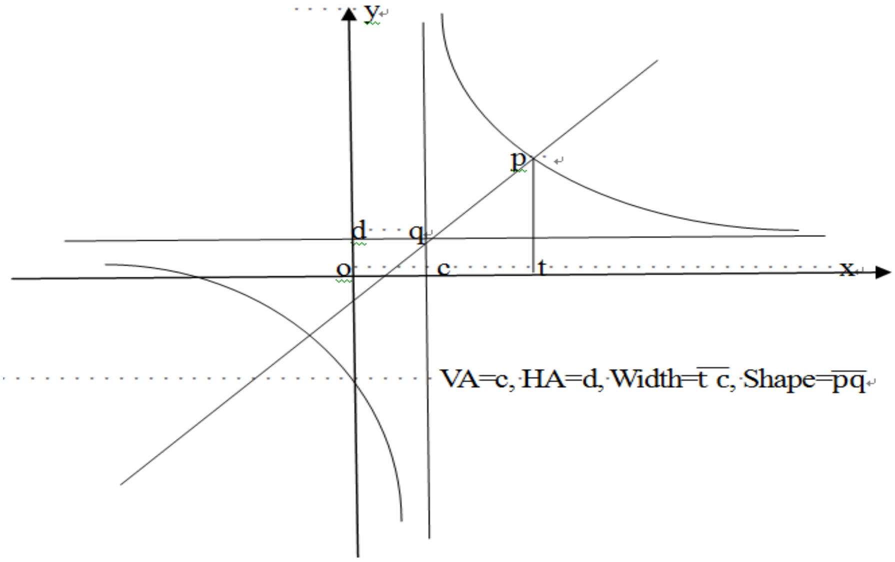
Table H8 Hyperbola elements, a, b, c, d, and $i = I/Y$ at $\mathrm{y} = (\mathrm{cx} + \mathrm{d})/\mathrm{ax}$ formed for the rate of return, $r^*(i)$: Canada, Italy, Netherlands, Spain, Greece, Ireland, 1990-2012

13. Canad	a	b	c	d	i=I/Y	**14. Italy**	a	b	c	d	i=I/Y
1990	0.7494	0.0000	0.0164	0.0013	0.1456	**1990**	18.5052	0.0000	(0.0486)	0.0003	0.1380
1991	0.7408	0.0000	0.0187	0.0012	0.1141	**1991**	20.8642	0.0000	0.3469	(0.0022)	0.1373
1992	0.7450	0.0000	0.0187	0.0013	0.1039	**1992**	21.5305	0.0000	(0.0401)	0.0002	0.1056
1993	0.7421	0.0000	0.0188	0.0012	0.1027	**1993**	22.1215	0.0000	(0.0763)	0.0003	0.0769
1994	0.7477	0.0000	0.0169	0.0010	0.1169	**1994**	23.3404	0.0000	(0.0636)	0.0002	0.0804
1995	0.7358	0.0000	0.0176	0.0008	0.1127	**1995**	24.8612	0.0000	(0.0468)	0.0002	0.1197
1996	0.7461	0.0000	0.0166	0.0008	0.1050	**1996**	26.2461	0.0000	(0.0385)	0.0001	0.0894
1997	0.7289	0.0000	0.0185	0.0008	0.1319	**1997**	28.4064	0.0000	0.1452	(0.0004)	0.0909
1998	0.7306	0.0000	0.0183	0.0008	0.1328	**1998**	29.3425	0.0000	0.0323	(0.0001)	0.0861
1999	0.7191	0.0000	0.0207	0.0008	0.1350	**1999**	15.1943	0.0000	0.0027	(0.0000)	0.0670
2000	0.6943	0.0000	0.0267	0.0010	0.1304	**2000**	16.0325	0.0000	0.0113	(0.0001)	0.0765
2001	0.7247	0.0000	0.0208	0.0010	0.1131	**2001**	16.8692	0.0000	(0.0634)	0.0003	0.0798
2002	0.7229	0.0000	0.0203	0.0009	0.1165	**2002**	17.2166	0.0000	(0.1206)	0.0006	0.0829
2003	0.7249	0.0000	0.0200	0.0009	0.1159	**2003**	17.5502	0.0000	(0.0840)	0.0004	0.0774
2004	0.7186	0.0000	0.0214	0.0010	0.1179	**2004**	19.4675	0.0000	0.5352	(0.0022)	0.0787
2005	0.7141	0.0000	0.0223	0.0011	0.1249	**2005**	17.7407	0.0000	(0.8114)	0.0033	0.0803
2006	0.7192	0.0000	0.0211	0.0011	0.1271	**2006**	19.0591	0.0000	(0.1390)	0.0006	0.0931
2007	0.7155	0.0000	0.0217	0.0011	0.1367	**2007**	19.6264	0.0000	(0.1455)	0.0006	0.0906
2008	0.7155	0.0000	0.0218	0.0011	0.1381	**2008**	19.5325	0.0000	(0.1326)	0.0005	0.0842
2009	0.7461	0.0000	0.0171	0.0010	0.1211	**2009**	17.9932	0.0000	(0.0991)	0.0003	0.0518
2010	0.7396	0.0000	0.0176	0.0010	0.1351	**2010**	18.4760	0.0000	(0.0906)	0.0003	0.0713
2011	0.7348	0.0000	0.0178	0.0009	0.1405	**2011**	18.3955	0.0000	(0.1577)	0.0005	0.0610
2012	0.6983	0.0000	0.0254	0.0011	0.1995	**2012**	18.5463	0.0000	(0.1121)	0.0002	0.0383

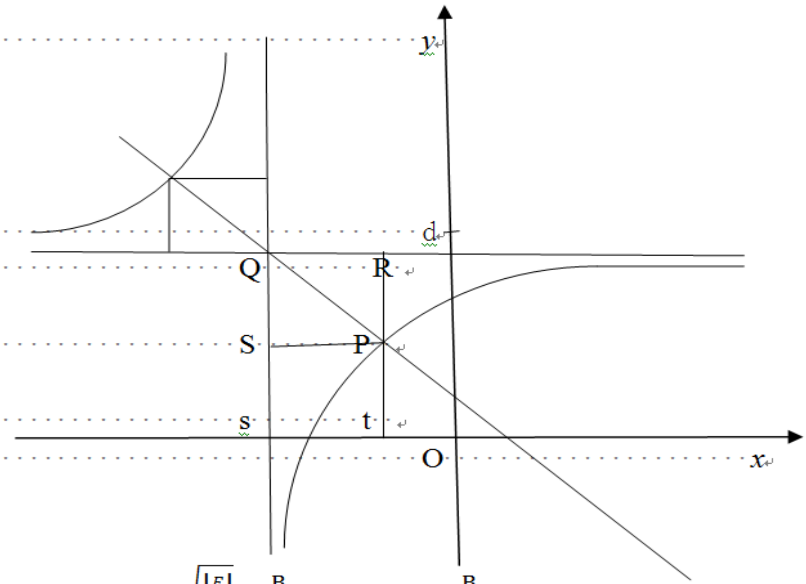
15. Nether	a	b	c	d	i=I/Y	**16. Spain**	a	b	c	d	i=I/Y
1990	24.9123	0.0000	(0.1885)	0.0011	0.1626	**1990**	1035.1976	0.0000	(3.7691)	0.0006	0.1808
1991	26.4305	0.0000	(0.2376)	0.0012	0.1543	**1991**	1135.8642	0.0000	(3.5389)	0.0006	0.2168
1992	28.2185	0.0000	(0.2296)	0.0011	0.1471	**1992**	1202.0166	0.0000	(2.7965)	0.0003	0.1392
1993	28.9392	0.0000	(0.2304)	0.0009	0.1294	**1993**	1221.3912	0.0000	(3.4234)	0.0003	0.0996
1994	29.6351	0.0000	(0.1504)	0.0006	0.1420	**1994**	1256.5383	0.0000	(3.8402)	0.0003	0.0925
1995	29.9497	0.0000	(0.2160)	0.0009	0.1386	**1995**	1483.3090	0.0000	(5.4119)	0.0003	0.1060
1996	31.3435	0.0000	(0.2257)	0.0009	0.1423	**1996**	1561.1079	0.0000	(5.2116)	0.0003	0.1001
1997	32.6577	0.0000	(0.1873)	0.0007	0.1444	**1997**	1652.5265	0.0000	(4.5890)	0.0003	0.1020
1998	31.1981	0.0000	(0.2277)	0.0011	0.1716	**1998**	1710.6484	0.0000	(5.2408)	0.0003	0.1077
1999	18.2149	0.0000	(0.1110)	0.0007	0.1208	**1999**	10.9141	0.0000	(0.0358)	0.0003	0.1068
2000	19.3588	0.0000	(0.1155)	0.0006	0.0998	**2000**	11.4692	0.0000	(0.0553)	0.0005	0.1095
2001	20.9322	0.0000	(0.0417)	0.0002	0.1093	**2001**	11.8925	0.0000	(0.1441)	0.0011	0.0957
2002	22.0474	0.0000	(0.1299)	0.0005	0.0873	**2002**	12.4829	0.0000	(0.1880)	0.0014	0.0950
2003	22.7511	0.0000	(0.1326)	0.0004	0.0804	**2003**	12.8943	0.0000	(0.2140)	0.0015	0.0913
2004	22.9581	0.0000	(0.1306)	0.0003	0.0599	**2004**	13.5249	0.0000	(0.2310)	0.0017	0.1037
2005	23.2071	0.0000	(0.1494)	0.0005	0.0845	**2005**	14.7791	0.0000	(0.2482)	0.0020	0.1294
2006	24.2636	0.0000	(0.0920)	0.0003	0.0711	**2006**	16.2133	0.0000	(0.2554)	0.0022	0.1572
2007	24.9539	0.0000	(0.0959)	0.0003	0.0892	**2007**	17.1669	0.0000	(0.2774)	0.0023	0.1620
2008	25.7903	0.0000	(0.1027)	0.0005	0.1307	**2008**	16.8010	0.0000	(0.2341)	0.0016	0.1251
2009	26.6947	0.0000	(0.1044)	0.0004	0.1133	**2009**	16.2492	0.0000	(0.1870)	0.0008	0.0748
2010	27.0740	0.0000	(0.1034)	0.0003	0.0907	**2010**	15.6918	0.0000	(0.1479)	0.0006	0.0606
2011	26.7030	0.0000	(0.0833)	0.0002	0.0736	**2011**	15.7069	0.0000	(0.2598)	0.0007	0.0444
2012	26.9936	0.0000	(0.0670)	0.0002	0.0713	**2012**	15.6099	0.0000	(0.1876)	0.0003	0.0268

17. Greece	a	b	c	d	i=I/Y	**18. Ireland**	a	b	c	d	i=I/Y
1990	1133.2880	0.0000	(8.3240)	0.0004	0.0523	**1990**	5.9559	0.0000	0.0174	(0.0007)	0.2387
1991	1408.4050	0.0000	(13.4990)	0.0006	0.0732	**1991**	6.2745	0.0000	(0.0366)	0.0012	0.2075
1992	1599.0548	0.0000	(11.6029)	0.0004	0.0559	**1992**	6.6389	0.0000	(0.0573)	0.0015	0.1799
1993	1779.4317	0.0000	(11.0493)	0.0004	0.0624	**1993**	6.9668	0.0000	(0.0197)	0.0005	0.1675
1994	2050.9714	0.0000	(10.7604)	0.0004	0.0845	**1994**	7.5501	0.0000	(0.0215)	0.0005	0.1674
1995	2366.1924	0.0000	(56.1226)	0.0011	0.0523	**1995**	8.0727	0.0000	(0.0964)	0.0022	0.2015
1996	2454.1193	0.0000	(19.9924)	0.0006	0.0778	**1996**	8.5206	0.0000	(0.0765)	0.0018	0.2124
1997	2770.2629	0.0000	(21.7635)	0.0013	0.1979	**1997**	8.6863	0.0000	(0.0795)	0.0020	0.2435
1998	2995.3013	0.0000	(16.8349)	0.0010	0.2099	**1998**	9.5159	0.0000	(0.1192)	0.0029	0.2685
1999	3131.8692	0.0000	(17.8834)	0.0011	0.2349	**1999**	14.4269	0.0000	(0.1835)	0.0027	0.2528
2000	3197.4386	0.0000	(23.7674)	0.0010	0.1515	**2000**	14.0999	0.0000	(0.2297)	0.0039	0.2960
2001	10.8220	0.0000	(0.0346)	0.0008	0.2858	**2001**	15.7893	0.0000	(0.3570)	0.0051	0.2845
2002	11.1563	0.0000	(0.0230)	0.0004	0.2462	**2002**	16.9658	0.0000	(0.3793)	0.0051	0.2881
2003	12.2961	0.0000	(0.0078)	0.0001	0.2699	**2003**	17.9792	0.0000	(0.3917)	0.0048	0.2741
2004	11.5385	0.0000	(0.0043)	0.0000	0.1197	**2004**	18.4919	0.0000	(0.4583)	0.0056	0.2857
2005	11.8015	0.0000	(0.0054)	0.0001	0.1132	**2005**	18.5072	0.0000	(0.4060)	0.0056	0.3304
2006	13.1576	0.0000	(0.0063)	0.0001	0.1532	**2006**	20.7196	0.0000	(0.4515)	0.0056	0.3366
2007	14.1142	0.0000	(0.0282)	0.0003	0.1875	**2007**	23.9540	0.0000	(0.4401)	0.0046	0.3317
2008	13.7032	0.0000	(0.0135)	0.0002	0.1715	**2008**	27.5098	0.0000	(0.4807)	0.0038	0.2778
2009	13.2264	0.0000	(0.0246)	0.0002	0.1122	**2009**	24.6632	0.0000	(0.4080)	0.0032	0.2320
2010	13.1525	0.0000	(0.0121)	0.0001	0.1050	**2010**	23.3427	0.0000	(0.3682)	0.0026	0.1940
2011	12.2262	0.0000	(0.0221)	0.0002	0.0898	**2011**	21.0665	0.0000	(0.3346)	0.0030	0.2247
2012	11.5247	0.0000	(0.0126)	0.0000	0.0243	**2012**	19.7121	0.0000	(0.2516)	0.0022	0.2040

When *f/a* is plus, the diagonal is upward to the right

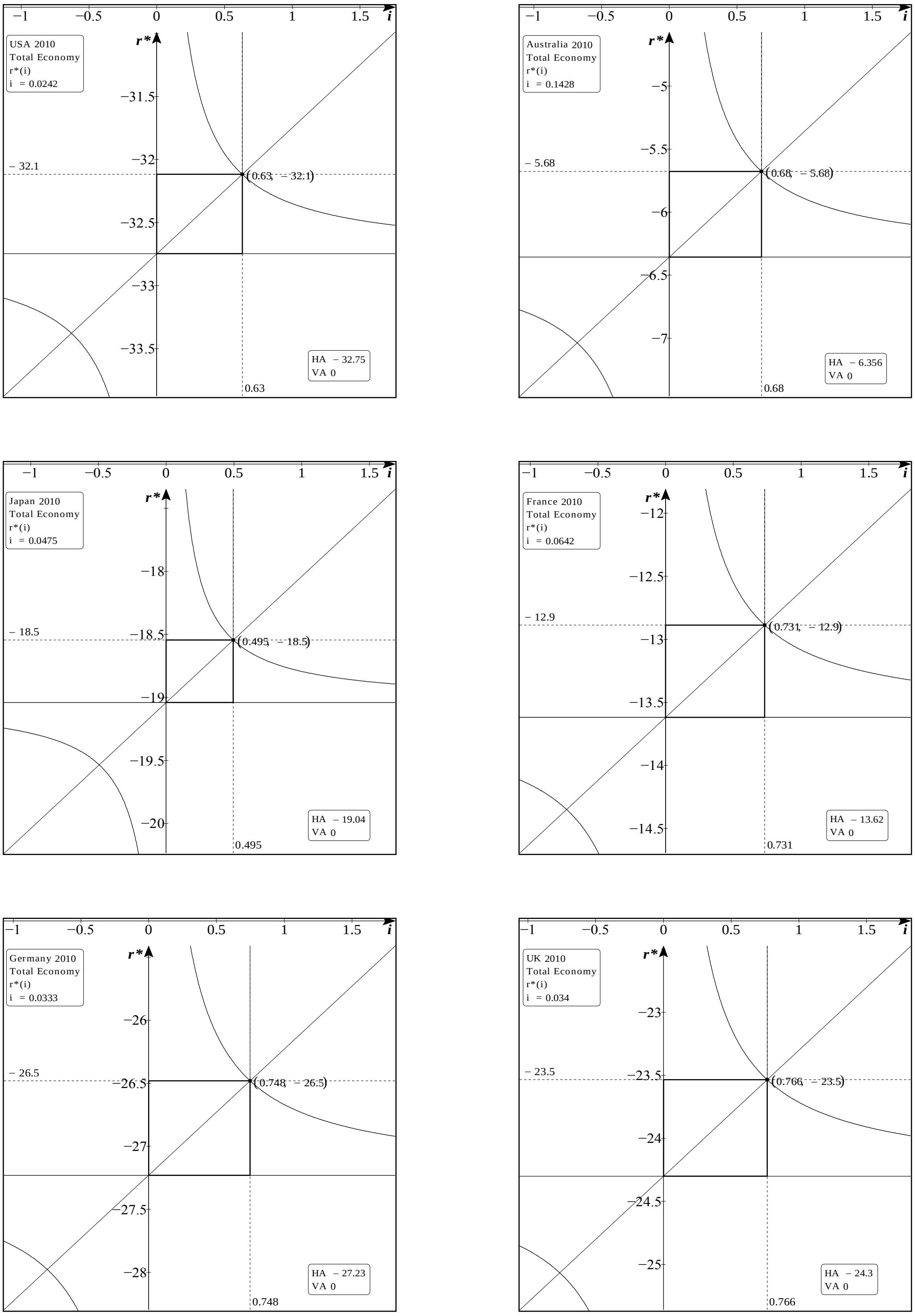


When *F/A* is minus, the diagonal is downward to the right



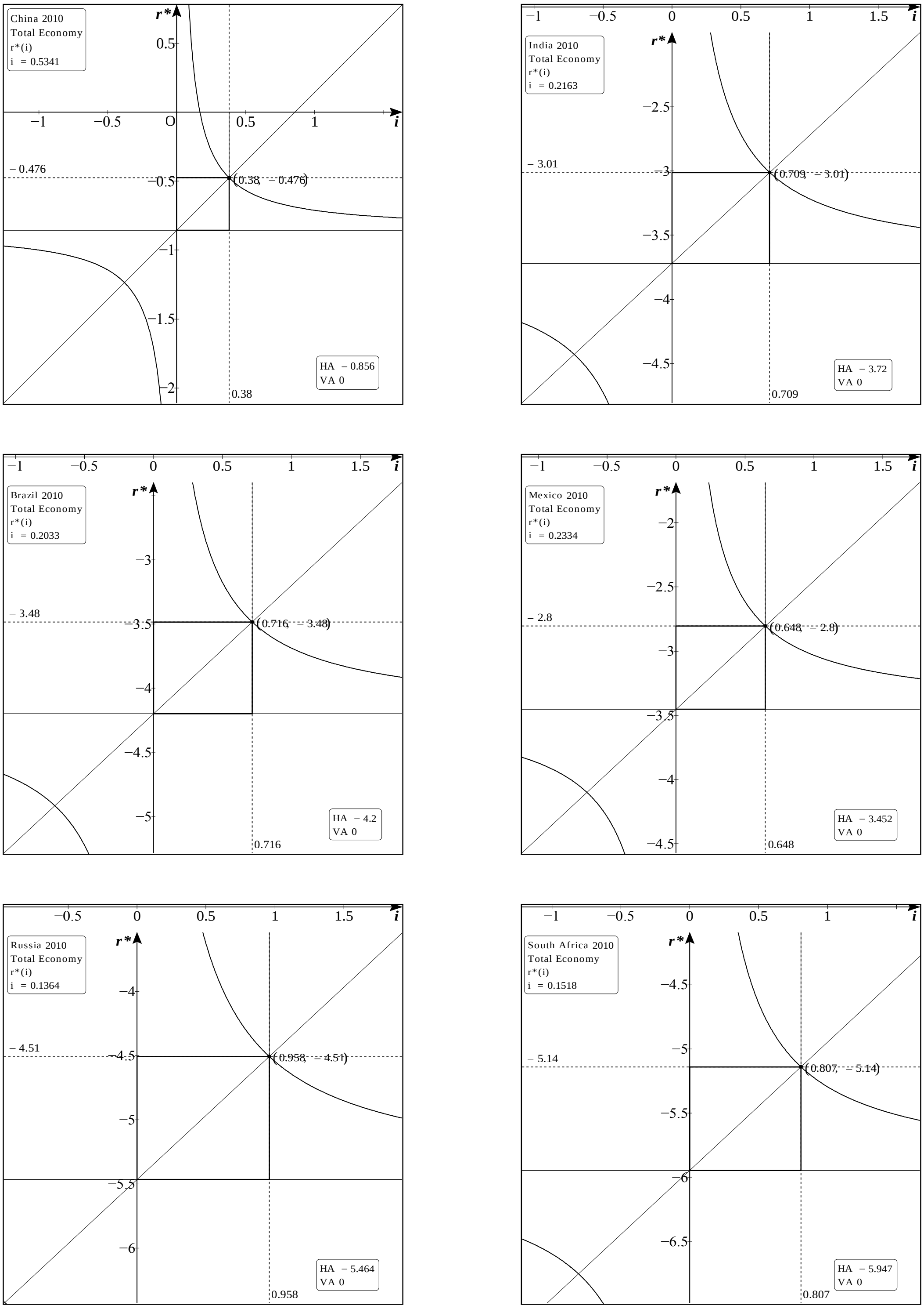
$t = \sqrt{\left|\frac{F}{A}\right|} - \frac{B}{A}$, $s = -\frac{B}{A}$

Figure H1 Relationship between the rectangular hyperbola and the rectangular equilateral triangle: *f/a*>0 versus *F/A*<0



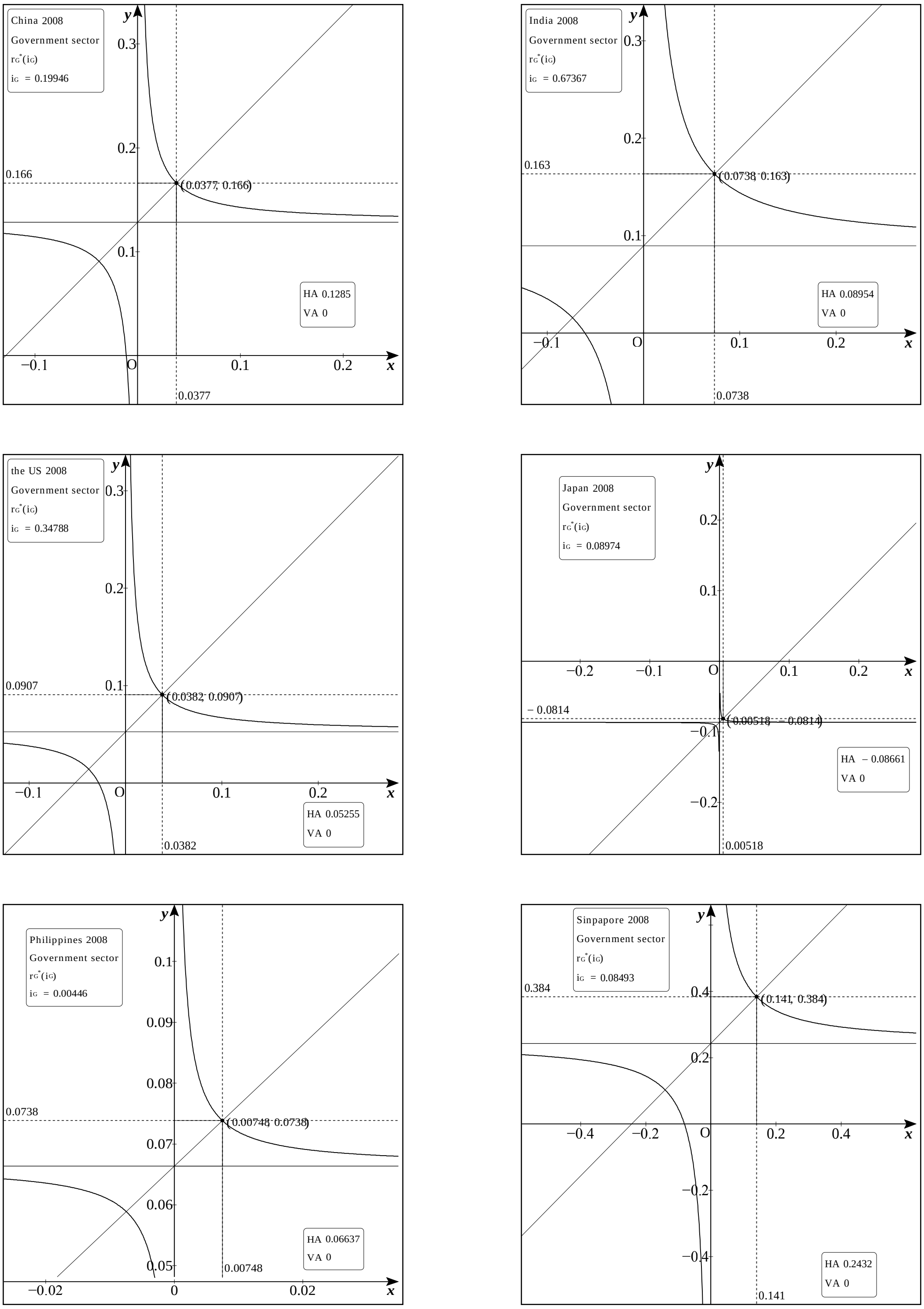
Data source: KEWT 6.12-1, -2, -3, and -4, by country and sector, 1990-2010, whose original data are from *IFSY*, IMF.

Figure H2 Hyperbola of the rate of return to net investment to output, $r^*(i)$: the US, Australia, Japan, France, Germany, the UK 2010



Data source: KEWT 6.12-1, -2, -3, and -4, by country and sector, 1990-2010, whose original data are from *International Financial Statistics Yearbook*, IMF. I am much obliged to Tomoda, K., for his software help.

Figure H3 Hyperbola of the rate of return to net investment to output, $r^*(i)$: China, India, Brazil, Mexico, Russia, South Africa, 2010



Data source: KEWT 4.10, by country and sector, 1990-2008, whose original data are from *International Financial Statistics Yearbook*, IMF.

Figure H4 Hyperbola of the rate of return to net investment to output at the G sector, $r_G^*(i_G)$: China, India, the US, Japan, the Philippines, Singapore, 2008

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