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FROM THE MARSHALL–LERNER CONDITION TO CENTRAL ASIAN GOVERNMENT SECURITIES MARKETS

Werner Riecke (1953–2021)

János Száz[1]

THE CALMEST RESTLESS PERSON

Werner was the most peaceful restless person I have ever known.

In 45 years of our friendship, I have never heard him shout or talk angrily. At the same time, he was always engaged in some problem waiting to be solved. Even if he had a cigarette or a pint of ale in his hand.

You could always sense he did have an opinion whether he stated it then and there or if he simply observed a debate. His gestures revealed that his mind had been at work all the time. He listened to what he heard and immediately processed it. Still, he was not a person who wanted to voice his opinion in a debate at all costs. He had substantive replies to what he had just heard and could lend an ear to what his partners wanted to say. But he never presented his audience with bits and pieces picked out of what he had heard from others. He was keen to draw his own conclusions.

Even at a young age he was acknowledged as a smart guy, although he never boasted. He never wanted to look smarter or better informed than others. As he was growing older, his experience on economy and the world had been processed and accumulated.

We worked together from time to time; we were writing a book, preparing for the next meeting of the banking board in his office, or delivering a course at the other end of the world.

He only scolded me for one thing: *"How can one program/code in such an ugly way?"* He was right.

I have learnt from him how you must and why it is worth to break down a very long programme into smaller modules instead of many GOTO commands pointing here and there. His way of thinking was extremely structured. Some people

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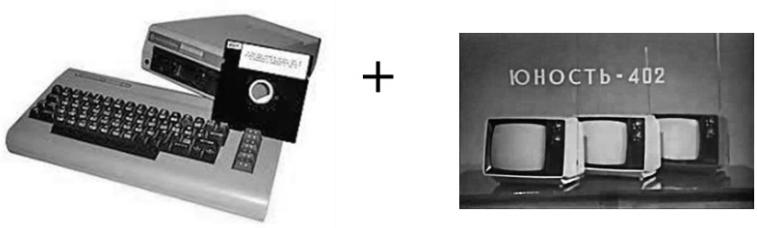
like playing chess. Werner loved writing his algorithms himself and supported his statements with figures till the end of his life.

> *The IMF delivered a course in Budapest in 1985 (it may have been the first and only one of its kind in this wider region). Commissioned by the National Bank of Hungary (MNB), we together with Werner and László Nadrai (MNB) had been writing a software for Commodore 64 (which was, in fact, not 64 but only 38 Kbyte) for the course for several months. It was partly a database manager and partly a statistical programme, which processed the figures of any given country to run calculations needed to prepare a financial programme focusing mainly on the items of the balance of payments. The US speakers arrived to the course carrying Apple laptops and were faintly amused to watch as we were trying to connect C-64 machines with a Soviet made Yunost TV used for a screen. Because of the plastic carpets of Hotel Intercontinental on the bank of the river Danube, the operation was pretty "shocking" in the original sense of the word. But the three speakers from the US were all the more astonished to watch how our programme on the Commodore could prepare the financial programmes of each team.*



I must mention at this point that although Werner was most intrigued by the practical and academic issues of economic policy, and that is how his person is remembered by the public, he had also learnt several versions of many ***programming languages*** during his life. To read and digest the mathematical background of economic models is time consuming, but they are fine once you had understood them. But if you want to dive into the depth of IT, you must get to know many *new and even newer versions.*

> *Werner belonged to the generation that started programming at the University of Economics in the mid-70s using machine code on a 4-kbyte (!) Cellatron machine imported from the German Democratic Republic (GDR). The solution formula for a quadratic equation was a 129-line programme. Later, the privileged had a chance to program on code pages in FORTRAN, which was then punched on punch cards, and the programme was run uphill in the Castle District on a CDC 3300 machine owned by the Academy of Sciences. Correcting a single error took 2-3 says. You had to find the error on a continu-*

ous fold-out, punch a new card, send it up to the Castle, then the continuous fold-out came back, etc.

Next, we could use a four-story building in Szugló Street Budapest, which was the information technology centre of the National Planning Office (OT). The bulky machine there could perform just a fraction of what a modern laptop can. The machine-time required for the calculations of a thesis could cost as much as two Russian-made cars. It was at that time that pocket calculators appeared at a few filling stations. You would spend half of your monthly salary if you wanted one that could raise a number to a power and could also store the result for further calculations.

When we were writing a programme together with Werner for the IMF course in the mid-80s, the C64 machine was connected to a cassette reader. Our book 'Kötvény' [bonds] written in tandem with Tamás Bánfi and Márta Sulyok was on a cassette like that, which was then transferred to paper with the help of a ball-head Robotron typewriter from the GDR connected to the C64.

Next, there came a building of the OT on the Pest side of Chain Bridge nicknamed "the Spinach" for its colour, where we ran into Werner from time to time as we were running the statistical programme package TSP (Time Series Processor) and had memorable lunches at the excellent canteen located on the top floor. At that time, TSP included potential explanatory variables in regression equations, and we could scour thick continuous foldouts to find the statistics of R^2s and the variables in the 1,000-1,200 equations returned. That was how we were trying to find what the evolution in the stock of fixed assets of the economy depended most on. Today, it is all done by machines, thank God.

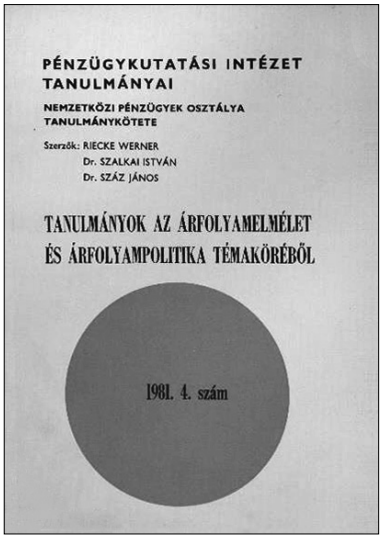
How many thousands of hours Werner devoted to programming and learning new programme versions, I wonder? So, his comments made at the meetings of the Banking Board had been built on a gold foundation.

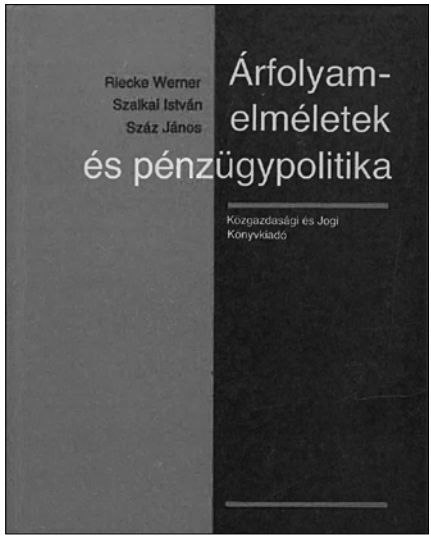
THE MARSHALL–LERNER CONDITION, ROBINSON CONDITION

Werner, while he had the true personality of a westerner, slowly and instinctively opened towards the East. His first act of opening was when he came to study to Hungary from the GDR. He read economic theory here. He first tried to use his knowledge to improve the operation of the Hungarian economy and later, in another opening to the East, following his period as the Deputy Governor of the MNB, he was a permanent representative of the IMF in three Central Asian countries (Azerbaijan, Kirgizstan and Tajikistan) aiding the set-up of their government securities markets. Then, he went on to Bangladesh.

At the beginning of the '80s, *the convertible current account balance* was the most volatile point of the Hungarian economy. Werner published his study on current account balance theories in 1981 as one of the series by the Financial Research Institute headed by *István Hagelmayer (Studies of the Financial Research Institute)* jointly with two other papers. At the time of the **1982** international financial crisis, Hungary was closest to going bankrupt. It was such a threat that Hungary was the first of the COMECON countries to join the International Monetary Fund (IMF). National bankruptcy was avoided using some bravura of financial engineering, which earned State Awards for five people.

One of them was *István Szalkai,* who was the best expert of the technical details of disclosure obligations linked to IMF membership and the logic of monetary policy centred on the current account balance. He was one of the initiators and an expert in preparing. I was our entry to the IMF. He soon became a Deputy Governor of NBH responsible for monetary policy. He was the author of the second paper in the series edited by Mr Hagelmayer.





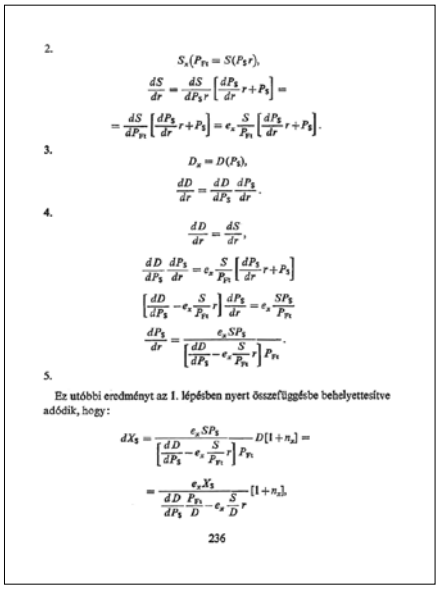
My paper was the third. I was writing about the classification and description of floating exchange rates generated at the time. In the first half of the '70s, the post-WW II Bretton Woods system, in which national banks held exchange rates fixed, broke down. Mathematical models appeared for floating exchange rates, but the roots of certain problems ran deep, going back several hundred years. For instance, the debate of the *Caps and Hats* party in the Swedish Parliament in the 1700s on whether inflation was the cause or the effect of the deterioration of exchange rates, and what connection the latter had to current account balance.

Werner's **1981** paper provided a summary on the conditions to be met to ensure *devaluation* improves the balance of trade. The traditional theory explained the problem through exchange rate flexibility *(Marshall–Lerner condition, Robinson condition).* The new feature in literature was *the monetary theory of the balance of payments.* My paper discussed what makes a floating rate appreciate or depreciate, while István (Pista) Szalkai explained how all that is transformed into financial policy. It was Werner's idea that the three papers written separately should be edited into one single book. It did happen and the book was published in 1985 earning an award for quality.

> *One should not forget there was no internet or smart phones at the time. You had to use a study tour to visit a special library abroad to find the answer to one or another specific problem. The part played by a collection of specific studies such as the one on the photo filled several gaps. Partly because the sense of the gap or deficiency had often not been there in terms of the novelties of our profession. But problems there were many, and it was useful to learn what modern, more advanced countries of the world used to remedy them.*

An extract from the Contents of the book clearly demonstrates the structure of Werner's paper.

To describe his style as verbose would be an overstatement. For illustration, here are a few pages, and



2.

$$S_s(P_{Fs} = S(P_S r),$$

$$\frac{dS}{dr} = \frac{dS}{dP_S r}\left[\frac{dP_S}{dr} r + P_S\right] =$$

$$= \frac{dS}{dP_{Fs}}\left[\frac{dP_S}{dr} r + P_S\right] = e_s \frac{S}{P_{Fs}}\left[\frac{dP_S}{dr} r + P_S\right].$$

3.

$$D_s = D(P_S),$$

$$\frac{dD}{dr} = \frac{dD}{dP_S}\frac{dP_S}{dr}.$$

4.

$$\frac{dD}{dr} = \frac{dS}{dr},$$

$$\frac{dD}{dP_S}\frac{dP_S}{dr} = e_s \frac{S}{P_{Fs}}\left[\frac{dP_S}{dr} r + P_S\right]$$

$$\left[\frac{dD}{dP_S} - e_s \frac{S}{P_{Fs}} r\right]\frac{dP_S}{dr} = e_s \frac{SP_S}{P_{Fs}}$$

$$\frac{dP_S}{dr} = \frac{e_s SP_S}{\left[\frac{dD}{dP_S} - e_s \frac{S}{P_{Fs}} r\right] P_{Fs}}.$$

5.

Ez utóbbi eredményt az I. lépésben nyert összefüggésbe behelyettesítve adódik, hogy:

$$dX_S = \frac{e_s SP_S}{\left[\frac{dD}{dP_S} - e_s \frac{S}{P_{Fs}} r\right] P_{Fs}} D[1 + n_s] =$$

$$= \frac{e_s X_S}{\frac{dD}{dP_S}\frac{P_{Fs}}{D} - e_s \frac{S}{D} r}[1 + n_s],$$

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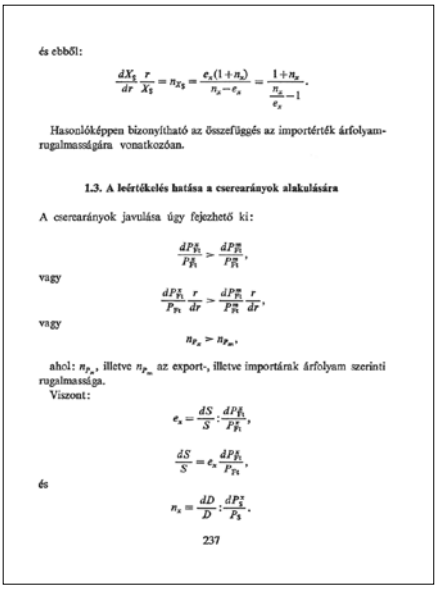

és ebből:

$$\frac{dX_S}{dr}\frac{r}{X_S} = n_{Xs} = \frac{e_s(1 + n_s)}{n_s - e_s} = \frac{1 + n_s}{\frac{n_s}{e_s} - 1}.$$

Hasonlóképpen bizonyítható az összefüggés az importérték árfolyam-rugalmasságára vonatkozóan.

1.3. A leértékelés hatása a cserearányok alakulására

A cserearányok javulása úgy fejezhető ki:

$$\frac{dP_{Fs}}{P_{Fs}} > \frac{dP_{Fs}^m}{P_{Fs}^m},$$

vagy

$$\frac{dP_{Fs}}{P_{Fs}}\frac{r}{dr} > \frac{dP_{Fs}^m}{P_{Fs}^m}\frac{r}{dr},$$

vagy

$$n_{E_s} > n_{E_m}.$$

ahol: n_{E_s}, illetve n_{E_m} az export-, illetve importárak árfolyam szerinti rugalmassága.

Viszont:

$$e_s = \frac{dS}{S} : \frac{dP_{Fs}}{P_{Fs}},$$

$$\frac{dS}{S} = e_s \frac{dP_{Fs}}{P_{Fs}},$$

és

$$n_s = \frac{dD}{D} : \frac{dP_S}{P_S},$$

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I will highlight some major text components hidden among the formulas:

- *it follows from this,*
- *furthermore,*
- *however,*
- *for this reason, ...*

Hemingway could have been envious of this lean style.

Werner was a slight man. Neither his body nor his mind were shapeless. His main characteristic features were cohesion and detailed consideration.

Our apprentice exercise at the 1985 IMF programming session was followed over two decades later by three Central Asian courses on government securities markets (Azerbaijan, Kirgizstan, and Tajikistan). Werner was the chief organiser of them and invited me too to deliver lectures at those exciting places.

Werner won his Popovich Award in 2005. It is a rare occasion that two winners of the award, who had won them in different times (1994 and 2018), would ponder the same problem in a common exchange of e-mails shared with fifteen others. We received a letter from Werner at 13.30 hrs on 6 February 2019, in which he said he agreed with *Attila Chikán* and *"Attila's wisdom overwrites everything. From here to eternity. Werner*".

I did not know, did not even suspect that that would be the last message I received from Werner, who had been my friend for four decades.
We were many who commenced their careers from the Rajk College in the '70s and '80s. And it was the beginning and the end of my friendship and relations with Werner.

From here to eternity, Werner.