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A NEW LEADING INDICATOR FOR THE PORTUGUESE ECONOMIC ACTIVITY

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Abstract

A new Leading Indicator for the Portuguese Economic Activity

In this paper we present a leading indicator for the Portuguese economic activity. It complements a previous study where we developed a coincident indicator for the state of the Portuguese economy. We followed the methodology proposed by Stock and Watson based on a VAR model for the coincident indicator and a set of other leading variables whose behaviour anticipate the fluctuations of the general state of the Portuguese economy. Besides series related to some sectors of the Portuguese economic activity, we also included a leading indicator for the European economic activity. The results are highly satisfactory: the new indicator is able to predict the behaviour of the coincident indicator, up to two periods ahead, with a relatively small margin of error.

Sumário

Novo Indicador Avançado para a Actividade Económica Portuguesa

Neste trabalho é proposto um indicador avançado para a actividade económica portuguesa. Este indicador avançado surge como um complemento de um estudo anterior em que se desenvolveu um indicador coincidente para o estado da economia portuguesa. Seguiu-se a metodologia proposta por Stock e Watson, que se baseia num modelo VAR para o indicador coincidente e um conjunto de outras variáveis avançadas cujos comportamentos antecipem o do estado geral da economia portuguesa. Para além de séries referentes a alguns sectores da actividade económica portuguesa, foi também incluída como variável avançada um indicador da actividade económica europeia. Os resultados obtidos são bastante satisfatórios: o novo indicador consegue prever a evolução do indicador coincidente, até dois períodos, com uma margem de erro reduzida.

Índice

1. INTRODUCTION

This paper is the prolongation of a previous study aimed at developing a coincident indicator for the Portuguese economic activity[1]. In fact, having obtained a synthetic measure whose behaviour contemporaneously described the fluctuations of the state of the economy, providing an instrument able to anticipate those fluctuations naturally followed as the next step.

The Stock and Watson approach followed in the formulation of the coincident indicator, also contemplates estimating a leading indicator through a VAR (Vector Autoregressive) model that includes the coincident indicator as one of the explanatory variables. The objective is to produce an indicator that is able to predict the sign and the amplitude of the variation of the Coincident Indicator (as the proxy of the current state of the economy).

In section 2 we give an overview of the Stock and Watson methodology followed in this paper. The compilation, analysis and selection of the data series is described in section 3. Estimation of the VAR model is presented in section 4, and a comparison of the results obtained with alternative methodologies is discussed in section 5. Section 6 concludes.

2. METHODOLOGY

The construction of the leading indicator follows the methodology proposed by Stock and Watson (1989). Estimation is based on a VAR model that incorporates the coincident indicator as well as other variables whose behaviour anticipate the evolution of the economic activity. In fact, the VAR approach allows modelling every endogenous variable as a function of the lagged values of all the endogenous variables in the system and, therefore, is used to forecast systems of interrelated time series. The model takes the following form:

$$C_t = \mu_c + (\alpha_{11}L + ... + \alpha_{1k}L^k)C_t + (\beta_{11}L + ... + \beta_{1k}L^k)Y_t + \eta_{ct}$$

$$Y_t = \mu_y + (\alpha_{21}L + ... + \alpha_{2k}L^k)C_t + (\beta_{21}L + ... + \beta_{2k}L^k)Y_t + \eta_{yt}$$

Where C_t is the coincident indicator, Y_t is the vector of the leading variables and L is the lag operator.

Once the model is estimated, the leading indicator can be computed as forecasts of the coincident indicator. Although it is possible to use VAR models to forecast any chosen periods ahead in time, quality tends to decline as the forecast horizon increases. A reasonable forecasting horizon will be determined by looking at the forecasting performance of the model over a number of periods as explained below.

[1] **Nunes and Rito (2000).**

3. SELECTION OF LEADING VARIABLES

3.1. Selection Criteria

The quality of the leading indicator, that is, its forecasting ability, will depend on the quality of the series that incorporate the model. Therefore, the variable selection stage is very important and should take into account certain criteria:

- *Economic significance*: a relation of causality with the reference series should exist. For example, there are indicators that cause fluctuations in the economic activity (instruments of economic policies); indicators that reflect expectations; indicators that measure the activity at the beginning of the production process and indicators that respond promptly to the fluctuations of the activity (extraordinary working hours).

- *Cyclical behaviour*: the cycles of the chosen variables should anticipate those of the reference series and the lead-time should be stable

- *Data quality*: statistics should be easily and promptly available and should not be subjected to frequent data revisions.

- *Breadth of coverage*: the series must cover, as much as possible, the different sectors of the economy.

3.2. Compilation of Data Series

The lack of long data series mainly in the service sector and, particularly, in the financial sector, created some difficulties in the process of data compilation. In order to reduce this weakness and since Portugal is a small open economy strongly influenced by the fluctuations of the European economy, we also analysed some variables that reflect the economic activity of the European Union (EU).

For the sectors of manufacturing and trade, we used, as main data source, the surveys from the National Institute of Statistics (INE). Since we intended to collect series that anticipate the behaviour of the economic activity, we focused on series related to expectations about production, activity and employment, stocks and the intermediate goods industry.

For the construction sector, we analysed the series of permits issued, provided by INE.

Concerning the monetary and financial sector, we analysed end-of-period figures of loans of monetary financial institutions to private individuals, by purpose and maturity (data provided by the Banco de Portugal). Given the inexistence of reliable long data series for Portuguese interest rates and the fact that the Portuguese economy is highly correlated with the European economy, we also considered the series of key interest rates and short-term interest rates for Germany until 1999, and for the Euro Area since then.

As it was previously mentioned, international economic developments, especially from the European union, have an effective influence on the performance of the Portuguese economic activity. Furthermore, empirical studies point out that the economic business cycles of the European Union anticipate those of Portugal. Therefore, we analysed some variables related to the European economy (we used the OECD data base).

Since our coincident indicator has a quarterly periodicity, the series were used in a quarterly basis. It was possible to get, for most of the series, available data starting at

the first quarter of 1977. The series about loans to private individuals presented the shorter period of time, starting only at the fourth quarter of 1979.

Appendix 1 displays the extensive list of the analysed series.

3.3. Analysis and selection of leading variables

Selection of leading variables was based on the following criterions:

- Lead-time that maximizes the correlation degree between the series and the coincident indicator,
- Tests for the existence of Granger causality between the series and the coincident indicator.

In order to obtain stationary series, most of the variables were analysed under the form of year-on-year rate of growth of its cyclical components. For this purpose, the figures from surveys were changed into index numbers, according to Santos' methodology[2]. Concerning the OECD composite leading indicator for the EU, we used the first difference of the series.

To verify the stability of the results, this exercise was repeated for a shorter period of time (from 1988 to 2001).

The results of this analysis, excluding those regarding the financial series, which were particularly weak, are presented in Appendix 2.

The variables that better satisfied the two criterions mentioned above were (all variables correspond to survey responses, except the interest rates):

- Production – intermediate goods industry (PBI);
- Expected Production – manufacturing industry (Prodprv);
- Raw Material Stocks - manufacturing industry (STOMP);
- Expected Sales Volume – wholesale trade (VCGprv);
- Expected Employment – retail trade (Emprv);
- New Orders to Suppliers: wholesale trade (ENFCG);
- Key interest rates of Germany until 1999, and of the Euro Area since then (KEY).

Given that the set of selected variables reached only a slight coverage in terms of representation of the economic activity, we also decided to include the OECD leading indicator for the EU (AVUE) and the construction permits issued (LIC), even though the results obtained with those series were less satisfactory.

4. MODEL ESTIMATION

We estimated a range of VAR models, matching different variables and different lag orders. The selection of the most appropriate model was realized in two phases:

- First, we selected a few models based on model selection criterions (Akaike and Schwarz criterions) and on the significance of each variable used in the models (using F- tests).
- Then, in order to evaluate the forecasting ability of each of the selected models in the first stage, we analysed in-sample and out-of-sample forecasting errors.

[2] **Santos (1986).**

The best performance was obtained with a VAR model with 6 lags that includes the following variables: the coincident economic indicator (CI), the stock of raw materials (manufacturing industry), new orders to suppliers (wholesale trade) and the OECD composite leading indicator for the EU. The corresponding results are summarised in Table 1.

Table 1. VAR's Forecasting errors (absolute values) summary statistics

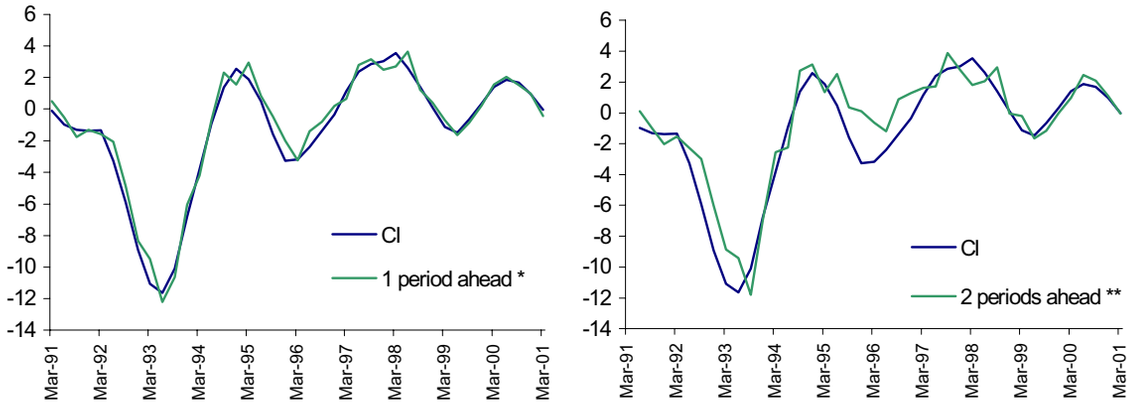
	In-Sample[1]				Out-of-Sample[2]			
	1 period ahead	2 periods ahead	3 periods ahead	4 periods ahead	1 period ahead	2 periods ahead	3 periods ahead	4 periods ahead
Mean	0.317	0.643	0.987	1.329	0.543	1.134	1.900	2.551
St. Deviation	0.228	0.431	0.739	0.968	0.388	0.897	1.569	2.212
Max.	1.043	1.091	3.472	4.499	1.570	3.372	5.319	7.524
Correlation (CI, forecast)	0.996	0.983	0.955	0.919	0.986	0.943	0.832	0.685
Same Var. (%)[3]	89.0	94.0	91.6	95.1	88.0	87.5	87.2	84.2

Notes: 1: from 1980:01 to 2001:1; 2: VAR estimated until 1990:4 and forecasted from that period until 2001:1; 3: percentage of times that the sign of the change in CI is successfuly forecasted.

The results are quite satisfactory, especially for a forecasting horizon up to two quarters; afterwards forecasting quality declines considerably. In fact, the leading economic indicator resulting from the VAR model tracks reasonably well the main fluctuations of the state of the economy, as can be seen in figure 1.

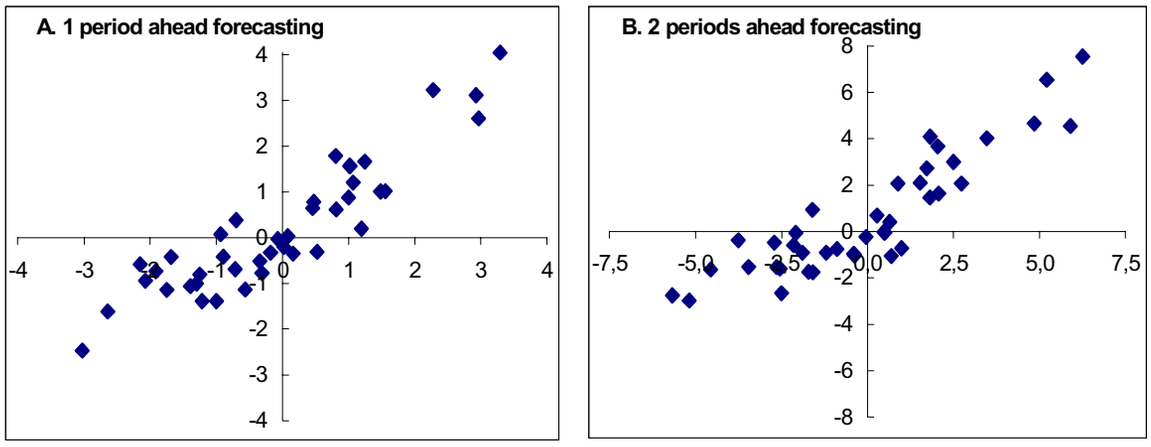
Furthermore, the sign of the fluctuations of the leading indicator is accurate around 88% of the times, which means that there's a probability of approximately 88% that the signal of the variation of the coincident will be successfully forecasted. Figure 2 shows that there's a clear positive relationship between the fluctuations of the forecasts and those of the coincident indicator.

Figure 1. Leading Indicator (out-of-sample VAR's forecasting) *versus* the Coincident Indicator



* CI estimated at t-1; ** CI estimated at t-2.

Figure 2. Comparison between the variations of the Coincident Indicator and VAR's forecasting (out of sample)



XX axis: Coincident Indicator variations; YY axis: Forecast variations

5. COMPARISON WITH ALTERNATIVE METHODOLOGIES

In the last stage of this study, we compared the VAR model estimated above with alternative methodologies to produce forecasts of the coincident indicator. In particular, we considered:

- MA models: indices of leading indicators were constructed using moving averages (unweighted) of the selected leading variables (standardized and lagged according to the lead-time that maximizes the correlation coefficient between the series and the coincident economic indicator).
- AR models: univariate AR models were estimated for the coincident indicator.

Summary statistics for the models that produced the best results are presented in Table 2.

Table 2. Alternative Models

MODELS					forecasting horizon (in quarters)	Absolute forecasting error			Correl. with CI	Same Var. (%)[2]
	CI	STOMP	ENFCG	AVUE		Average	Standard deviation	Max.		
MAI		X	X		2	2.430	1.870	7.862	0.689	76
MAII		X	X	X	2	2.391	1.985	7.930	0.673	76
AR4[1]	X				1	0.545	0.544	2.462	0.982	80
AR4[1]	X				2	1.279	1.120	4.823	0.915	78

1 out-of-sample forecast, VAR estimated until 1990:4 and forecasted from that period until 2001:1; 2 percentage of times that the sign of the change in CI is successfuly forecasted.

The comparison between table 1 and table 2 confirms the superiority of the forecasting capacity of the VAR model.

6. CONCLUSION

One of the main challenges of this study was to obtain long data series that fulfilled the characteristics of leading variables, especially relative to monetary conditions, the financial sector and the service sector in general. In order to offset this limitation, we considered the possibility to include in the model variables that reflect the fluctuations of the European economy.

We selected a VAR model that includes the OECD leading indicator for the EU, besides the coincident economic indicator and two variables concerning the Portuguese industry and trade sector.

The leading economic indicator produced in this paper derives from the VAR's forecasts of the coincident economic indicator (used as a proxy to the state of the economy). The results show that the leading indicator is quite capable of moving in advance to the coincident index, particularly up to one and two quarters-ahead.

The comparison with alternative models show the superiority of the Stock and Watson methodology used in this paper.

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Appendix I – Series analysed

A. Manufacturing Industry Survey from INE

- Production – intermediate goods (PBI)
- Expected production - intermediate goods (PBIprv)
- Stocks of finished goods - intermediate goods (BIStoac)
- Total demand - intermediate goods (PBIprgl)
- Expected production – Manufacturing Industry (Prodprv)
- Stocks of finished goods - Manufacturing Industry (Stoac)
- Stocks de raw materials - Manufacturing Industry (Stomp)
- Capacity utilization rate - Manufacturing Industry (CAPIT)
- Expected employment - Manufacturing Industry (Emprv)
- External demand - Manufacturing Industry (Procext)

B. Trade Survey from INE

- Expected trade volume – wholesale trade (VCGprv)
- Expected trade volume – retail trade (VCRprv)
- Expected activity – wholesale trade (ACGprv)
- Expected activity – retail trade (ACRprv)
- Orders received – wholesale trade (ENRCG)
- Orders to suppliers – wholesale trade (ENFCG)
- Orders to suppliers – retail trade (ENFCR)
- Expected orders to suppliers – wholesale trade (ENFCGprv)
- Expected orders to suppliers – retail trade (ENFCRprv)
- Expected employment – wholesale trade (EMprvCG)
- Expected employment – retail trade (EMprvCR)

C. Construction Sector *(source: INE)*

- Permits issued (LIC)

D. Labour Market (source: Banco de Portugal)

- Vacancies along the period (OFLP)
- Stock of vacancies at the end of the period (OFFP)

E. Monetary and Financial Sector *(source: Banco de Portugal)*

- Loans of monetary financial institutions to (end-of-period data):
  - *i)* Non-financial corporations (TVHtotal)
  - *ii)* individuals (TVHPART)
  - *iii)* individuals for residential purposes (TVHAB)
  - *iv)* the manufacturing branch of activity (TVHIND)
  - *v)* the trade branch of activity (TVHCOMER)
  - *vi)* the construction branch of activity (TVHCONST)

- Exchange rate US dollar / PTE (US)
- Exchange rate Pound sterling / PTE (GBP)

E. European Economy *(source: OCDE)*

- GDP of the European Union (EU), constant prices (UEPIB)
- Industrial production index of the EU (UEIPI)
- Imports volume trade of the EU (UEIMP)
- OECD leading economic indicator (AVUE)
- Key interest rate of Germany until 1999 and key interest rate of the Euro Area since then (KEY).

F. Others

Sales of commercial vehicles (VVC)

Appendix 2 – Data Analysis

Table 2A. Correlation *vs*. CI

		LEAD																				
		-10	**-9**	**-8**	**-7**	**-6**	**-5**	**-4**	**-3**	**-2**	**-1**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
LIC	*	-5,65	-6,97	-7,65	-6,23	-4,90	-3,72	-3,06	-3,20	-0,44	4,61	11,24	16,33	**16,44**	12,30	4,54	-2,29	-6,90	-8,67	-7,79	-5,50	-1,65
PRODprv	*	-16,03	-20,40	-28,36	-35,13	-38,40	-36,18	-26,57	-12,40	5,51	22,74	35,82	**42,18**	40,32	32,93	23,87	13,79	7,19	3,64	4,17	8,34	13,23
PBI	*	-13,69	-18,61	-26,22	-35,37	-41,53	-42,24	-36,06	-19,80	1,08	22,10	38,15	**44,77**	43,41	33,39	21,61	10,66	2,75	1,18	2,78	6,39	10,39
PBIprv		-2,63	-2,29	-2,13	-1,63	0,64	6,55	15,93	28,54	43,06	53,76	**58,64**	57,86	49,96	37,90	25,93	15,83	9,05	3,49	-0,11	-3,09	-5,56
BIprgl		-0,22	-8,53	-20,44	-35,30	-49,26	**-58,57**	-58,46	-46,00	-26,04	-2,56	18,13	29,08	**30,96**	25,20	14,94	3,84	-4,78	-9,34	-9,56	-5,23	2,31
BIstoac		19,63	22,93	26,87	28,58	25,97	16,71	0,36	-19,73	-40,13	-56,62	**-63,96**	-62,13	-53,28	-40,69	-29,22	-21,61	-18,15	-18,64	-23,52	-30,51	-36,24
STOAC		27,47	23,71	19,48	13,95	5,93	-5,85	-22,21	-41,21	-59,85	-74,42	**-80,55**	-77,94	-68,98	-56,93	-45,07	-35,21	-28,61	-25,66	-25,07	-25,40	-24,76
STOMP	*	-31,93	-32,11	-29,55	-21,97	-9,86	6,77	22,56	32,64	34,39	31,33	25,58	21,26	21,50	24,87	31,51	39,40	45,73	**47,14**	43,44	34,79	22,19
CAPIT	*	-29,70	-31,29	-34,78	-37,39	-36,19	-29,34	-14,19	7,38	29,09	47,53	58,01	**59,49**	55,46	47,89	40,08	32,81	27,81	25,33	24,76	25,31	25,32
EMPRV	*	-18,84	-22,37	-28,87	-37,94	-44,70	-45,00	-36,28	-19,16	2,61	25,08	42,86	53,28	**55,74**	51,97	42,37	31,18	21,13	13,87	11,71	13,19	16,60
PROCEXT		-31,58	-32,75	-34,24	-35,04	-32,92	-24,92	-10,46	9,32	30,83	49,10	60,81	**64,36**	60,93	53,11	44,26	37,08	32,98	32,18	34,17	37,54	40,41
ACGprv	*	-39,45	-43,90	-48,31	-50,17	-47,29	-38,67	-24,86	-7,71	11,19	28,25	39,67	**43,20**	38,84	29,71	20,55	13,82	10,86	11,18	13,88	17,82	21,05
VCGprv	*	-21,95	-21,37	-21,85	-24,67	-26,21	-22,99	-15,22	-4,66	10,86	26,90	40,50	49,78	**51,69**	46,60	36,86	28,63	21,06	16,90	16,55	14,81	12,35
ACRprv	*	-32,38	-31,92	-30,49	-28,03	-24,23	-19,02	-12,54	-2,95	10,15	25,90	40,96	50,75	**53,62**	50,44	42,95	34,65	27,51	21,54	17,33	13,97	10,25
VCRprv	*	-34,03	-33,40	-32,84	-31,20	-30,40	-26,16	-19,64	-10,61	1,08	13,65	25,57	34,35	38,64	**39,35**	37,03	33,10	29,49	24,60	21,02	16,65	12,60
VVC	*	-11,27	-0,69	6,58	11,23	15,58	21,70	30,64	42,50	53,45	61,63	**64,85**	60,91	52,69	42,27	32,96	25,72	19,91	14,80	9,39	3,21	-3,08
EMPRVCG	*	-8,39	-5,13	-3,56	-5,14	-4,68	-2,04	1,45	7,71	12,34	15,43	17,98	21,26	24,83	**28,60**	28,49	23,18	15,16	8,48	5,91	5,40	6,55
EMPRVCR	*	-12,66	-11,78	-11,45	-13,84	-16,87	-14,81	-9,10	1,20	14,08	27,33	37,26	42,50	**42,77**	37,93	31,98	26,89	23,43	18,98	13,89	9,69	6,57
ENFCG	*	-32,71	-37,74	-42,96	-47,69	-48,91	-46,65	-38,35	-22,72	-3,47	19,47	38,36	51,71	**57,58**	54,04	47,62	38,60	29,48	22,84	18,07	16,08	16,58
ENFCR	*	-24,71	-23,84	-22,00	-21,46	-19,60	-15,40	-9,32	2,96	18,18	31,09	41,26	**45,38**	41,88	34,61	27,53	21,65	17,44	15,07	10,93	4,49	0,75
ENFCGprv	*	-21,85	-24,76	-29,26	-32,33	-33,01	-27,45	-15,73	-3,38	13,08	27,88	38,54	**45,40**	45,21	40,24	33,04	26,90	22,28	19,70	18,91	17,41	14,96
ENFCRprv	*	-31,22	-27,92	-24,94	-24,11	-24,89	-23,48	-19,71	-12,61	-0,38	13,15	25,67	35,02	**37,66**	34,32	30,17	27,15	25,39	24,30	22,54	18,86	13,79
ENRCG	*	-27,97	-31,13	-35,03	-38,94	-40,32	-37,78	-30,95	-16,30	0,96	19,30	35,28	43,19	**44,83**	40,02	33,42	25,42	17,80	12,67	8,64	8,93	11,27
OFFP	*	-31,08	-23,14	-13,26	-0,92	13,97	31,07	48,55	63,25	72,93	**76,29**	73,23	64,54	53,97	44,00	35,58	28,77	23,56	18,80	13,91	8,57	2,18
OFLP	*	-25,79	-19,13	-12,90	-3,23	7,06	16,16	26,43	38,19	49,39	57,11	**59,65**	55,13	47,71	38,96	29,89	22,04	15,22	11,02	7,63	4,44	0,79
AVUE	**	-5,83	-3,81	-4,41	-8,43	-16,53	-27,24	-37	**-42,78**	-41,23	-30,56	-12,89	5,8	21,5	**30,25**	30,62	25,55	19,24	14,39	12,13	13,38	17,65
TVHUEPIB	*	-5,33	-5,72	-7,31	-8,05	-6,49	-1,50	7,94	21,85	37,11	50,46	59,89	**62,89**	60,27	53,89	46,09	39,24	34,71	32,33	30,80	29,33	26,70
TVHUEIPI	*	-13,81	-17,00	-22,23	-26,32	-26,94	-21,76	-9,72	7,32	25,84	42,04	53,02	**56,77**	54,38	47,76	39,73	32,82	28,61	26,78	26,98	28,63	29,56
TVHUEIMP	*	-7,64	-8,99	-12,17	-14,95	-14,16	-8,45	3,33	19,64	36,18	49,54	**56,66**	55,71	48,64	38,41	28,31	21,24	18,56	19,84	23,17	26,98	28,48
KEY		47,57	42,00	35,00	27,52	20,00	13,08	5,96	-2,00	-10,99	-20,71	-30,50	-39,96	-48,17	-54,66	-58,92	**-60,75**	-60,03	-57,79	-54,58	-51,15	-48,06
FIBOR		48,13	46,05	42,57	37,60	31,56	25,13	18,09	10,21	1,71	-7,70	-18,04	-28,84	-39,18	-48,06	-54,54	-58,11	**-59,11**	-58,93	-58,06	-56,46	-54,19

* series used in y-o-y rate of growth; ** series used in first differences

Table 2B. Granger Causality Tests vs. CI (p-values)

Null Hypothesis: variable X doesn't cause CI

		Lags									
		1	2	3	4	5	6	7	8	9	10
LIC	*	0,08	0,20	0,32	0,22	0,11	0,17	0,16	0,23	0,37	0,36
PRODprv	*	**0,01**	**0,04**	0,52	0,67	0,64	0,60	0,53	0,37	0,34	0,43
PBI	*	**0,00**	**0,01**	**0,04**	0,06	0,21	0,17	**0,01**	**0,04**	0,09	0,27
PBIprv		0,44	0,28	0,34	0,43	0,53	0,70	0,69	0,77	0,84	0,90
Biprgl		**0,05**	**0,05**	**0,05**	0,11	0,08	0,08	0,08	0,08	**0,01**	**0,01**
BIstoac		0,62	0,13	0,94	0,26	0,38	0,45	0,50	**0,00**	**0,01**	**0,03**
STOAC		0,52	0,49	0,69	0,49	0,56	0,40	0,32	0,41	0,43	0,40
STOMP	*	0,33	**0,00**	**0,01**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,01**	**0,02**
CAPIT	*	0,10	0,11	0,45	0,33	0,67	0,51	0,53	0,64	0,53	0,76
EMPRV		1,00	0,40	0,22	0,37	0,53	0,45	0,38	**0,05**	0,11	0,31
PROCEXT		**0,01**	0,67	0,87	0,46	0,37	0,42	0,50	0,20	0,16	0,34
ACGprv	*	0,07	0,07	0,35	0,13	0,24	0,14	0,25	0,36	0,11	0,29
VCGprv	*	**0,00**	0,31	0,23	0,34	**0,00**	**0,01**	**0,04**	**0,05**	0,07	0,28
ACRprv	*	**0,00**	0,61	0,77	0,85	0,27	0,54	0,72	0,44	0,67	0,81
VCRprv	*	**0,00**	0,83	0,68	0,68	0,50	0,62	0,62	0,38	0,43	0,53
VVC	*	0,73	0,63	0,66	0,55	0,88	0,94	0,85	0,71	0,73	0,78
EMPRVCG	*	0,19	0,16	0,26	0,17	0,10	0,13	**0,05**	**0,04**	**0,04**	0,14
EMPRVCR	*	**0,02**	0,93	0,80	0,37	0,13	0,15	**0,03**	0,06	**0,01**	**0,02**
ENFCG	*	**0,00**	0,68	**0,00**	**0,00**	**0,00**	**0,00**	**0,03**	**0,05**	0,10	0,03
ENFCR	*	**0,04**	0,14	0,60	0,22	0,16	0,29	0,47	0,18	0,32	**0,01**
ENFCGprv	*	**0,00**	0,20	0,10	0,16	**0,05**	0,10	0,13	0,25	0,45	0,85
ENFCRprv	*	**0,00**	0,07	0,12	**0,00**	**0,01**	**0,01**	0,08	0,07	0,17	0,45
ENRCG	*	**0,00**	0,14	0,60	0,46	**0,04**	0,10	0,12	0,17	0,08	0,24
OFFP	*	**0,05**	0,06	0,26	0,04	0,60	0,50	0,60	0,06	0,60	0,90
OFLP	*	0,80	0,50	0,70	0,90	0,90	1,00	0,90	0,80	0,90	1,00
AVUE	**	**0,00**	0,87	0,25	0,39	0,25	0,37	0,57	0,77	0,76	0,68
UEPIB	*	**0,02**	1,00	0,80	0,90	0,70	0,70	0,80	0,90	0,90	0,90
UEIPI	*	**0,02**	0,70	0,90	0,80	0,70	0,65	0,90	0,80	0,60	0,80
UEIMP	*	0,45	0,34	0,85	0,86	0,70	0,60	0,70	0,70	0,70	0,80
KEY		**0,00**	**0,04**	0,06	0,14	0,20	0,30	0,18	0,19	**0,03**	0,12
FIBOR		**0,00**	0,06	0,13	0,23	0,34	0,37	0,24	0,38	0,34	0,58

* series used in y-o-y rate of growth; ** series used in first differences