European Business Fluctuations in the Austrian Framework

Miia Parnaudeau

Escem School of Business and Management

16. August 2008

EUROPEAN BUSINESS FLUCTUATIONS IN THE AUSTRIAN FRAMEWORK

Miia PARNAUDEAU[1]

ABSTRACT

The Austrian theory mainly deals with analyzing the effects of an increased credit offer on productive structures. In this respect, we propose to link long-term growth cycles to various short-term interest rate gaps. Are European Business Cycles affected when a fall in the money market rate disrupts agents' expectations of inflation?

Using the hypothesis that individual speculation is motivated by the difference between short-term real interest rates and their natural levels, we argue that Wicksellian interest rate gaps can account for a high proportion of long-term fluctuations in 4 European countries (Germany, France, Italy and Spain). We present specific dating methods and filters used in order to distinguish between short-term and long-term growth cycles. The Wicksellian incentives we constructed are then significantly linked to long-term business fluctuations. Under the hypothesis of adaptive expectations of inflation, our results are enhanced.

Key Words: European Growth Cycles, Inflation, Expectations.

JEL CLASSIFICATION: E32, E43, E31, E51.

[1]ESCEM School of Business and Management, 11 rue de l'Ancienne Comédie, B.P. 5 - 86001 Poitiers Cedex 3. E mail: mparnaudeau@escem.fr

INTRODUCTION

The Austrian Theory of Business Cycles analyzes credit circulation. According to Wicksell, markets can be strongly affected by a divergence between the short-term real interest rate and its natural level. And, under some conditions, this divergence can explain business cycle fluctuations. Within this framework, the natural interest rate is a cleared market real rate: it strikes a balance between investments and savings, leaving prices constant. In the sectors where they are settled, entrepreneurs measure this natural interest rate. A boom-bust cycle is then launched when the money market rate falls[2], and its magnitude directly depends on how economic agents perceive this fall. Hence an appropriate definition for expectations is needed.

However, no such credit boom is sustainable if it is not underpinned by real savings. During economic expansion, entrepreneurs develop new projects as they have easy access to credit. As lending expands, investment projects become riskier. This growing risk is followed by inflationary pressures, and commercial banks increase their lending rates. This credit restriction induces economic recession. Business cycles thus result from banks' decisions. Their lending activity destabilizes the economy because it leads to excessive credit distribution[3] and inflation.

Using the hypothesis that individual speculation is motivated by the difference between the short-term real interest rate and its natural level, we argue that Wicksellian interest rate gaps can play a major role in the long-term business cycles of four European countries (Germany, France, Italy and Spain). In the first part of this paper, we present the specific dating methods and filters used in order to distinguish between short-term and long-term growth cycles (section 1). In the second part, we propose various indicators (using different expectations of inflation) for the long-term growth cycles of these four European countries (sections 2 and 3).

[2] This fall is generally explained by a more flexible monetary policy. See Wicksell (1898).
[3] According to Wicksell, this credit distribution goes beyond what real economic resources would permit in the same situation.

1. Duality of European Business Cycles

In order to verify the presence of complete growth cycles on our samples, we used a Markov Chain initially proposed by Artis & Al. [2003]. Two types of growth cycles were then determined: a short-term growth cycle (3 years) and a long-term growth cycle (10 years).

The short-term growth cycle is measured as GDP's[4] deviation from its short trend (this short trend is a Hodrick-Prescott filtered GDP with a smoothing parameter of $\lambda = 100$). The relevance of this method lies in the value of the smoothing parameter: it depends on both economic and statistic criteria[5].

The long-term growth cycle is then measured as GDP's deviation from its long trend (this long trend is a Hodrick-Prescott filtered GDP with a smoothing parameter of $\lambda = 7000$). But it is also isolated from its short-term fluctuations (a Hodrick-Prescott filtered GDP with a smoothing parameter of $\lambda = 100$).

In the Euro zone (12), we were able to determine four short-term cycles (Figure 1). We then tested their correlation with changes in inventories. From 1991 to 1996, the correlation levels obtained are high (61% and 77%). This strong link between entrepreneurs' stocks and short-term business fluctuations could illustrate inventory movements during the Concertina effect. Unfortunately, from 1996 to 2004, the correlation levels are too low.

Using national data, we were able to determine short-term growth cycles in most European countries, but they are too specific to be aggregated (Table 1). Here again, the correlation levels between national short cycles and inventories are too weak.

[4] GDP at constant prices, quarterly data, Eurostat.
[5] See Bouthevillain (2002) for precisions. We tested Bouthevillain's propositions: $\lambda = 7000$ for the long-term growth cycle and $\lambda = 100$ for the short-term growth cycle.

Figure 1. European Short-term Growth Cycle

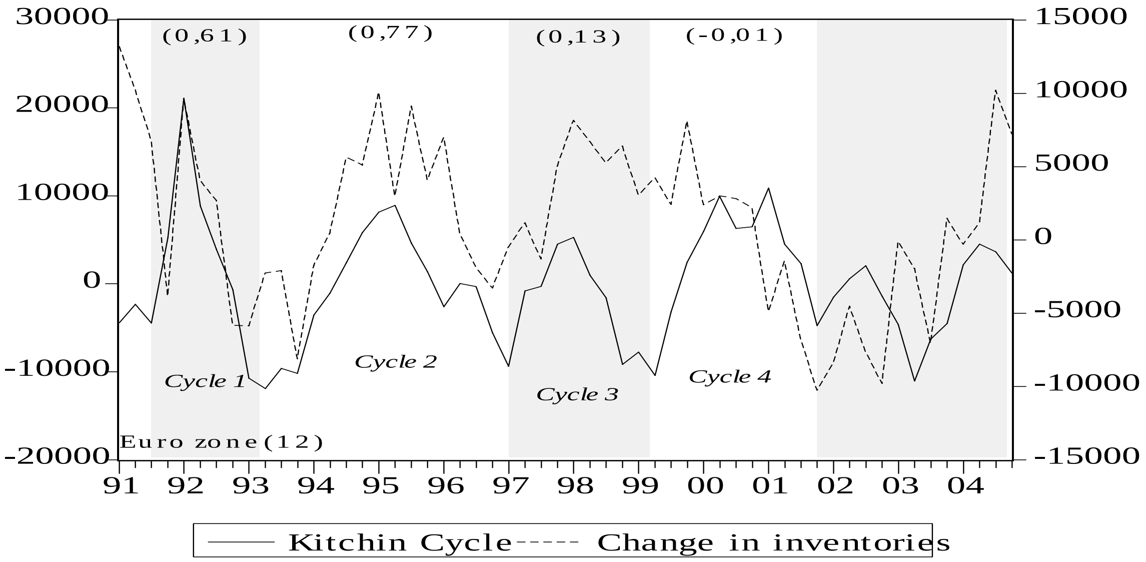


Table 1. European inventory cycles

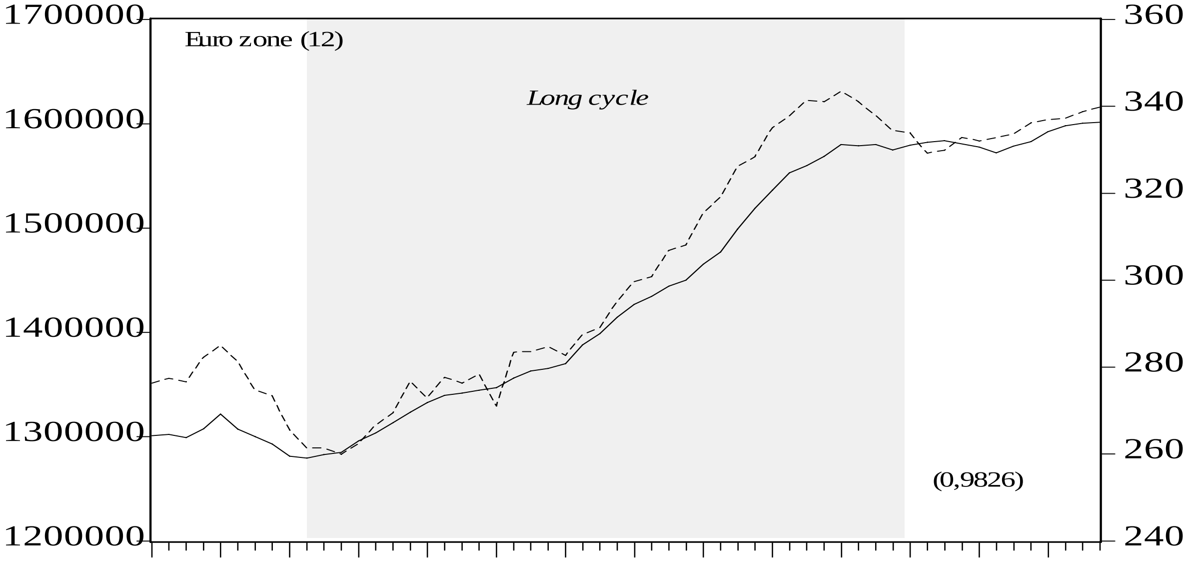
Short-term cycle correlation with Euro zone short-term cycle (1991-2004)			
Kitchin cycles	**Lagging (1)**	**Coinciding**	**Leading (1)**
Austria*	0.96	**0.99**[6]	0.95
Germany*	0.95	**0.99**	0.94
Belgium	0.78	**0.80**	0.43
Spain	*No short cycle*		
Finland	**0.45**	0.41	0.27
France	0.60	**0.86**	0.68
Italy	*No short cycle*		
Portugal	*No short cycle*		

Long-term growth cycles (aggregated and national cycles) are however easily determined. Their correlation levels with gross capital formation are high. National “Investment” cycles are also highly synchronized (over 95%). Consequently, working with an aggregated investment cycle (at the Euro-zone 12 level) could make sense (Figure 2).

These long-term Investment cycles seem better candidates to illustrate our proposition. In linking short-term interest rate gaps with long cycles, we attempt to measure the effects of increased credit offer on productive structures.

[6]Germany and Austria are two particular cases. In these countries, using a HP(100) is irrelevant. We extracted a [HP(160) – HP(100)] strip in order to get significant correlations. This means that short-term cycles are longer (about 4 years as against 3 in other countries). We then weighted correlations with a similar European short cycle (extracting the same strip). Correlations with the HP (100) extracted European cycle are null (Austria) and equal to 0.11 (Germany).

Figure 2. European Long-term Growth Cycle



2. Inflationary incentives for European long-term growth cycles

When the money market rate falls, economic agents are considered as reacting to this signal by adjusting their expectations. Here, agents are influenced by the difference between the real interest rate and the natural interest rate. Consequently, several authors[7] retained this difference for analysis purposes. The natural rate of interest is defined as an average of the real interest rates, taken over the business cycle's length. It can also be estimated. The natural rate of interest is defined as a real rate, which corresponds to a balanced inflation level. It is also considered to correspond to the GDP's potential growth rate. However, in Wicksell's terms, this rate corresponds rather to a null inflation level, and is therefore a "cleared market" rate.

These methods provide good tools for the European Central Bank, but here we are seeking to illustrate how fluctuations evolve when an interest rate fall disrupts agents' expectations of inflation, according to Wicksell (1907 – b):

> "Would it be at all possible for the banks to keep the rate of interest either higher or lower than its normal level, prescribed by the simultaneous state of the average profit on capital?"

[7] See Mesonnier (2005) for a review.

Accordingly, we retain the difference between the money market rate and the real interest rate as a leading signal for European long-term growth cycles. This gap illustrates the *inflationary* tensions developed during the cumulative process. As Wicksell notes (1907)-b:

> "There is no link between nominal rate and real rate, except precisely the effect on prices, which would be caused by their difference".

In our framework, a fall in the money market rate $(i_t^{'})$ induces a divergence between r_t and its natural level t_n^*. The economy's initial state is a market cleared situation, where:

$$i_t - \pi_{at} = r_t = t_n^* \text{ with } \pi_{at} = 0,\ i_t = r_t = t_n^* \quad (1)$$

Where i_t stands for nominal rate, π_{at} for expected inflation rate, r_t for short-term real rate, and t_n^* for its natural level.

When the money market rate falls, the real interest rate is drawn below its natural level. The increasing gap between the short-term real rate and the money market rate reveals all the *inflationary* tensions induced (and expected by economic agents):

$$i_t^{'} - \pi_{at}^{'} = r_t^{'} \prec t_n^* \text{ Since } i_t^{'} < i_t \text{ and } \pi_{at}^{'} > \pi_{at} \text{, with } \pi_{at} = 0 \quad (2)$$

Our attention is focused on the difference $(i_t^{'} - r_t^{'})$. We argue that the *expected inflationary* tensions induced by a fall in the money market rate can be directly connected to long-term growth cycles. Two types of short-term real rates are then proposed.

The first one is derived from a transformation of Taylor's rule, and is an ex ante measure defined as:

$$r_{tt}^{ea} = i_t - [\pi_t + 0.5(\pi_t - \overline{\pi}) + 0.5\left(\frac{y_t - \overline{y}_t}{\overline{y}_t}\right)] \quad (3)$$

Where r_{tt}^{ea} stands for short-term real interest rate, i_t for 3-month money market rate, π_t for the annual sliding inflation rate, $\overline{\pi}$ for the inflation target (1.8%), and $\left(\frac{y_t - \overline{y}_t}{\overline{y}_t}\right)$ for the relative output gap.

The Taylor[1993] rule[8] has been widely used in empirical works. In relation (3), the real interest rate corresponds to a "balanced" inflation rate, and it is also directly dependent on GDP's potential growth. In using this ex ante measure, we take the Central Bank's behavior rule into account in our analysis. If economic agents rely on the Central Bank's behavior to elaborate their plans, this "ex ante" real interest rate could be their benchmark. But the relative output gap used in this measure cannot be used to separate long-term growth cycles from short-term ones.

Moreover, if economic agents are only focused on *inflationary* tensions, their benchmark could be the following real interest rate (supposing that they are perfectly able to measure π_t):

$$\text{"Ex post" measure: } i_t - \pi_t = r_t^{ep} \quad (4)$$

Interest rate gaps $(i_t - r_{tt}^{ea})$ and $(i_t - r_t^{ep})$ are then considered as leading long-term growth cycles. In order to verify this assumption, we weighted causal and correlative relations between these gaps and long-term fluctuations (at both steps of the cycles). *Taylorian* ex ante gaps $(i_t - r_{tt}^{ea})$ and *Inflationary* "ex post" gaps $(i_t - r_t^{ep})$ are only assigned as leading indicators for long-term growth cycles if they unidirectionally cause[9] them. If this is so, gaps forecast expansion and recession phases. They must also be negatively correlated to long-term growth cycles.

In table 2, we can see that *Taylorian* gaps (except in Italy) do not unidirectionally cause long-term business fluctuations. Spain is a particular case, because Granger's causalities are bidirectional there. Italians would seem to be significantly influenced by the Central Bank's behavior rule. If the relevance of the fixed values (0.5) in statement (3) can be discussed, we can suppose that in Germany, France and Spain, economic agents simply focus on *inflationary* tensions when constructing their plans. However, this result has to be confirmed by further investigations.

---

[8] According to Mesonnier and Rennes (2004), NER 117, note 1, page 5. The Central Bank's intervention rate of interest is $i_t = \pi_t + \bar{r} + 0,5(\pi_t - \bar{\pi}) + 0,5og_t$ where $\bar{r}$ is the real interest rate, and og the relative output gap.

[9] There is unidirectional causality when we are able to verify that there is a Granger causal link from gap to Juglar cycle and no Granger causal link from Juglar cycle to gap.

Table 2. Granger causality between gaps and long-term growth cycles[10]

1 Lag	Granger unidirectional causality (from interest rate gap on Juglar cycle) when r_t is a:	
	Taylor rate (1) Ex ante measure	**Short-term real rate** (2) Ex post measure
Germany	**No**	Yes
France	**No**	Yes
Spain	No (bidirectional causality)	Yes
Italy	Yes	Yes

We adopted the generalized method of moments because ordinary least squares are not consistent (the estimator is biased and not convergent[11]). We limited the numbers of instruments to lagged endogenous values. A similar approach has been proposed by Eichengreen and Mitchener (2003). In their regressions, an investment ratio is regressed on deflated equity prices[12], and on lagged output growth. In relation (5), the long-term growth cycle is dependent on its past value, and on a *Taylorian* interest rate gap. In relation (6), it is dependent on its past value, and on an *inflationary* gap:

$$J_t = aJ_{t-1} + b(i_t - r_{tt}^{ea}) + c \quad (5)$$

$$J_t = aJ_{t-1} + b(i_t - r_t^{ep}) + c \quad (6)$$

Where J_t stands for long-term growth cycle, i_t for the money market rate, r_{tt}^{ea} for the *Taylorian* interest rate, r_t^{ep} for the "ex post" real interest rate, and c for a constant.

[10] We also confirmed a negative correlation between *Inflationary* gaps and business cycles: This implies a decrease in the interest rate gap during economic expansion and its increase during economic recessions.

[11] Mesonnier et Rennes (2004).

[12] We do not introduce deflated equity prices in our *Inflationary* gaps, although it is possible. When they are taken into account, they have major consequences on the types of expectations elaborated by individuals. See Parnaudeau (2007).

Estimating relations (5) and (6) with GMM gives relevant results (Table 3), except for Germany. In that country, interest rate gap (5) is not significant. When the real rate is an 'ex post' rate (6), it is only significant at a 17% level. These interest rate gaps are not relevant explanative variables for Germany's long-term growth cycles. In the Italian case, the best indicator for long-term fluctuations is constructed with a *Taylorian* gap. In Italy, the long-term growth cycle is more reactive to monetary policy than in other countries. In France and Spain, the most accurate gap is constructed with an "ex post" real rate. In these countries, *inflationary* tensions are a significant factor leading long-term growth cycles.

Table 3. GMM regressions – Period (1991:01; 2004:04)

Statement	Real rate used:	a	b	c	R^2	J	**I**[13]
(5)	r_{tt}^{ea} **14**						
Germany		99.62[15] (0.000)	***1.13*** (*0.261*)	2.86 (0.006)	0.9861	0.17	11
France		91.24 (0.000)	- 5.5993 (0.000)	*0.97* *(0.333)*	0.9949	0.18	11
Spain		231.36 (0.00)	-8.32 (0.000)	5.38 (0.000)	0.9983	0.18	11
Italy		99.74 (0.000)	-2.71 (0.009)	7.00 (0.000)	0.9899	0.11	11
(6)	r_t^{ep} **16**						
Germany		106.76 (0.000)	***-1.44*** (*0.17*)	5.28 (0.00)	0.9888	0.15	11
France		100.05 (0.00)	-3.19 (0.00)	-4.91 (0.00)	0.9917	0.14	11
Spain		283.17 (0.00)	-7.92 (0.00)	5.67 (0.00)	0.9980	0.19	11
Italy		91.65 (0.00)	*2.26* *(0.02)*	6.89 (0.00)	0.9897	0.14	11

[13] Number of instruments. Below 4 lags, our results are not improved. See Greene (2000).
[14] This rate contains short-term fluctuations.
[15] T-statistic, with its probability in brackets.

3. Introducing *adaptive and rational* expectations of inflation

In Wicksell's analysis of business fluctuations, the cumulative process is dependent on agents' expectations. They are considered as reacting to a fall in money market rate by modifying their expectations. But they are unable to measure its effective scope for the economy as a whole. Within this framework, agents' expectations are dependent on information from past periods[17].

Individuals make adaptive forecasts (on the lending rate, and on the inflation level): future prices are expected to evolve in the same way and proportion as during the past period. The cumulative process depends directly on how agents perceive falls in the money market rate, and the inflationary tensions induced. As the forecasts they make are adaptive, a cumulative process is developed. In order to take these expectations into account, we propose the following *ex ante* real interest rate:

$$\text{“Ex ante” measure: } r_t^{ea} = i_t - \pi_{at} \quad (7)$$

Two kinds of expected inflation[18] π_{at} are then used. In accordance with Wicksell's findings, we constructed a first measure for r_t^{ea} based on adaptive expectations. For comparison purposes, we also used a real interest rate based on rational expectations. When the expected inflation level π_{at} is adaptive, it is defined using the current inflation rate for the past period. When π_{at} is considered as being rational, it is calculated as an average of current inflation levels.

In Table 4, under the rational expectations assumption, the causal link between interest rate gaps and French long-term business cycles is bidirectional. For Germany, we noted a unidirectional link in both cases, but it seems stronger under the rational expectations assumption.

[16] Current inflation deflated rate or ex post real rate.
[17] For further comments, see Blaug.
[18] Under the rational expectations hypothesis, players are not (on average) considered as making mistakes. Under the adaptive expectations hypothesis, players are unable to forecast future events correctly; they can make errors.

Table 4. Introducing expectations in *Inflationary* gaps

$(i_t - r_t^{ea})$ // Juglar	Granger causality when expectations (π_{at}) are:			
	Rational		**Adaptive**	
	The gap does not cause the cycle	The cycle does not cause the gap	The gap does not cause the cycle	The cycle does not cause the gap
Germany	**7.37**[19] **(0.00934)**	0.00022 (0.98822)	5.2814 (0.02615)	0.91551 (0.34366)
France	29.9477 (1.9^E-06)	*3.42* *(0.07099)*	**32.39** **(8.4^E-07)**	1.146 (0.28986)
Spain	5.51083 (0.02336)	1.91377 (0.17337)	**6.8552** **(0.01193)**	0.75206 (0.39033)
Italy	6.7084 (0.01289)	0.02560 (0.8736)	**7.503** **(0.00873)**	0.04224 (0.83806)

In Spain and Italy, unidirectional causalities are improved when expectations are adaptive. The interest rate gaps constructed under this assumption are better signals for French, Spanish and Italian long-term growth cycles[20]. However, it is difficult to identify an indicator for those long-term business cycles, because GMM estimations (Table 5) give really close results.

This can be explained by the strict price stability targets in European countries, over our working period. The low volatility of inflation made the expected inflation levels π_{at} really similar. It would seem advisable to retain relation (9) as a good indicator for long-term growth cycles: explanative variables are more significant, and R^2 are improved. Even for Germany, relation (9) is more accurate. These results highlight a need to assess precisely what kinds of forecasts are made in European countries.

[19] F-statistic, with its probability in brackets.
[20] This would seem to support the existence of an *Inflationary* cumulative process in those countries.

Table 5. Introducing expectations

Statement		a	b	c	R^2	J	Instruments (number)
(8)	**Under rational expectations** $J_t = aJ_{t-1} + b(i_t - r_t^{ear}) + c$						
Germany		122.68[21] (0.00)	-1.83 (0.07)	7.18 (0.00)	0.9905	0.14	11
France		84.66 (0.00)	-7.34 (0.00)	3.96 (0.00)	0.9919	0.16	11
Spain		239.09 (0.00)	-6.77 (0.00)	5.45 (0.00)	0.9984	0.18	11
Italy		105.66 (0.00)	-3.52 (0.00)	8.88 (0.00)	0.9891	0.11	11
(9)	**Under adaptive expectations** $J_t = aJ_{t-1} + b(i_t - r_t^{ean}) + c$						
Germany		123.7343 (0.00)	-2.11 (0.04)	6.94 (0.00)	0.9909	0.13	11
France		132.4967 (0.00)	-5.48 (0.00)	-3.62 (0.00)	0.9951	0.16	11
Spain		235.52 (0.00)	-6.79 (0.00)	6.23 (0.00)	0.9984	0.16	11
Italy		76.72 (0.00)	-2.5458 (0.01)	6.01 (0.00)	0.9896	0.11	11

Using a simplified specification of Nerlove's model[22], we searched for the kinds of expectations established by economic agents. In the following relation, *expected inflation* is dependent on past period's inflation, and on *lagged expected* inflation:

$$\pi_t^a = \gamma\pi_{t-1} + (1-\gamma)\pi_{t-1}^a \quad (10)$$

Where π_t^a stands for expected inflation, π_{t-1} for past inflation, and π_{t-1}^a for lagged expected inflation.

[21] T-statistic, with its probability in brackets.
[22] Nerlove (1956). We have not developed the eventuality of adjustment costs .

Within this framework, if γ=0, economic agents do not use past inflation to elaborate their plans. If $\gamma = 1$, individuals make adaptive forecasts, because they expect that prices at t will equal prices at $t-1$.

We used the prospects for agents' prices proposed by the European Commission[23] as a measure for π^a_{t-1}. In accordance with Nerlove's proposition, we sought to check whether agents were making adaptive forecasts for inflation (Table 6, first relation tested). But we also tested whether agents were making rational forecasts for inflation (Table 6, second relation). We confirmed adaptive expectations (1 lag, a – coefficient is significant)[24] in Germany, France, and Spain, but not in Italy. In Italy, expectations are totally disconnected from actual price variations.

Table 6. Kinds of expectations in European countries: GMM regressions

(1991 – 2004) Countries	European Commission Indicator	a	b	R^2	J	Instruments (number)
Adaptive inflation expectations if $\Delta\pi^a_t = a\Delta\pi_{t-1} + b\Delta\pi^a_{t-1}$						
Germany	Confirmed	**1.85 (0.06)**	87.33 (0.00)	0.83	0.04	7
France	Weak	**2.15 (0.03)**	7.96 (0.00)	*0.33*	0.13	7
Spain	Confirmed	**2.62 (0.01)**	19.70 (0.00)	0.77	0.10	7
Italy	Rejected	*-0.25 (0.80)*	34.02 (0.00)	0.93	0.08	7
Adaptive inflation expectations if $\Delta\pi^a_t = a\Delta\pi_t + b\Delta\pi^a_{t-1}$						
Germany	Rejected	1.47 (0.14)	97.51 (0.00)	0.82	0.06	8
France	Weak	**2.85 (0.00)**	5.96 (0.00)	*0.30*	0.12	8
Spain	Rejected	0.80 (0.42)	22.61 (0.00)	0.77	0.13	8
Italy	Rejected	*-0.00 (0.99)*	41.63 (0.00)	0.92	0.10	8
MMG (1996 – 2004) France	French Central Bank indicator	a	b	R^2	J	Instruments (number)
Adaptive inflation expectations if $\Delta\pi^a_t = a\Delta\pi_{t-1} + \Delta b\pi^a_{t-1}$						
Confirmed		**4.51 (0.00)**	8.70 (0.00)	0.66	0.14	7
Rational inflation expectations if $\Delta\pi^a_t = a\Delta\pi_t + b\Delta\pi^a_{t-1}$						
Confirmed		**4.34 (0.00)**	6.92 (0.00)	0.64	0.16	7

[23] Public opinion surveys on price expectations for the 12 next months, DataStream.
[24] Adding further lags in GMM regressions did not improve our results.

For France, the adaptive expectations assumption can be retained (we used two different indicators). French GMM regressions are however very close, but French inflation showed the lowest levels of fluctuations. For Germany, agents' expectations seem adaptive rather than rational (first relation, Table 6). The most accurate indicators for long-term growth cycles are presented in Table 7. For Germany, we retained relation (9): the interest rate gap used there as an explanative variable for long-term growth cycles is based on adaptive expectations of inflation.

The best leading indicator for the French long cycle is (9), but (8) and (6) are also relevant. For Spain, as adaptive expectations were confirmed, the most accurate indicator for the long-term growth cycle is (9). Finally, in Italy, as agents expectations are totally disconnected from current inflation rates, we selected (5) as the most accurate indicator.

Table 7. Final Results[25]

Country	**Granger causality between gaps and growth cycles, when gap is:**				**Leading indicators for growth cycles:**				Expectations	
	$(i_t - r_{tt}^{ea})$	$(i_t - r_t^{ep})$	$(i_t - r_t^{ear})$	$(i_t - r_t^{ean})$	(5) T	(6) EP	(8) R	(9) A	**R**	**A**
Germany	-	**(u.c)**	-	(u.c)	-	-	-	**X**	-	**X**
France	-	(u.c)	(b.c)	**(u.c)**	-	X	X	**X**	X	**X**
Spain	(b.c)	**(u.c)**	-	(u.c)	X	X	-	**X**	-	**X**
Italy	**(u.c)**	(u.c)	-	-	**X**	-	-	-	-	-

[25] u.c = unidirectional causality b.c = bidirectional causality, X = indicator settled, R = rational expectations, A = adaptive expectations, T = Taylorian interest rate gap, EP = Ex post interest rate gap.

CONCLUSION

In order to put forward some Austrian prospects for European Business Cycles, we constructed various interest rate gaps. Using the hypothesis that individual speculation is motivated by the difference between short-term real interest rates and their natural levels, we argued that *Inflationary* interest rate gaps can account for a high proportion of long-term fluctuations in four European countries (Germany, France, Italy and Spain).

As European fluctuations are divided into short-term growth cycles (lasting about 3 years) and long-term growth cycles (lasting about 10 years), we selected specific filters and dating methods. Then, using Granger causal tests and GMM regressions, we selected the most accurate indicators for long-term growth cycles.

In Germany, France and Spain, the most accurate indicator for long cycles is based on the assumption that economic agents are making *adaptive forecasts* for inflation. In Italy, expectations are totally disconnected from current inflation levels: expectations are not adaptive or rational. However, we were able to confirm a strong causal link between a *Taylorian* interest rate gap and long-term Italian growth cycles: Italians seem to be focused on the European Central Bank's behavior rule when establishing their expectations. To conclude, *the Inflationary* gaps put forward account for a high proportion of the long-term growth cycles in the four European countries studied.

The credit market plays a striking role in financing European firms' activities. European economies are now characterized by strengthened market capitalization, a growing banking sector and enhanced financial intermediation. This financialization movement is nonetheless followed by low inflationary pressures. Do expectations as to inflation remain relevant when economic agents are facing financial instability?

Our results show that, according to K. Wicksell's intuition, a fall in the money market rate constitutes a leading signal for long-term economic fluctuations. Nevertheless, there is a strong need to enhance our definition of agents' expectations in the face of uncertainty, taking into account the striking influence of real asset prices in our economies.

REFERENCES

ARTIS, MARCELLINO AND PROIETTI (2003), "Dating the Euro Area Business Cycle", Centre for Economic Policy Research, DP 3696.

BENTOGLIO, FAYOLLE AND LEMOINE

- (2002), " La croissance économique européenne perturbée par un cycle de courte période", Economie et Statistique N° 359 – 360, p 83-100.
- (2001), "Unité ou Pluralité du cycle économique européen", OFCE Review 78, p 9-73.

BLAUG (1999), "La pensée économique", 5ème édition, translation of "Economic Theory in Retrospect", Alain and Christiane ALCOUFFE, Economica.

BOUTHEVILLAIN (2002), "Filtre de Hodrick Prescott et choix de la valeur du paramètre λ ", Notes d'Etudes et de Recherche 89, "PIB potentiel et écart de PIB: quelques évaluations pour la France", Banque de France, p 1-21

BOIANOVSKY AND TRAUTWEIN (2001), "Wicksell's Lecture Note on Economic Crises 1902/05", Structural Change and Economic Dynamics vol. 12, I.3, pp. 343-66.

EICHENGREEN AND MITCHENER (2003), "The Great Depression as a Credit Boom Gone Wrong", Conference at the Bank for International Settlements.

GREENE (2000), "Econometric Analysis", Fourth Edition, PHIPE, Prentice Hall.

HAGEMANN (2001), "Wicksell's New Theory of Crises: An Introduction", Structural Change and Economic Dynamics vol. 12, I.3, pp. 331-34

HODRICK AND PRESCOTT (1980), "Post War US Business Cycles: An empirical Investigation, Discussion Paper", Carnegie - Melon University, N°451.

MÉSONNIER

- (2005), "L'orientation de la politique monétaire à l'aune du 'taux d'intérêt naturel': une application à la zone euro ", Bulletin de la Banque de France, n°136, avril.
- And Rennes (2004), "Règle de Taylor et politique monétaire dans la zone euro", Note d'études et de recherche 117, Banque de France.

MISES (VON) (1912), "Theory of Money and Credit First", Traduced by H. E. Batson. Liberty Fund, Indianapolis, 1981.

NERLOVE (1956), "Estimates of supply of selected agricultural commodities", Journal of Farm Economics, 38, pp. 496-509.

PARNAUDEAU (2007), "Financialization of European Economies", Conference at the European University Institute of Florence on May 25-26, 2007, ***"Financial** Institutions, markets and ethics: Mixed approaches in the European context"*

WICKSELL

- (1898), “Geldzins und Güterpreise. Eine Untersuchung über den Tauschwert des Geldes bestimmenden Ursachen“, Gustav Fisher, Jena. English translation in 1936 and 1965, Interest and Prices, Macmillan, London.
- (1907)-a , “Krisernas Gâta”, Statsokonomisk Tidskrift 21. English translation in 1965 The Enigma of Business Cycles, printed with Interest and Prices, Augustus Kelley New York, pp. 221-239.
- (1907)-b, “The Influence of the Rate of Interest on Prices”, Economic Journal XVII, pp. 213-220. Read before the Economic Section of the British Association, 1906.
- (1908), “Ekonomika Kriser”, Unpublished Manuscript, Lund, Translated and published in 1997, Knut Wicksell , Selected Essays in Economics, vol. 1, Bo Sandelin, Routledge, London.
- (2001), “A New Theory of Crises”, Structural Change and Economic Dynamics vol. 12, I.3, pp. 335-42.