Characterising the financial cycle: don't loose sight of the medium-term!

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Bank for International Settlements

14th Annual International Banking Conference

Federal Reserve Bank of Chicago, 10/11 November 2011

Introduction

- Crisis underscored that we need to improve understanding of the financial cycle
  - What is this cycle?
  - What are the empirical regularities?
- Limited literature
  - Claessens et al (2011a,b)
  - Aikman et al (2010)
- This paper extends and complements the literature
  - Combines methods
  - Focus on medium-term cycle
  - Combine variables

Main results

- We can identify a distinct financial cycle by two different methods
  - Combines information from credit and property prices
- Peaks in the financial cycle are closely related to crises
  - Post 1985 only three non-crisis peaks $\rightarrow$ serious strains
- Characteristics of the financial cycle depend on the financial and monetary regimes
  - Length of the cycle doubled and relation with crisis tighter
- Policy makers should take account of the medium term cycle
  - "Unfinished recessions"

Data

- Business cycle:
  - GDP
- Financial cycle:
  - Credit to the private non-financial sector
  - Credit-to-GDP ratio
  - Property prices
  - Equity prices
  - Asset prices
  - Because of lack of data do not include other financial variables (e.g. spreads, profits, write-offs, leverage…)
- 7 countries: AU, DE, JP, NO, SE, UK, US
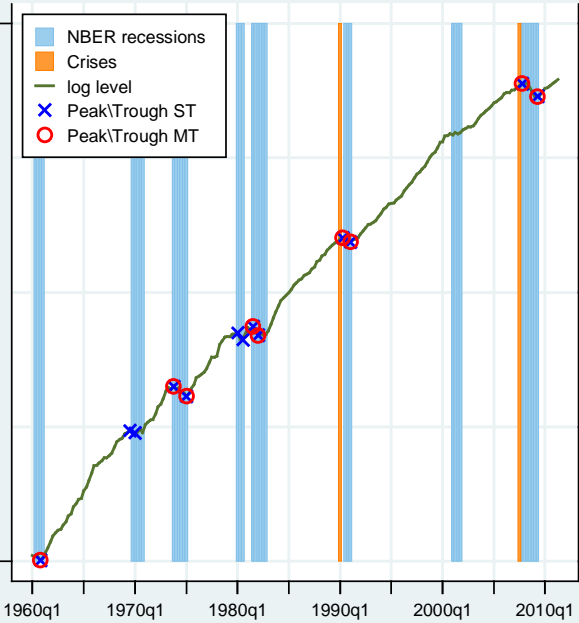- Quarterly data from 1960 to 2011

Methodology

- Frequency based filters (Christiano and Fitzgerald, 2005, Comin and Gertler, 2006)

- Turning-point method (Burns and Mitchell, 1946, Harding and Pagan, 2002)

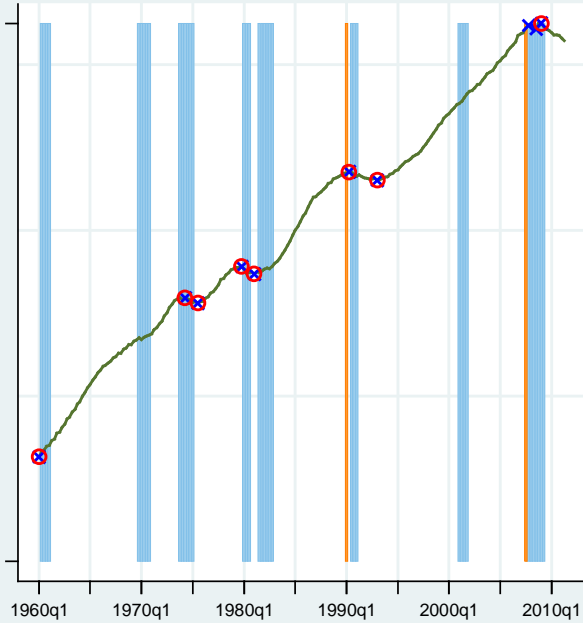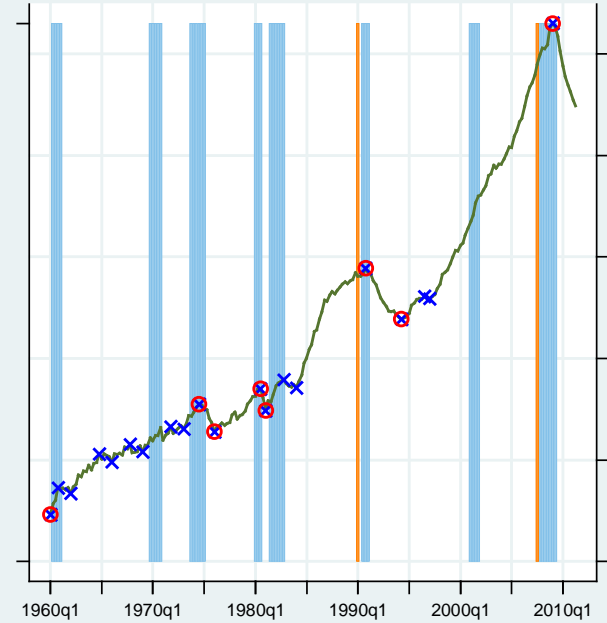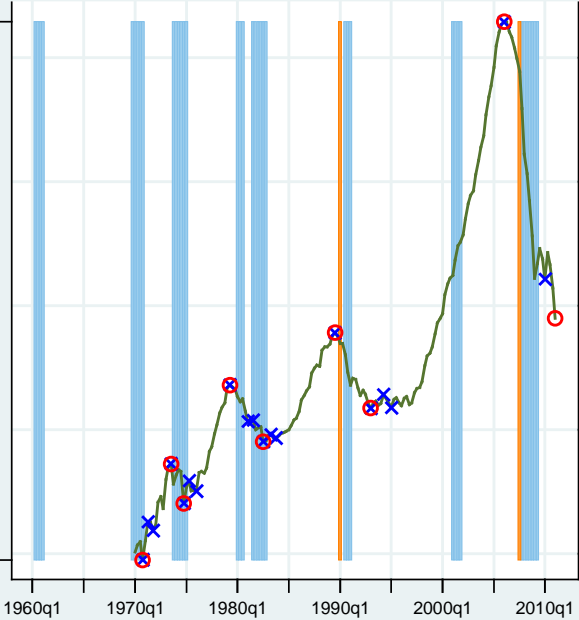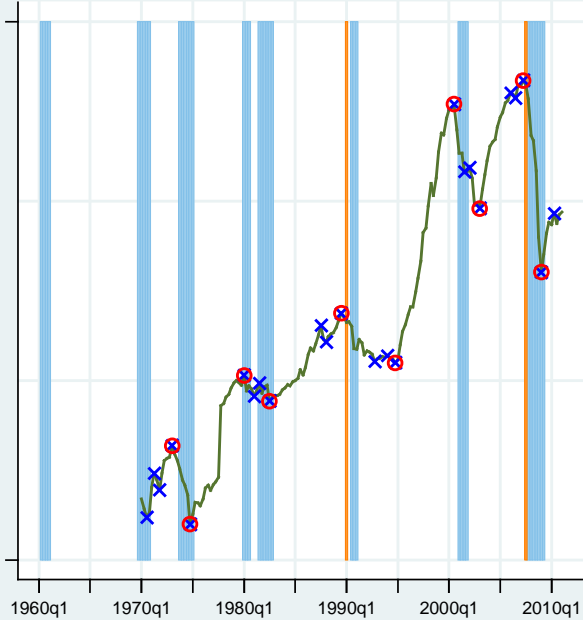|	Frequency based filters	Turning-points
Short term cycle (business cycle)	5-32 quarters	Local maxima\minima: 5q window Minimum cycle length: 5 quarters
Medium term cycle	8-30 years	Local maxima\minima: 9q window Minimum cycle length: 5 years

Looking at individual series
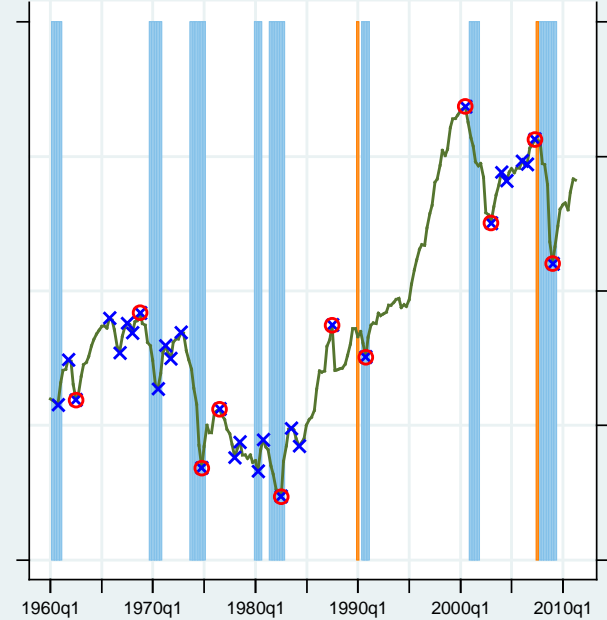
Medium-term versus short–term: Filters

- Volatility of medium-term component greater than short-term one for all variables

- Relative to GDP, ratio higher for financial variables, except equities

- Medium-term component becomes larger after 1985

What happens around crisis?

- All domestic crises coincide with medium term cyclical peaks
  - Independent of the method
  - German crisis in 2008 not captured
  - Peaks in credit and property prices closest to crises, equity prices peak well before crises
- Peaks in medium term cycles often coincide with crises
  - For credit and property prices 40-50% of peaks coincide with crises (65-70% after 1985)
  - For equity prices only 22% of peaks coincide with crises
  - For short term cycles the relationship much weaker (18-30%)

$\rightarrow$ Medium-term frequencies are key!

Towards a measure of the financial cycle

# Methodology

- Frequency based filters
  - Average of individual series
- Turning-point method (Hardin and Pagan (2005))
  - Peak in the common cycle if
    - there is a cluster when all individual series peak,
    - individual series are closest to their peak within the cluster
  - Impose same constraints as on dating method for individual series
- Cluster width
  - 3 years
  - 3 to 6 yeas (weak)

Which series should underpin the financial cycle?

- The financial cycle is derived from credit, the credit-to-GDP ratio and property prices
- Equity prices (and thus aggregate asset prices) are not included
  - Greater short term volatility
  - Medium-term cyclical peaks occur often without crisis
  - Medium-term cycle not well aligned with credit series or property prices
    - Low concordance (turning-point method)
    - Low correlation (frequency based filters)
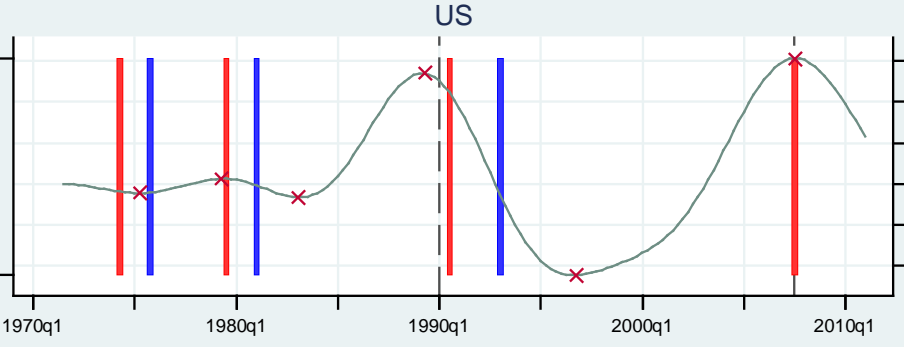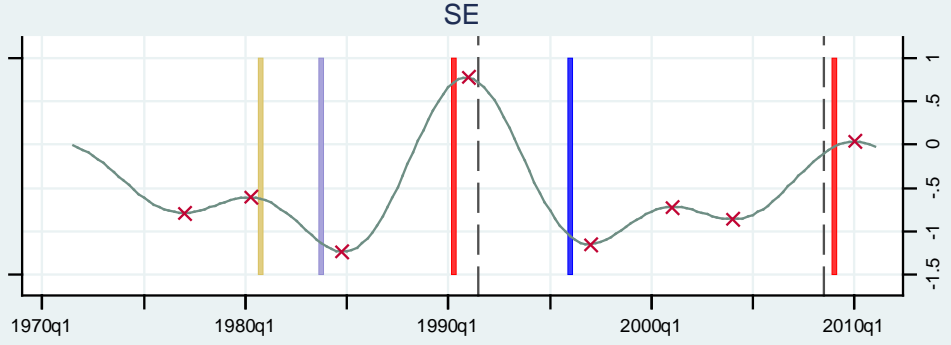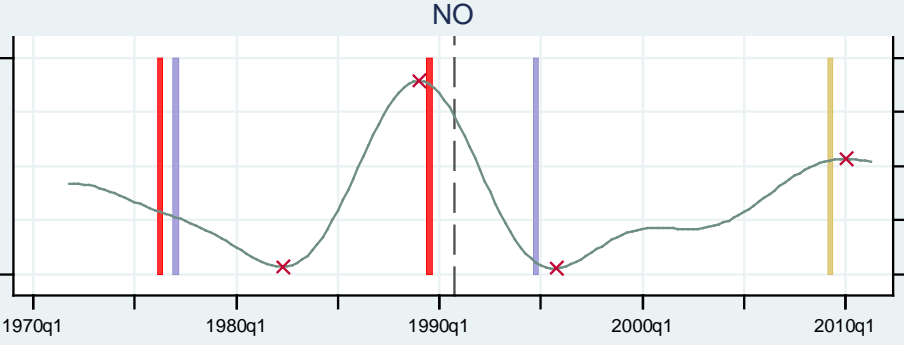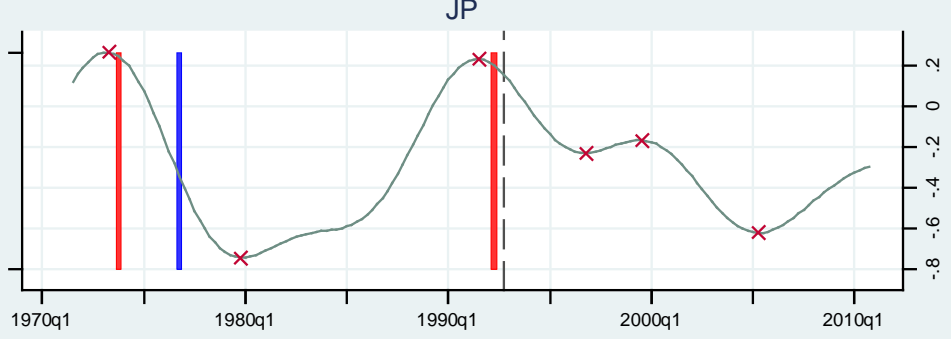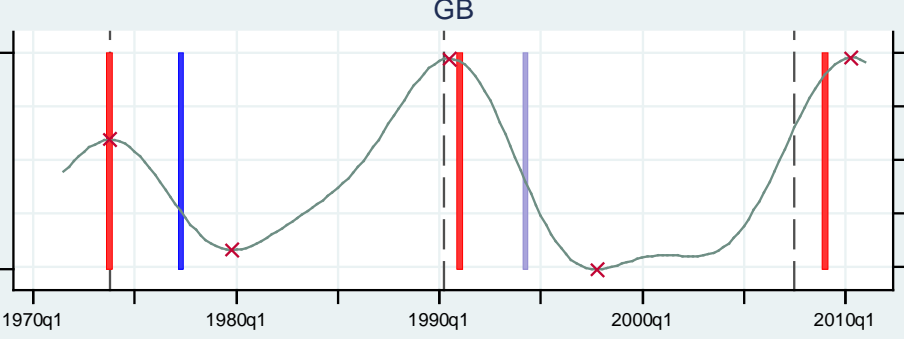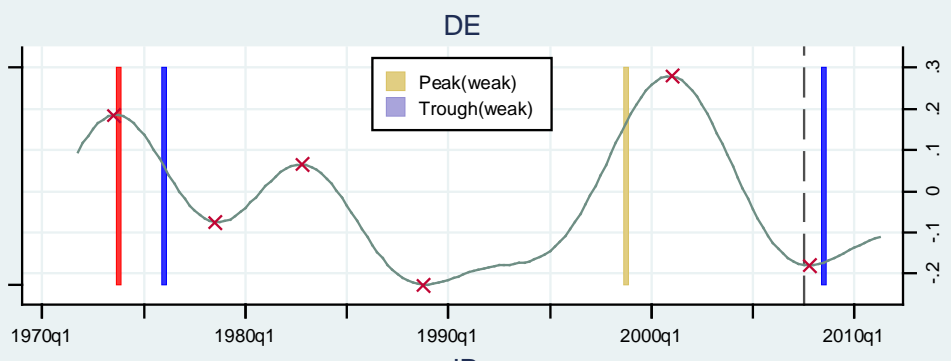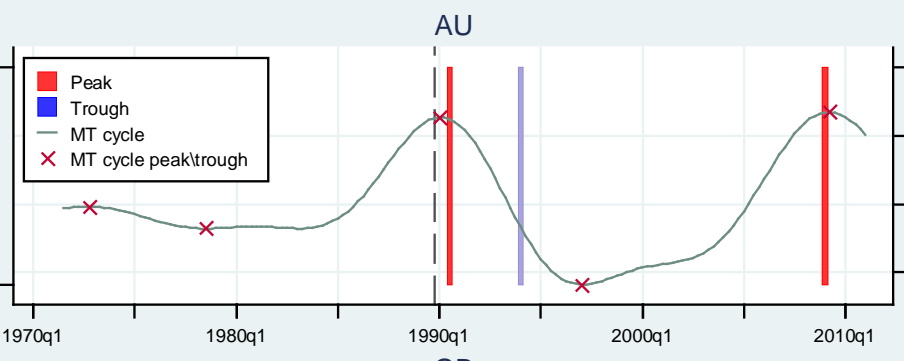
Peaks in the financial cycle

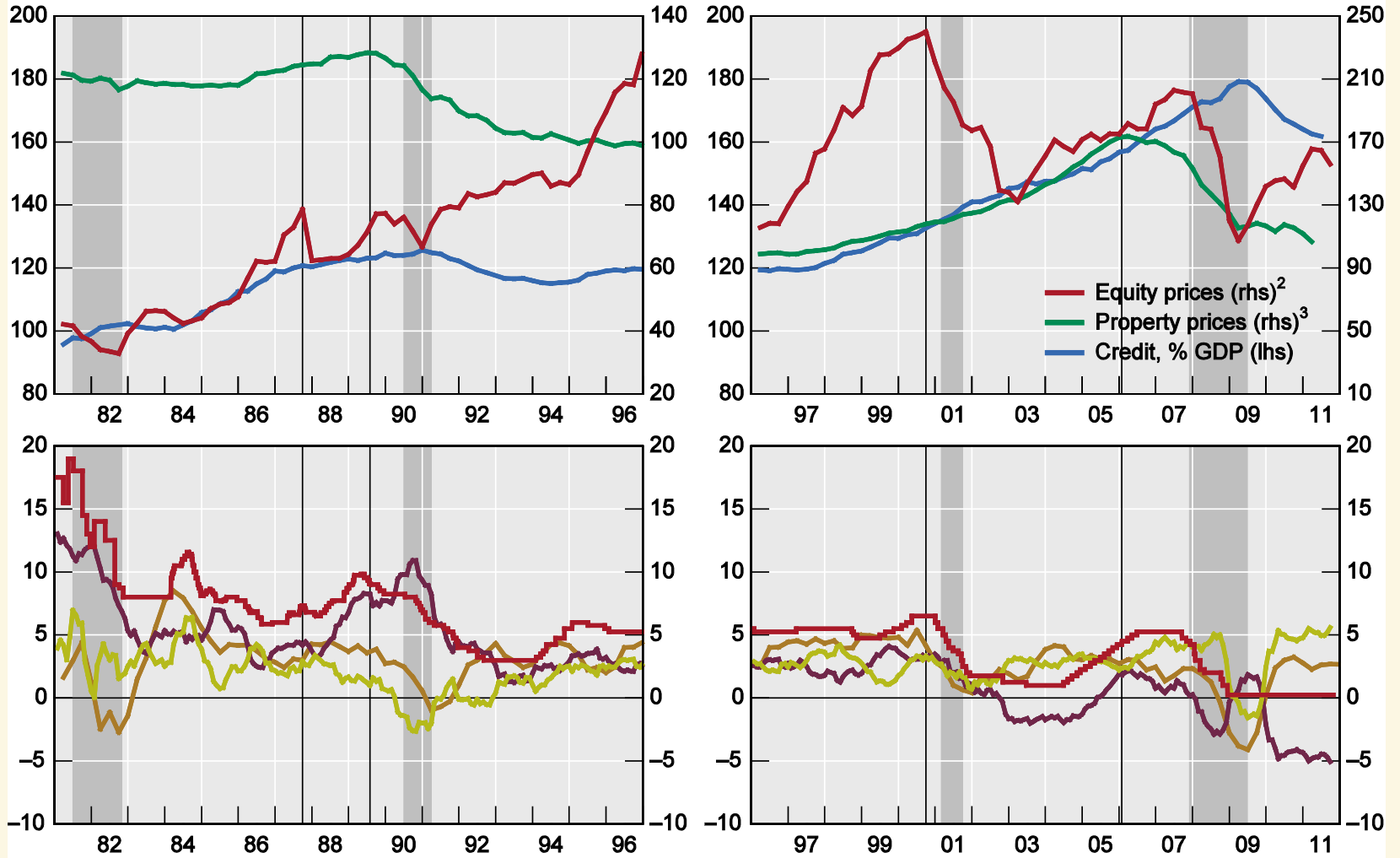| Country	Date	Time to closest crises	Time to closes peak using filters	Country	Date	Time to closest crises	Time to closes peak using filters
Close to crises				*Not close to crises*			
GB	2009q1	-6	5	NO	2009q2	-74	3
SE	2009q1	-2	4	AU	2009q1	-77	1
US	2007q3	0	0	DE	1998q4	35	9
JP	1992q2	2	-3	SE	1980q4	43	-2
GB	1991q1	-3	-2	US	1979q3	42	-1
AU	1990q3	-3	-2	DE	1973q4	135	-1
US	1990q3	-2	-5	JP	1973q4	76	-2
SE	1990q2	5	3				
NO	1989q3	5	-2				
GB	1973q4	0	0				
Average		-0.4	-0.2	*Average*		25.7	1.0

Policy implications

- Regime dependence
  - Length and amplitude of the financial cycle increased after financial liberalisation and tighter monetary regimes
- Be aware of "unfinished" recessions!

Unfinished recessions

United States[1]

Equity prices (rhs)[2]
Property prices (rhs)[3]
Credit, % GDP (lhs)

Conclusion

- We can identify a distinct financial cycle by two different methods
- Peaks in the financial cycle are closely related to crises
- Characteristics of the financial cycle depend on the financial and monetary regimes
- Policy makers should take account of the medium term cycle

Annex

Peaks in the financial cycle identified by just one method

Country	Date	Time to closest crises	Time to closes peak using filters	Time to closes peak using the dating method
Only peaks in the combined cycle using the cycle dating method				
NO	1976q2	58	51	0
US	1974q2	63	20	0
Only peaks in the combined cycle using filtered series				
SE	2001q1	30	0	32
JP	1999q3	-27	0	-29
DE	1982q2	99	0	-36
AU	1972q4	68	0	71