

IN SEARCH OF THE DRIVERS OF THE TURKISH CONSUMER CONFIDENCE

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OUTLINE

- Motivation
- Results Overview
- A Brief Literature Review
- Data
- Empirical Results
 - Major Drivers
 - Time-varying Nature
 - Asymmetric Relationship
 - Political Factors
- Conclusion
- Appendix: A Google-based Approach

MOTIVATION

- ‘Willingness to buy channel’ and consumption growth
 1. (Animal Spirits) Psychological factors?
- Empirical evidence mostly from developed world
 1. Confidence does not matter
 2. It has an incremental power
 3. Exceptional periods (political crises, wars), high economic and political uncertainty
- Determinants of confidence within a developing economy
- Time-varying behavior
- Asymmetric nature

RESULTS OVERVIEW

- **Determinants:**
 - Inflation, unemployment, exchange rate and interest rate on consumer loans
- **Asymmetric nature:**
 - More responsive to slowdown in inflation
 - More responsive to depreciation in TL
- **Time-varying behaviour:**
 - Financial variables are more important during the times of high financial volatility
- **Political factors:**
 - Play some role

LITERATURE REVIEW

- 3 major categories
 1. Macroeconomic variables
 2. Financial variables
- Standard variables, non-standard results
 3. Other variables
- Non-standard ones: International events, political factors, oil price, economic news ...etc.
- Very few studies on developing economies
- Very few or none on asymmetric nature and time-varying behavior

DATA

BASELINE SPECIFICATION	Source	Notes
Consumer confidence index	TURKSTAT	
Macroeconomic variables		
Consumer price index	TURKSTAT	Seasonally adjusted, log
Unemployment rate	TURKSTAT	Seasonally adjusted
Industrial production index	TURKSTAT	Seasonally adjusted, log
Financial variables (stock exchange?)		
TL/\$ exchange rate	CBRT	Log
Interest rates on consumer loans	CBRT	

DATA

- Time period: January, 2004 – April, 2015
- Other factors (elections)
- Unit root tests
 1. Unbalanced system
 2. Small sample
- Pesaran's bounds testing approach

EMPIRICAL RESULTS

- Pesaran's Bounds testing
 1. Build an unrestricted error correction model
 2. Estimate long-run coefficients using an ARDL framework
 3. Estimate short-run coefficients using an error correction model

COINTEGRATION

- UECM

$$\Delta CCI_t = \alpha_0 + (\theta_0 CCI_{t-1} + \theta_1' X_{t-1}) + \sum_{i=1}^{p-1} \beta_i \Delta CCI_{t-i} + \sum_{i=0}^{p-1} \gamma_i' \Delta X_{t-i} + \varepsilon_t$$

- $X_t = (EX_t, ICONS_t, U_t, IP_t, CPI_t)$
- General to specific approach – ARDL(7,7,1,2,1,1)

COINTEGRATION

Bounds testing for Existence of Cointegration	With deterministic trend		Without deterministic trend	
	F-statistics	t-statistics	F-statistics	t-statistics
Model				
Test model: ARDL (7)	4.65***	-3.15	5.50***	-3.87**
Parsimonious test model: ARDL (7,7,1,2,1,1)	6.46***	-4.97***	7.61***	-5.34***
Critical Values at 95%				
Pesaran et al. (2001)	(2.81, 3.76)	(-2.41, -4.19)	(2.62, 3.79)	(-1.95, -3.83)
Narayan et al. (2005)	(2.55, 3.61)		(2.79, 4.02)	
Critical Values at 99%				
Pesaran et al. (2001)	(3.50, 4.63)	(-3.43, -4.79)	(3.41, 4.68)	(-2.58, -4.44)
Narayan et al. (2005)	(3.35, 4.59)		(3.73, 5.16)	

LONG-RUN RELATIONSHIP

$$CCI_t = \alpha_0 + \theta'_1 X_t + \sum_{i=1}^p \beta_i CCI_{t-i} + \sum_{i=0}^q \gamma' \Delta X_{t-i} + \varepsilon_t$$

Long-run coefficients	Coefficient	t-statistic
Inflation	-0.60	-5.20***
Unemployment	-3.51	-4.70***
Industrial production	0.09	0.47
TL/\$ exchange rate	-0.28	-4.69***
Interest rate consumer loans	-1.74	-5.56***

LONG-RUN RELATIONSHIP

Long-run relationship

1. All level estimates, except IP are highly significant
2. 1% increase in CPI – 0.60 points decline in CCI
3. 1% increase in EX – 0.28 points decline in CCI
4. 1 pp increase in U – 3.51 points decline in CCI
5. 1 pp increase in ICONS – 1.74 points decline in CCI

SHORT-RUN RELATIONSHIP

$$\Delta CCI_t = \alpha_0 + \alpha_1 ECT_{t-1} + \sum_{i=1}^{p-1} \beta_{1i} \Delta CCI_{t-i} + \sum_{i=0}^{q-1} \gamma' \Delta X_{t-i} + \varepsilon_t$$

	Coefficient	t-statistic
ECT(-1)	-0.35	-7.56***
$\Delta CCI(-1)$	0.09	1.29
$\Delta CCI(-2)$	0.04	0.50
$\Delta CCI(-3)$	0.27	3.61***
$\Delta CCI(-4)$	0.15	1.61
$\Delta CCI(-5)$	0.27	2.92***
$\Delta CCI(-6)$	0.31	3.35***
ΔCPI	-0.87	-3.82***
ΔU	-1.53	-2.71***
$\Delta U(-1)$	2.16	3.78***
$\Delta U(-2)$	2.85	3.49***
ΔIP	0.01	0.04
ΔEX	-0.42	-7.40***
$\Delta EX(-1)$	-0.08	-1.81*
$\Delta EX(-2)$	-0.06	-0.90
$\Delta EX(-3)$	0.14	2.30**
$\Delta EX(-4)$	0.11	1.82*
$\Delta EX(-5)$	0.21	4.08***
$\Delta EX(-6)$	0.15	2.93***
$\Delta ICONS$	-0.82	-5.14***

SHORT-RUN RELATIONSHIP

1. Self rapid correction – half life of 2 months
2. 1% increase in CPI – 0.87 points decline in CCI
3. 1% increase in EX – 0.42 points decline in CCI
4. 1 pp increase in U – 1.53 points decline in CCI
5. 1 pp increase in ICONS – 0.82 points decline in CCI
6. Results of recursive estimation indicate time-varying parameters

EXCHANGE RATE

Complex role of exchange rate: depreciation of TL

1. Reduces purchasing power of consumers
2. Positive wealth effect due to FX deposits and income

	Coefficient	t-statistic
ΔEX	-0.42	-7.40***
$\Delta EX(-1)$	-0.08	-1.81*
$\Delta EX(-2)$	-0.06	-0.90
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UNEMPLOYMENT RATE

Complex role of unemployment rate

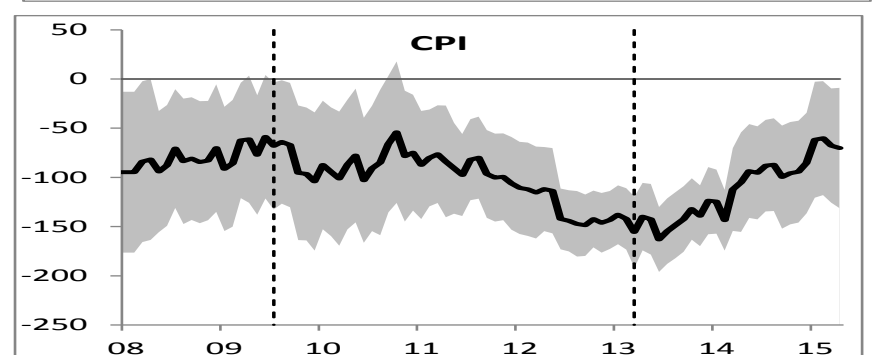
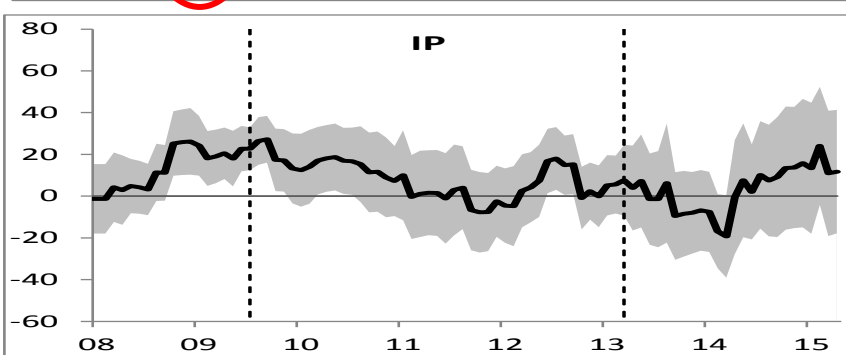
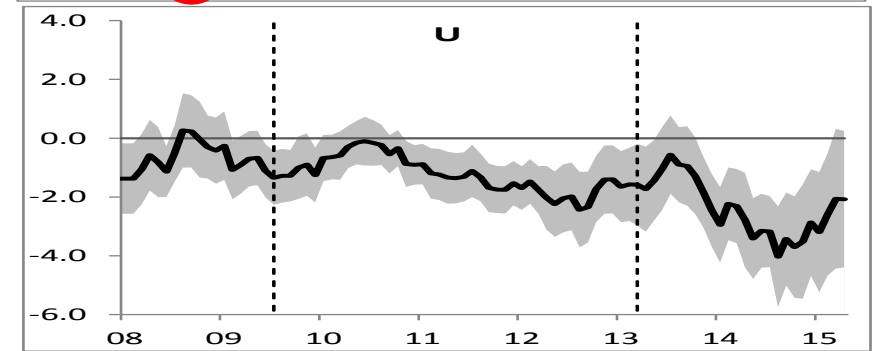
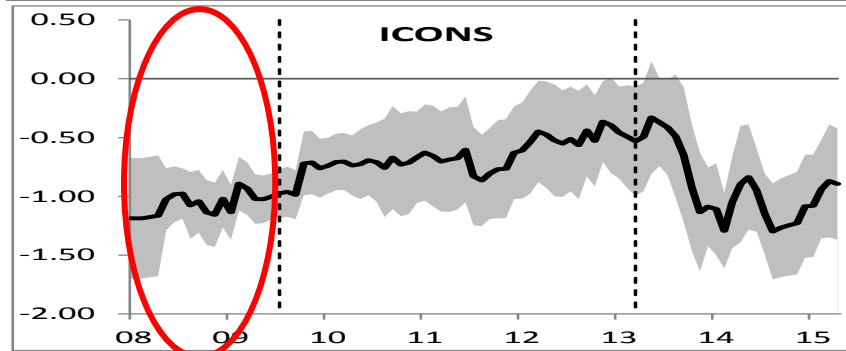
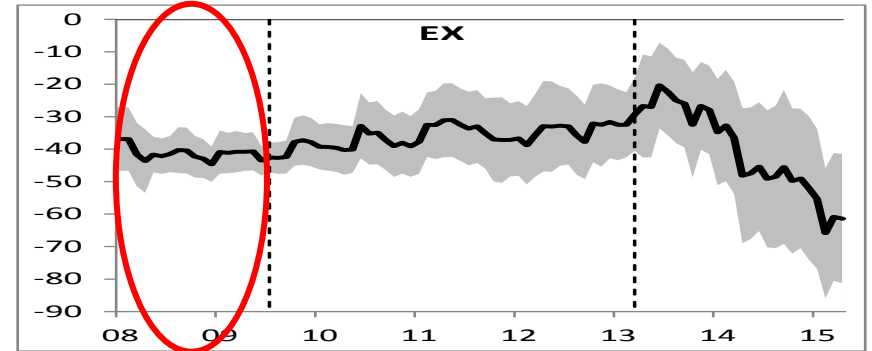
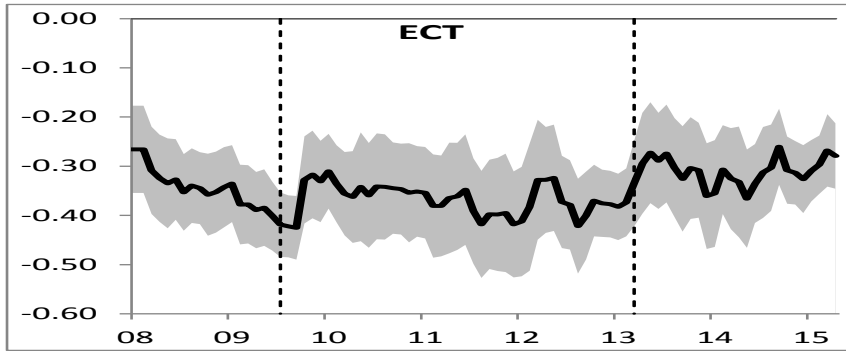
1. Immediate negative but then positive
2. 3-month moving average

	Coefficient	t-statistic
ΔU	-1.53	-2.71***
$\Delta U(-1)$	2.16	3.78***
$\Delta U(-2)$	2.85	3.49***

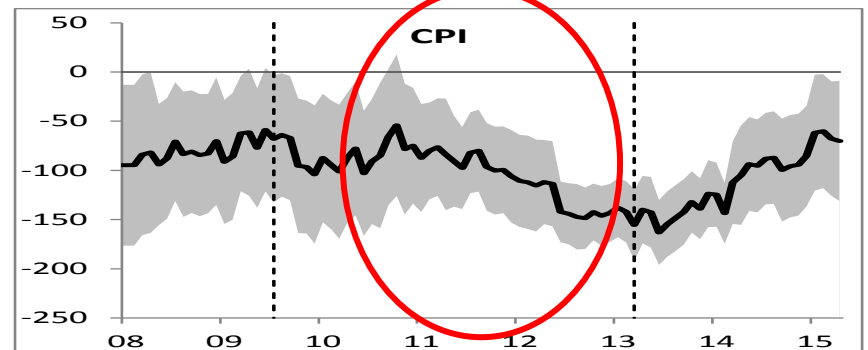
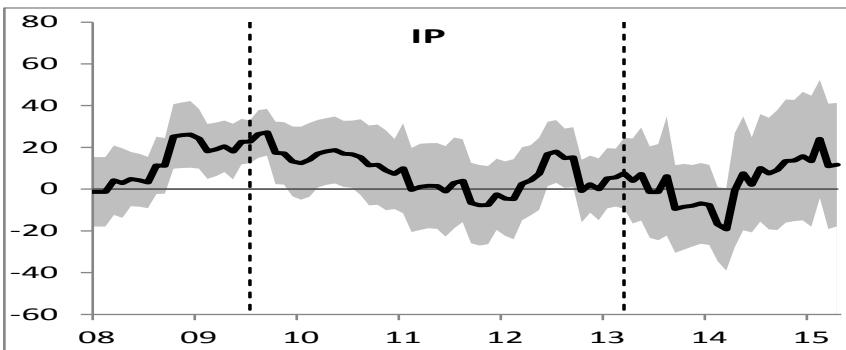
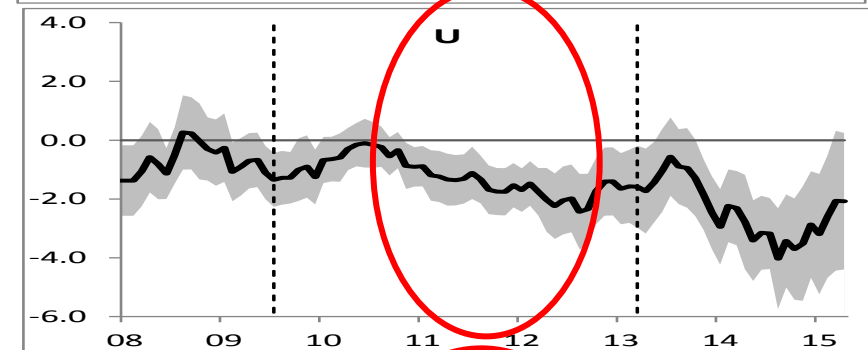
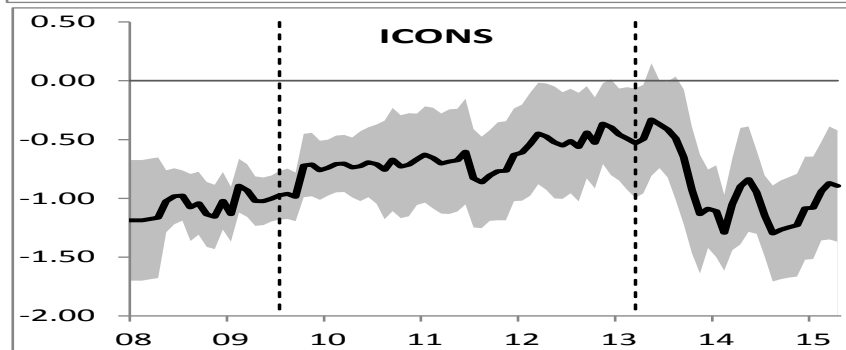
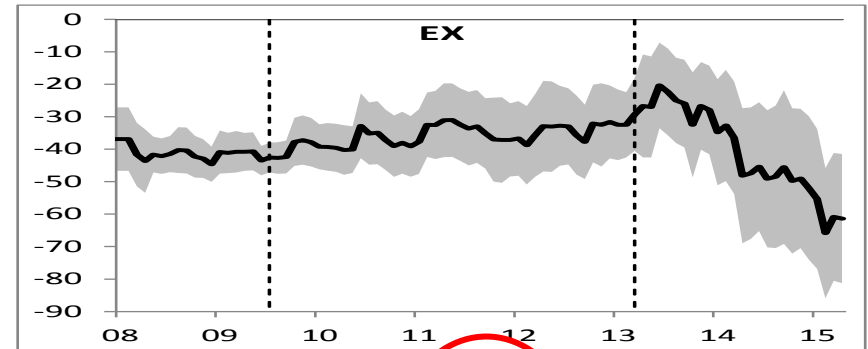
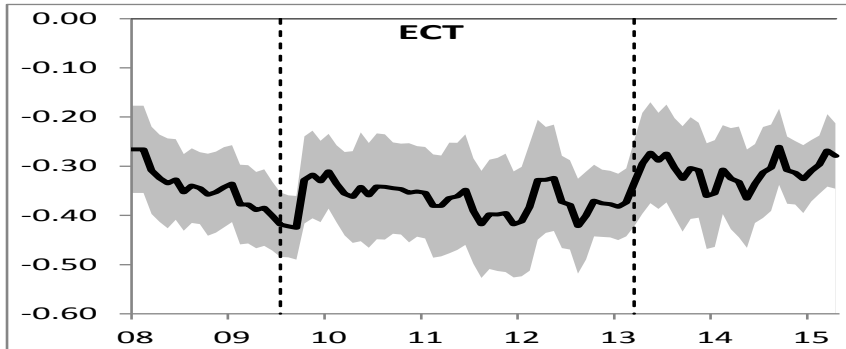
TIME-VARYING NATURE

- ECT – cointegrating relation is stable
- Two structural breaks – three subsamples
 - Break 1 (July 2009, global financial crisis)
 - Break 2 (March 2013, FED's signal to end QE and domestic unrest)
- January 2005 – July 2009 (global financial crisis)
 - Financial variables dominate
- August 2009 – March 2013 (period of high growth and low inflation with stable exchange rate)
 - Macroeconomic variables dominate
- April 2013 – April 2015 (high financial volatility)
 - Financial variables redominate

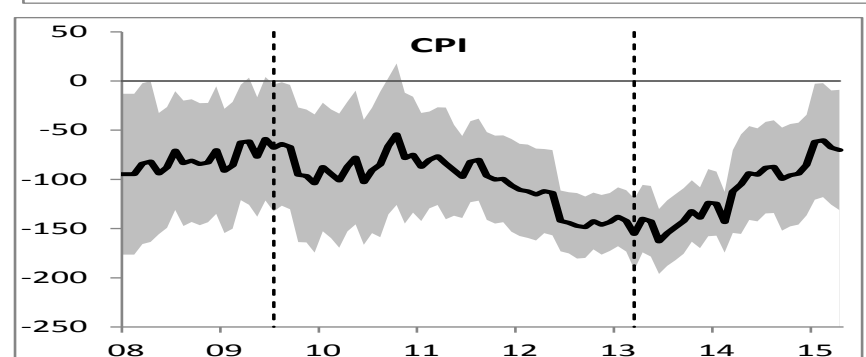
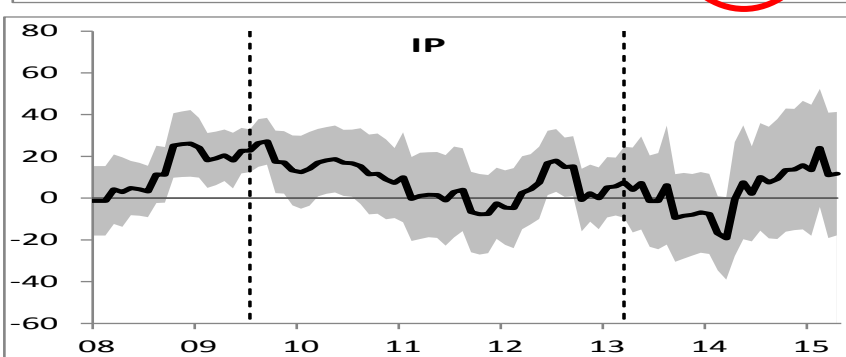
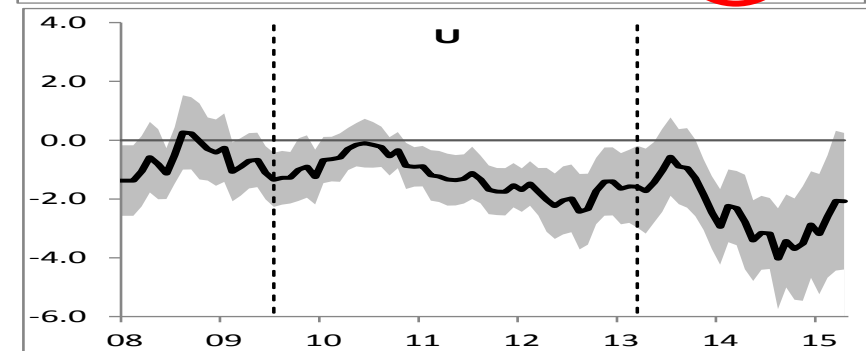
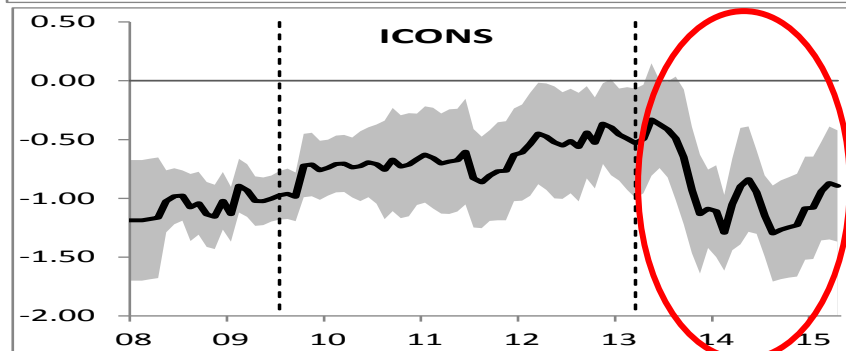
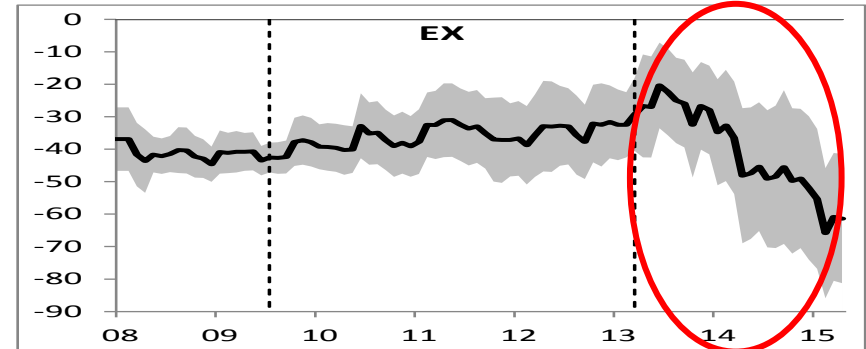
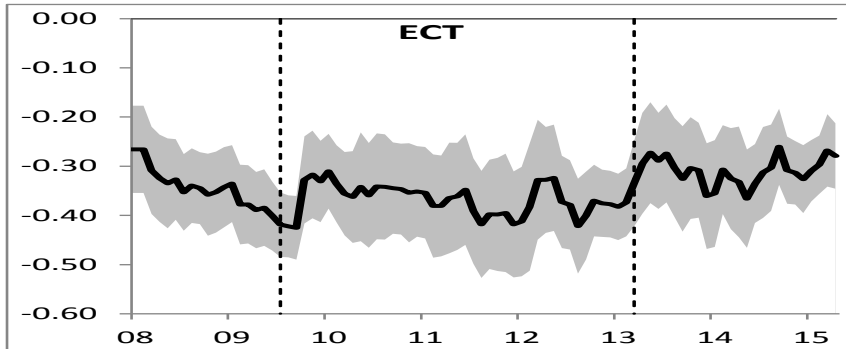
TIME-VARYING NATURE



TIME-VARYING NATURE



TIME-VARYING NATURE



ASYMMETRIC RELATIONSHIP

Asymmetric ECM

$$\Delta CCI_t = \alpha_0 + \sum_{i=1}^{p-1} \beta_i \Delta CCI_{t-i} + \sum_{i=0}^{q-1} \gamma_i^- \Delta X_{t-i}^- + \sum_{i=0}^{r-1} \gamma_i^+ \Delta X_{t-i}^+ + \delta^- ECT_{t-1}^- + \delta^+ ECT_{t-1}^+ + \varepsilon_t$$

$$Z_t^+ = \max(0, Z_t) \text{ and } Z_t^- = \min(0, Z_t)$$

ASYMMETRIC RELATIONSHIP

		Asymmetric ECM		
	Symmetric ECM	Positive change	Negative change	t-test
ECT(-1)	-0.35 (-7.56)***	-0.34 (-3.89)***	-0.33 (-3.59)***	-0.02
ΔCPI	-0.87 (-3.82)***	-0.69 (-1.89)*	-4.34 (-2.90)***	2.13**
ΔU	-1.53 (-2.71)***	-1.11 (-0.99)	-1.84 (-1.34)	0.34
ΔIP	0.01 (0.04)	-0.05 (-0.38)	0.13 (0.72)	-0.67
ΔEX	-0.42 (-7.40)***	-0.50 (-6.90)***	-0.25 (-2.21)**	-1.80*
ΔICONS	-0.82 (-5.14)***	-0.82 (-2.98)***	-0.52 (1.46)	-0.58

ASYMMETRIC RELATIONSHIP

- **ECT** is stable
- **Two asymmetric responses**
 1. CPI: Decrease in CPI might be unexpected
 2. Exchange rate: People might be loss-averse and suffer from availability bias

POLITICAL FACTORS

- **Elections**

- Prior-election dummy (+)
- Post-election dummy (+)

- **Closure Case**

- March 18th – July 30th 2008

Date	Election
22.07.2007	Parliamentary
29.03.2009	Local
12.06.2011	Parliamentary
30.03.2014	Local
10.08.2014	Presidential

POLITICAL FACTORS

	Coefficient	t-statistic
COURTCASE	-2.17	-3.33***
Δ COURTCASE	-1.45	-1.82*
ELECT-PRIOR	2.06	3.78***
ELECT-POST	1.86	2.64***
ECT(-1)	-0.30	-7.42***
Δ CCI(-1)	-0.06	-0.88
Δ CCI(-2)	-0.01	-0.11
Δ CPI	-0.76	-3.29***
Δ U	-2.21	-3.30***
Δ U(-1)	0.99	2.03**
Δ U(-2)	1.95	1.99**
Δ IP	-0.05	-0.53
Δ EX	-0.35	-5.97***
Δ EX(-1)	-0.07	-1.70*
Δ EX(-2)	-0.02	-0.32
Δ ICONS	-0.91	-5.04***

ROBUSTNESS

- Cointegrating relationship is confirmed
- It is most likely when the confidence is the dependent variable
- Long-run coefficients under alternative methods of estimation
- Dollar vs. euro
- Interest rate on cash loans
- Alternative measures for employment
- Leading indicators index
- Core (permanent shocks) vs. Non-core inflation (temporary shocks)
- Stock market

CONCLUSION

- Major determinants of confidence are inflation, unemployment, exchange rate and interest rates on consumer loans
- Confidence is more responsive to a slowdown in inflation compared to an acceleration
- Confidence is more responsive to a depreciation of TL compared to an appreciation
- Financial variables are more important during high financial volatility times
- Political factors influence the confidence

GOOGLE-BASED APPROACH

- Long-run determinants of CCI

	Coefficient	t-statistic	Coefficient	t-statistic
Consumer Price Index	-0.60	-5.20***	-0.57	-6.41***
Unemployment	-3.51	-4.70***	-1.52	-2.00**
Industrial Production	0.09	0.47	0.39	2.35**
Exchange Rate	-0.28	-4.69***	-0.23	-5.25***
Interest on Consumer Loan	-1.74	-5.56***	-1.08	-4.50***
Google Index			3.91	3.42***

- Short-run determinants of CCI

	Coefficient	t-statistic	Coefficient	t-statistic
Error correction term	-0.35	-7.56***	-0.43	-11.05***
Consumer Confidence	1.16	5.39***	1.24	7.46***
Consumer Price Index	-0.87	-3.82***	-0.53	-1.87*
Unemployment	3.48	3.79***	3.75	5.30***
Industrial Production	0.01	0.04	0.15	0.18
Exchange Rate (0 to -2)	-0.55	-5.95***	-0.44	-5.09***
Exchange Rate (-3 to -6)	0.61	5.99***	0.61	6.33***
Interest on Consumer Loan	-0.82	-5.14***	-0.87	-6.15***
Google Index			1.53	1.74*

Thanks...