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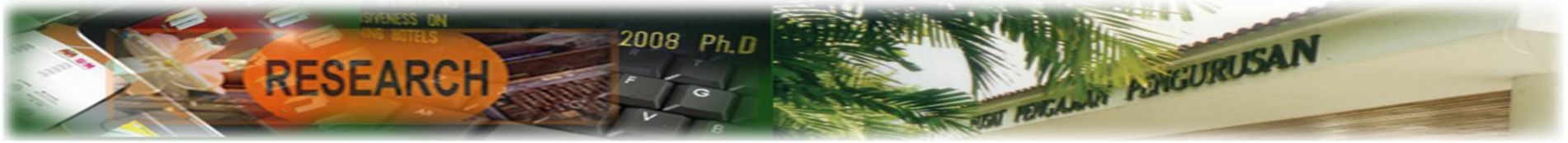
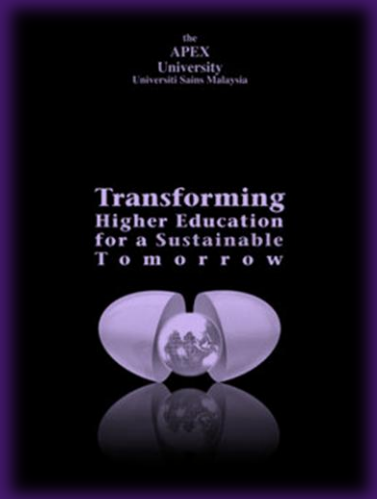


Integration between ASEAN-5 and the World: A Structural Assessment of International Parity Conditions



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Background & Issue

Institutional developments towards worldwide integration:

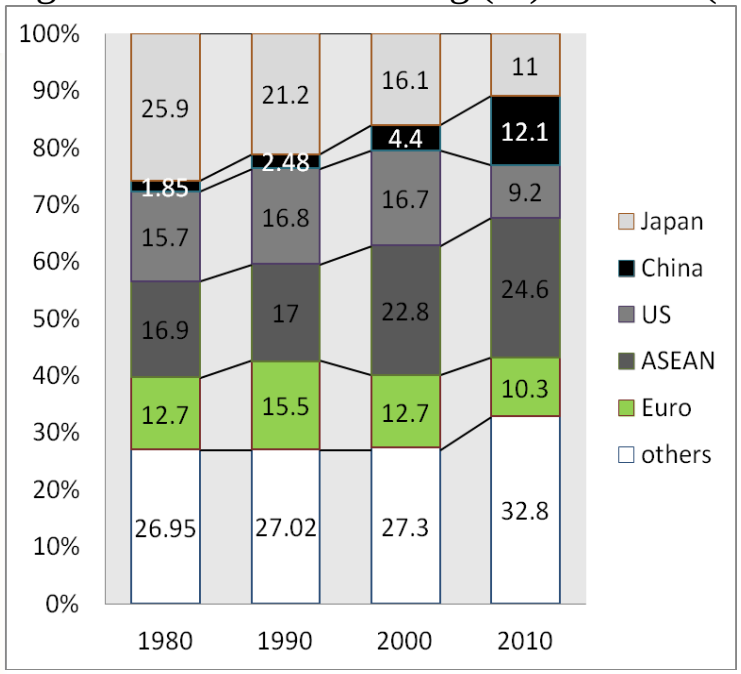
- promotes competition, enhances trade expansion, improves risk sharing, increases the efficiency of capital allocation
- volatile market prices and contagion effects that entail with greater transmission of shocks

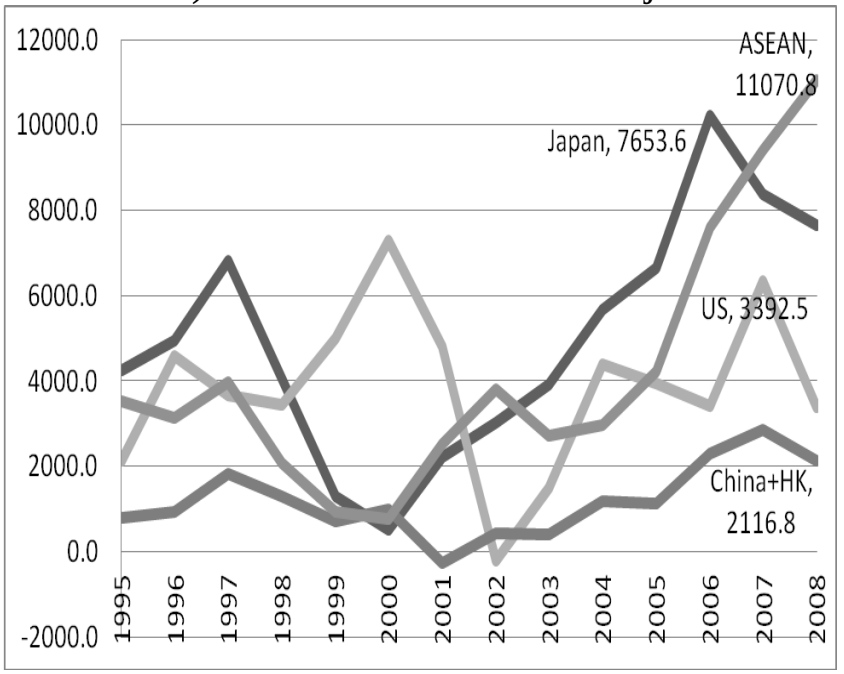
New development path towards sustainable growth:

- ASEAN+3+2+1?
- ASEAN Community?
- TPP?

Background & Issue

Figure 1: Trends of Trading (%) and FDI (million USD) between ASEAN and Major Partners





Sources: Direction of Trade Statistics Yearbook 1987, 1997, 2004, 2011 (IMF); ASEAN Statistical Yearbook 2003 & 2008

US – Financial turmoil?

China – Rising global force?

Japan – The lost decade?

Background & Issue

Integration – Dominant hypothesis?
(Phylaktis, 1997; 1999; Cheung, *et al.*, 2003; Cavoli, *et al.*, 2004; Baharumshah and Chan, 2007)

Sequencing of Economic Integration?
(Pomfret, 2005; Eichengreen, 2003, 2006; Wyplosz, 2004, 2006; Chan, 2012)

Decoupling-Defense Mechanism?
(Kim et al, 2009; Park, 2011)

Study

Joint assessment of PPP and UIP for ASEAN5 vis-à-vis the US, Japan and China, 1996: Jan to 2012: Feb

Theoretical Concern

- failure account for the interdependence of adjustments in the international asset and commodity markets (Juselius, 1995; Özmen and Gökcan, 2004)

Methodological Concern

- Small Open Economies
- VARX & VECMX – I(1) exogenous variables (Assenmacher-Wesche and Pesaran, 2009)
- Small sample size-Bootstrapping

Econometric Models & Estimation Procedures

$$PPP: P_t = P_t^* + EX_t$$

$$UIP: R_t - R_t^* = E_t(EX_{t+1}) - EX_t$$

$$Combined: P_t - P_t^* - EX_t = R_t - R_t^*$$

$$z_t = (P_t, R_t, EX_t, P_t^*, R_t^*)'$$

$$VECMX: \quad \Delta y_t = -\prod_y z_{t-1} + \Lambda \Delta x_t + \sum_{i=1}^{p-1} \Psi_i z_{t-i} + c_0 + c_1 t + c_2 D_{crisis,t} + \nu_t$$

$$\Delta x_t = \sum_{i=1}^{p-1} \Gamma_{xi} \Delta z_{t-i} + c_{x0} + \mu_t$$

Econometric Models & Estimation Procedures

$$z_t = (P_t, R_t, EX_t, P_t^*, R_t^*)'$$

$$PPP : (P_t - P_t^* - EX_t) \sim I(0)$$

$$UIP : (R_t - R_t^*) \sim I(0)$$

$$\beta' = \begin{pmatrix} 1 & 0 & -1 & -1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & -1 & 0 & 0 & 0 \end{pmatrix}$$

$$\beta_1(PPP) = (\beta_{11} \quad \beta_{12} \quad \beta_{13} \quad \beta_{14} \quad \beta_{15} \quad \beta_{16} \quad \beta_{17} \quad \beta_{18})'$$

$$\beta_2(UIP) = (\beta_{21} \quad \beta_{22} \quad \beta_{23} \quad \beta_{24} \quad \beta_{25} \quad \beta_{26} \quad \beta_{27} \quad \beta_{28})'$$

Empirical Discussion

Table 1a: VARX Cointegrating Tests for Indonesia

Hypotheses	H_0 $H_{\lambda\text{-}max}$	$r = 0$ $r = 1$	$r \leq 1$ $r = 2$	$r \leq 2$ $r = 3$
λ-Max statistics	Indo-US (2,1)	69.84**	34.95**	10.68
	Indo-CH (2,2)	37.15**	26.45	8.06
	Indo-JP (2,2)	35.64**	20.20	7.09
Bootstrapped Critical Values	$95\%_{\lambda\text{-}max}$	39.8391	31.4619	23.8863
	$90\%_{\lambda\text{-}max}$	36.8855	28.9557	21.4942

Notes: ** and * denote significant at 95% and 90% confidence level respectively. λ-Max statistics are cointegration LR tests based on maximal eigenvalue of the stochastic matrix. The 95% and 90% critical values are generated by bootstrap method using 194 observations and 1000 replications. The underlying International Parity VARX model contains unrestricted intercept with trend and the AIC-based optimal lag order is shown in the parentheses ( ).

Table 1b: VARX Cointegrating Tests for Malaysia

Hypotheses	H_0 $H_{\lambda\text{-}max}$	$r = 0$ $r = 1$	$r \leq 1$ $r = 2$	$r \leq 2$ $r = 3$
λ-Max statistics	Mal-US (2,2)	56.99**	32.24**	10.70
	Mal-CH (3,2)	42.94**	29.49*	9.73
	Mal-JP (2,2)	69.28**	33.88**	7.88

Note: see Table 1a for details.

VARX Cointegration

- λ-max: presence of two cointegrating relations (*r=2*) for 22 out of 30 cases among the ASEAN5 vis-à-vis the US, China & Japan
- result in line with the theoretical expectation that PPP and UIP may jointly hold

Empirical Discussion

Table 1c: VARX Cointegrating Tests for the Philippines

Hypotheses	H_0 / $H_{\lambda\text{-max}}$	$r = 0$ / $r = 1$	$r \leq 1$ / $r = 2$	$r \leq 2$ / $r = 3$
λ-Max statistics	Phi-US (3,2)	50.35**	33.25**	5.48
	Phi-CH (3,3)	42.99**	21.49	6.58
	Phi-JP (3,1)	46.18**	23.88	5.64

Note: see Table 1a for details.

Table 1d: VARX Cointegrating Tests for Singapore

Hypotheses	H_0 / $H_{\lambda\text{-max}}$	$r = 0$ / $r = 1$	$r \leq 1$ / $r = 2$	$r \leq 2$ / $r = 3$
λ-Max statistics	SNG-US (2,2)	46.18**	31.76**	11.98
	SNG-CH (2,3)	45.96**	18.82	12.93
	SNG-JP (2,2)	42.97**	23.88	10.58

Note: see Table 1a for details.

Table 1e: VARX Cointegrating Tests for Thailand

Hypotheses	H_0 / $H_{\lambda\text{-max}}$	$r = 0$ / $r = 1$	$r \leq 1$ / $r = 2$	$r \leq 2$ / $r = 3$
λ-Max statistics	THAI-US (2,1)	36.92*	26.57	10.38
	THAI-CH (2,3)	36.95*	21.49	11.22
	THAI-JP (3,2)	46.18**	29.35*	9.82

Note: see Table 1a for details.

VARX Cointegration

- ASEAN-US holds better
- still early to conclude if the integration process is less evident for ASEAN5 vis-à-vis Japan and China.

Empirical Discussion

Table 2a: Exact-identifying Restrictions on PPP and UIP vis-à-vis the US

		Exact-identifying Restrictions ($\beta_{11}=1, \beta_{12}=0, \beta_{21}=0, \beta_{22}=1$)							
		P	R	EX	P*	R*	T	D_{98}	D_{08}
INDO-US	CV1(PPP)	1.00	0.00	-1.58** (0.005)	-2.84** (0.57)	0.03 (0.02)	-0.003** (0.0001)	0.19* (0.09)	0.07* (0.03)
	CV2(UIP)	0.00	1.00	-0.63* (0.28)	0.23** (0.10)	-0.16* (0.07)	0.002 (0.002)	-0.36** (0.10)	0.14** (0.02)
MAL-US	CV1(PPP)	1.00	0.00	-0.28** (0.05)	-0.18** (0.03)	-0.07** (0.03)	-0.001** (0.0001)	0.05** (0.01)	0.01** (0.005)
	CV2(UIP)	0.00	1.00	0.91* (0.47)	1.39** (0.44)	-0.35* (0.19)	0.003** (0.001)	-0.34** (0.11)	0.10** (0.03)
PHI-US	CV1(PPP)	1.00	0.00	-2.01 (0.15)	1.33* (0.63)	0.07 (0.05)	0.02* (0.01)	-0.05 (0.04)	0.10 (0.06)
	CV2(UIP)	0.00	1.00	1.27 (0.69)	-1.05 (0.74)	0.53 (0.49)	0.06* (0.03)	0.04 (0.10)	0.18 (0.33)
SNG-US	CV1(PPP)	1.00	0.00	-0.67* (0.34)	-0.23** (0.08)	-0.34* (0.18)	-0.002* (0.001)	0.05** (0.02)	0.52** (0.06)
	CV2(UIP)	0.00	1.00	1.01* (0.57)	0.29* (0.14)	-1.87** (0.56)	0.004** (0.001)	-0.43** (0.12)	0.89** (0.25)
THAI-US	CV1(PPP)	1.00	0.00	-0.16** (0.05)	-3.33** (1.00)	0.02** (0.007)	0.006* (0.003)	0.27** (0.08)	0.05** (0.01)
	CV2(UIP)	0.00	1.00	0.48* (0.25)	-7.51* (3.92)	-0.03 (0.02)	0.003 (0.002)	-0.20** (0.07)	0.23* (0.12)

Notes: ** and * denote significant at 95% and 90% confidence level respectively. CV1 and CV2 represent the respective cointegrating vector for PPP and UIP. Asymptotic standard errors are reported in the parentheses.

Restriction Tests

- CV1 (PPP): exchange rate and foreign price are statistically significant and carry the expected negative sign, in 10 out of 15 cases
- Goods-market arbitrage will tend to move the USD-based and Yen-based exchange rates to equalize prices in the countries
- CV2 (UIP): potential but incomplete UIP relationship for ASEAN5 against the US, China and Japan.
- exchange rate and foreign prices also plays a significant role in the UIP relation

Empirical Discussion

Table 2b: Exact-identifying Restrictions on PPP and UIP vis-à-vis China

		Exact-identifying Restrictions ($\beta_{11}=1, \beta_{12}=0, \beta_{21}=0, \beta_{22}=1$)							
		P	R	EX	P*	R*	T	D_{98}	D_{08}
INDO-CH	CV1(PPP)	1.00	0.00	-2.30*	-1.42**	0.05	-0.003	0.58**	0.12
				(0.12)	(0.57)	(0.10)	(0.002)	(0.17)	(0.14)
	CV2(UIP)	0.00	1.00	-0.25*	1.02*	0.31	0.002	-0.69*	0.32*
				(0.12)	(0.49)	(0.19)	(0.003)	(0.34)	(0.17)
MAL-CH	CV1(PPP)	1.00	0.00	-0.63*	-0.87**	-0.12*	-0.012**	0.23*	0.12*
				(0.29)	(0.30)	(0.06)	(0.002)	(0.11)	(0.06)
	CV2(UIP)	0.00	1.00	0.43*	0.77*	-1.02**	0.005*	-0.54**	0.07*
				(0.24)	(0.34)	(0.41)	(0.003)	(0.22)	(0.03)
PHI-CH	CV1(PPP)	1.00	0.00	-0.15	0.21*	0.25	0.002	-0.10	0.22
				(0.21)	(0.10)	(0.15)	(0.03)	(0.14)	(0.16)
	CV2(UIP)	0.00	1.00	0.96	-0.54	0.38	0.04	0.24	0.07
				(1.72)	(0.66)	(0.52)	(0.03)	(0.31)	(0.12)
SNG-CH	CV1(PPP)	1.00	0.00	-0.48*	-0.46*	-0.44	-0.007*	0.14	0.24
				(0.27)	(0.25)	(0.31)	(0.004)	(0.08)	(0.15)
	CV2(UIP)	0.00	1.00	0.13*	0.39*	-0.74*	0.008*	-0.22	0.33
				(0.07)	(0.18)	(0.30)	(0.004)	(0.13)	(0.24)
THAI-CH	CV1(PPP)	1.00	0.00	-0.25*	-1.57*	0.10	0.026*	0.44	0.17*
				(0.14)	(0.83)	(0.07)	(0.03)	(0.38)	(0.07)
	CV2(UIP)	0.00	1.00	0.11	-2.13*	-0.12*	-0.015	-0.12	0.09
				(0.22)	(0.96)	(0.05)	(0.02)	(0.09)	(0.12)

Note: see Table 1a for details.

Restriction Tests

- ASEAN-China: undervalued exchange rate regime may have exerted some drawback on PPP
- PPP and UIP relations are consistent for Singapore, Malaysia and Thailand but inconsistent for Philippines and Indonesia vis-à-vis the US, Japan and China

Empirical Discussion

Table 2c: Exact-identifying Restrictions on PPP and UIP vis-à-vis Japan

		Exact-identifying Restrictions ($\beta_{11}=1, \beta_{12}=0, \beta_{21}=0, \beta_{22}=1$)							
		P	R	EX	P*	R*	T	D_{98}	D_{08}
INDO-JP	CV1(PPP)	1.00	0.00	-0.47**	-0.29*	0.11	-0.01*	0.27*	0.33
				(0.01)	(0.17)	(0.08)	(0.005)	(0.14)	(0.29)
	CV2(UIP)	0.00	1.00	-0.39*	0.21**	-0.44*	0.01	0.44*	0.13*
				(0.20)	(0.08)	(0.24)	(0.01)	(0.24)	(0.24)
MAL-JP	CV1(PPP)	1.00	0.00	-0.62**	-0.19*	-0.24*	-0.02	0.09	0.17
				(0.20)	(0.10)	(0.13)	(0.02)	(0.11)	(0.13)
	CV2(UIP)	0.00	1.00	0.47*	0.34	-0.89*	0.06	0.22	0.20
				(0.25)	(0.23)	(0.42)	(0.05)	(0.18)	(0.14)
PHI-JP	CV1(PPP)	1.00	0.00	-1.21*	0.16	0.19	-0.007*	-0.24	0.15
				(0.59)	(0.24)	(0.14)	(0.003)	(0.34)	(0.24)
	CV2(UIP)	0.00	1.00	0.33	-0.51	0.24	0.01*	0.16	0.25
				(0.45)	(0.47)	(0.33)	(0.005)	(0.25)	(0.32)
SNG-JP	CV1(PPP)	1.00	0.00	-0.69*	-0.09*	-0.13	-0.002	0.12	0.22**
				(0.36)	(0.04)	(0.42)	(0.003)	(0.38)	(0.08)
	CV2(UIP)	0.00	1.00	0.47*	0.17	-0.37	0.006	0.13	0.41*
				(0.27)	(0.21)	(0.30)	(0.005)	(0.12)	(0.20)
THAI-JP	CV1(PPP)	1.00	0.00	-0.65*	-1.08*	0.15	0.06*	0.38	0.09*
				(0.37)	(0.50)	(0.17)	(0.03)	(0.65)	(0.04)
	CV2(UIP)	0.00	1.00	0.28*	-0.57*	-1.72**	-0.013	0.11	0.13*
				(0.16)	(0.26)	(0.26)	(0.03)	(0.07)	(0.06)

Note: see Table 1a for details.

Empirical Discussion

Table 3a: PPP and UIP Restriction Tests, vis-à-vis the US

Hypotheses		Exact- and Over-identifying Restrictions	LR (χ^2)				
			INDO	MAL	PHI	SNG	THAI
(a)	co-trending	$\beta_{16} = 0, \beta_{26} = 0$	6.15	7.01	7.78	8.50	5.54
(b)	co-breaking 98	$\beta_{17} = 0, \beta_{27} = 0$	4.55	9.69	12.33*	5.64	4.88
(c)	co-breaking 08	$\beta_{18} = 0, \beta_{28} = 0$	7.39	9.52	7.21	8.99	10.88
(d)	PPP	$\beta_{13} = -1, \beta_{14} = -1, \beta_{15} = 0$	11.55	11.97	15.78*	10.49	10.24
(e)	UIP	$\beta_{23} = 0, \beta_{24} = 0, \beta_{25} = -1$	15.86*	6.50	13.56*	9.40	10.38
(f)	PPP+UIP	$\beta_{13} = -1, \beta_{14} = -1, \beta_{15} = 0, \beta_{23} = 0, \beta_{24} = 0, \beta_{25} = -1$	9.92	15.15	23.35*	13.52	16.28

Notes: * denotes significant at 95% confidence level. The 95% critical values are generated by bootstrap method using 194 observations and 1000 simulations but not reported here. All ML estimates converged within 100 iterations. The underlying VARX trade model is contains unrestricted intercept with trend, and based on the specified models in Table 1a-1e.

Over-identifying Restriction Tests

- co-trending hypothesis (a): inconsistent - all cases in ASEAN5-US have not rejected the co-trending but mixed results are found in ASEAN5-Japan and ASEAN5-China.
- co-breaking hypotheses (D98, D08): results are more supportive, implying a somewhat synchronized cycle of crises among the countries being studied

Empirical Discussion

Table 3b: PPP and UIP Restriction Tests, vis-à-vis China

Hypotheses		Exact- and Over-identifying Restrictions	LR (χ^2)				
			INDO	MAL	PHI	SNG	THAI
(a)	co-trending	$\beta_{16}=0, \beta_{26}=0$	9.07	13.27*	7.78	12.54*	7.88
(b)	co-breaking 98	$\beta_{17}=0, \beta_{27}=0$	10.96*	15.28*	8.33	7.56	6.54
(c)	co-breaking 08	$\beta_{18}=0, \beta_{28}=0$	8.54	12.87*	8.54	6.73	9.09
(d)	PPP	$\beta_{13}=-1, \beta_{14}=-1, \beta_{15}=0$	11.01	9.18	11.44	12.51	10.24
(e)	UIP	$\beta_{23}=0, \beta_{24}=0, \beta_{25}=-1$	13.78*	13.68*	17.56*	14.24*	15.49*
(f)	PPP+UIP	$\beta_{13}=-1, \beta_{14}=-1, \beta_{15}=0, \beta_{23}=0, \beta_{24}=0, \beta_{25}=-1$	22.37	15.57	32.59*	16.72	21.18

Notes: See Table 3a for details.

Table 3c: PPP and UIP Restriction Tests, vis-à-vis Japan

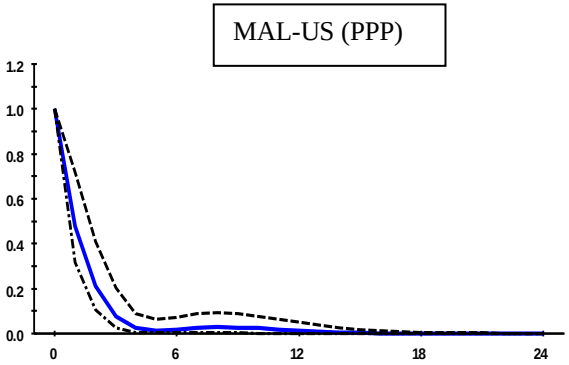
Hypotheses		Exact- and Over-identifying Restrictions	LR (χ^2)				
			INDO	MAL	PHI	SNG	THAI
(a)	co-trending	$\beta_{16}=0, \beta_{26}=0$	10.07*	6.70	9.78*	7.98	10.27*
(b)	co-breaking 98	$\beta_{17}=0, \beta_{27}=0$	7.85	8.22	8.59	7.56	8.23
(c)	co-breaking 08	$\beta_{18}=0, \beta_{28}=0$	8.98	7.12	8.78	5.65	6.78
(d)	PPP	$\beta_{13}=-1, \beta_{14}=-1, \beta_{15}=0$	9.00	8.32	10.09	7.11	9.33
(e)	UIP	$\beta_{23}=0, \beta_{24}=0, \beta_{25}=-1$	11.22	9.34	18.77*	17.24*	10.54
(f)	PPP+UIP	$\beta_{13}=-1, \beta_{14}=-1, \beta_{15}=0, \beta_{23}=0, \beta_{24}=0, \beta_{25}=-1$	22.77	16.64	25.55*	16.72	14.63

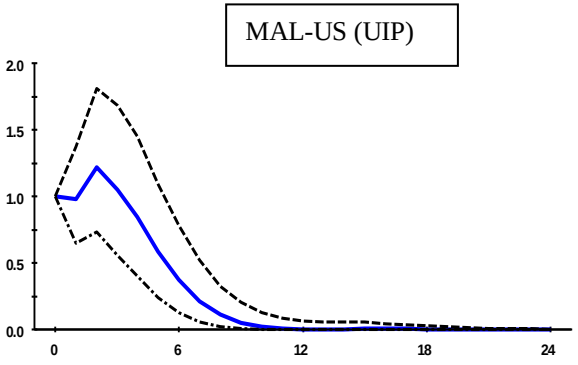
Notes: See Table 3a for details.

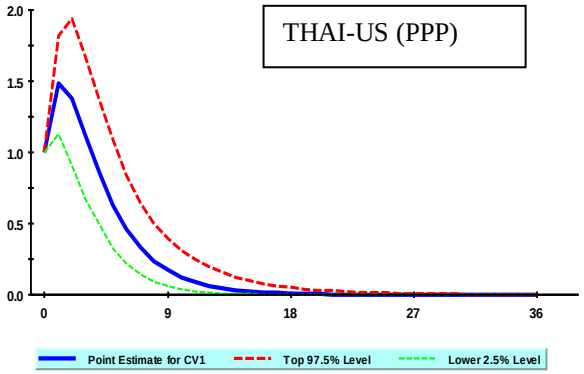
Over-identifying Restriction Tests

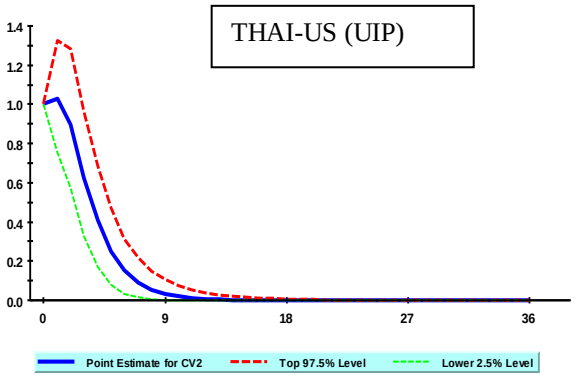
- UIP alone does not hold when the absolute UIP restriction is imposed.
- Supportive results when both PPP and UIP are jointly restricted.
- Possible interactions between the goods and capital markets to be allowed to establish the international parities relations.
- PPP & UIP hold better for ASEAN-US

Empirical Discussion





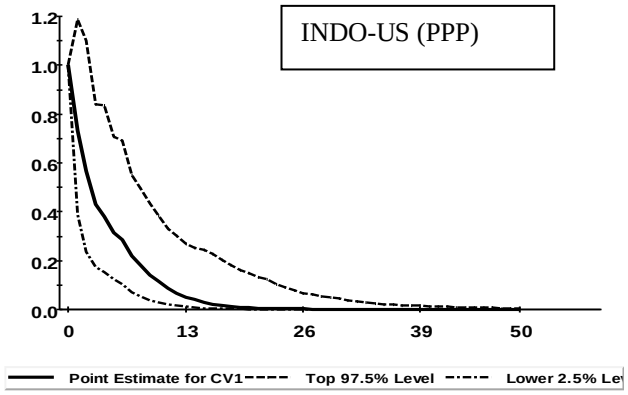


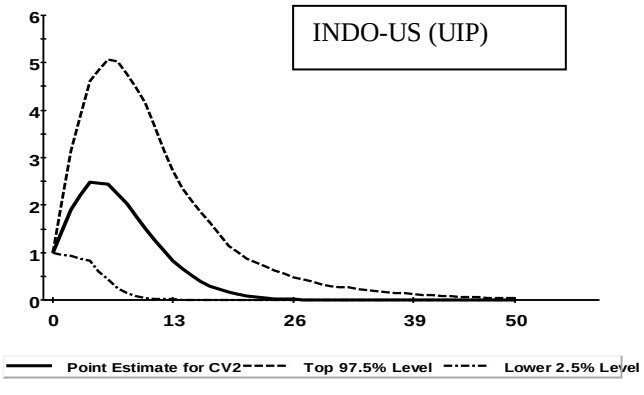


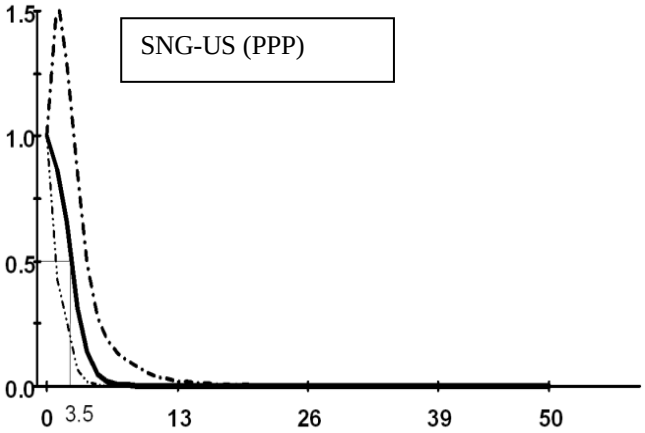
Persistent Profile Analysis

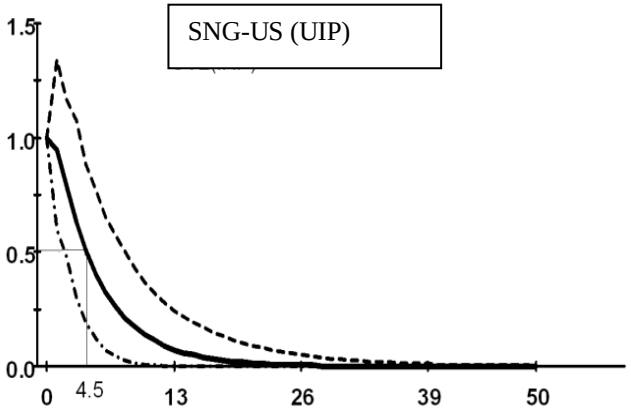
- system-wide shocks on the cointegrating relations
- Thailand-US: half-life for PPP relation is about 6-7 months and the whole effect takes around 18 months to complete.
- Overall, the half-lives for PPP (8-12 months) are generally shorter than that of UIP (10-15 months).
- less problem of sequencing in the integration process for ASEAN5 with the US, China and Japan

Empirical Discussion





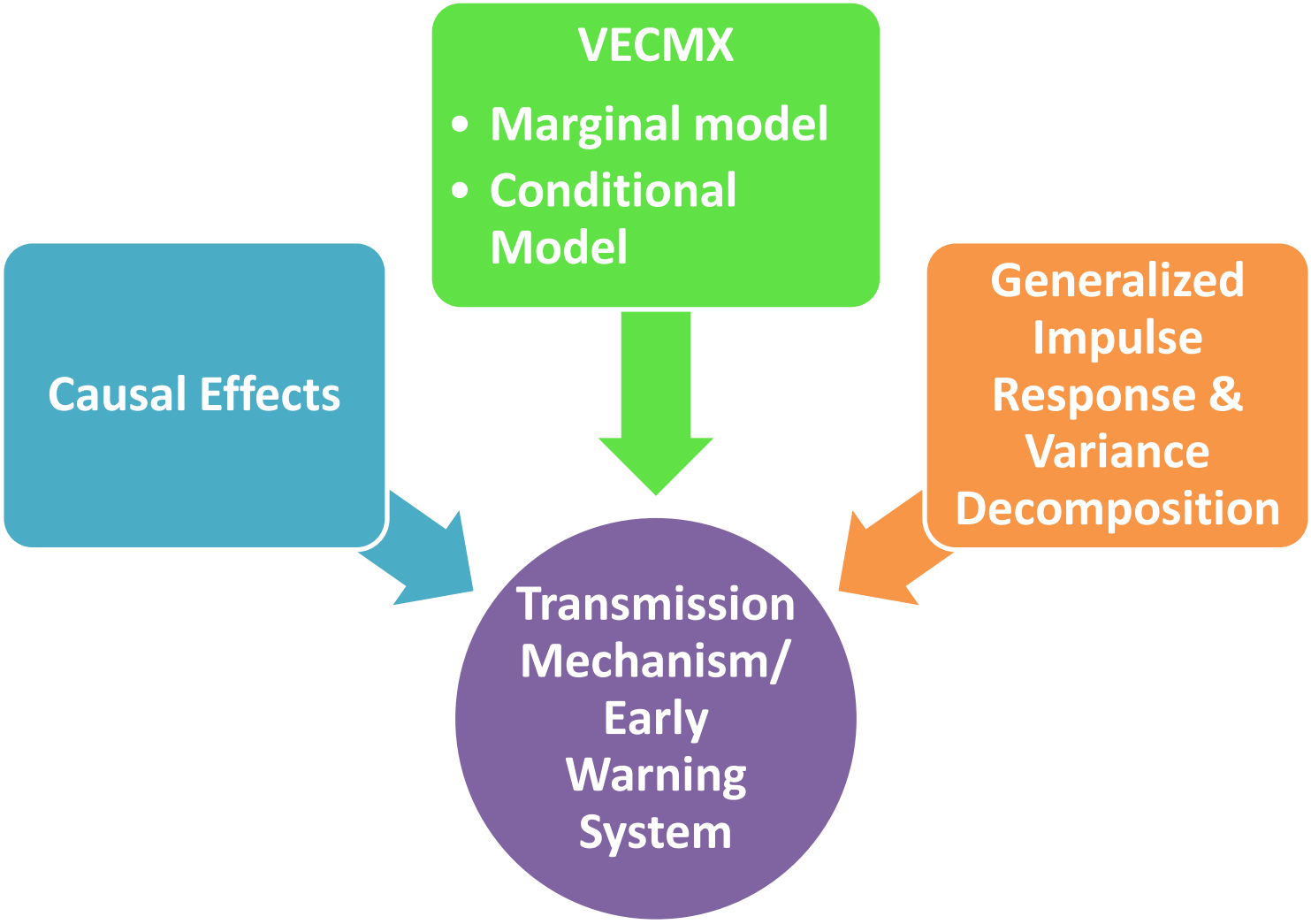




Persistent Profile Analysis

- The integration process is attributed not only to the liberalization process among the ASEAN economies, but also to the Japan and Chinese trade policy and the regional commitment for the ASEAN+3+2+1 cooperation.
- The prospect of WTO membership is indeed instrumental for ASEAN and China to move towards liberalizing their external sectors and capital accounts.

What was not reported…



Conclusion and Policy Implication

Evidence of long run PPP but incomplete UIP relations between ASEAN5 vis-à-vis the US, China and Japan

deviations are shorter-lived for PPP and UIP for ASEAN5, as symptomatic of a better absorption of external shocks

faster pace of adjustment towards price instead of the interest rate equilibrium

Insufficient evidences to suggest 'decoupling' for ASEAN5-US

Conclusion and Policy Implication

A brighter feasibility towards regional financial deepening and currency arrangements

Economic Integration would enable this region to exert an important influence upon the future evolution of the global trade and financial system

'Open Regionalism'

A closer monitor of the Chinese prices and monetary changes is essential with the promotion of a more flexible exchange rate between ASEAN5-China

Thank You

Table 4: Error Correction Representation in VECX* Modeling

Regressor	Dependent Variable: ΔP_M Coefficient	ΔP_M t-sta [P-value]	ΔR_M Coefficient	ΔR_M t-sta [P-value]
		Conditional Model		
ΔP_{Mt-1}	0.1235	1.0241[0.311]	-1.0130	-0.6889[0.494]
ΔR_{Mt-1}	2.0651 [b]	2.2101[0.032]	0.1426	0.97591[0.334]
ΔEX_{Mt-1}	-0.0160	-0.5238[0.603]	-0.0038	-0.8017[0.427]
c	0.1273 [b]	2.4322[0.019]	-0.0005	-0.0634[0.950]
T	-0.0004 [c]	-2.9216[0.005]	-0.0004 [a]	-1.8076[0.077]
ΔD_{98}	0.0024	0.6134[0.543]	0.0014	0.2290[0.820]
ΔD_{08}	-0.0110 [c]	-3.3585[0.002]	-0.0004	-0.0891[0.929]
$ECT1_{t-1}$	-0.2360 [c]	-4.5094[0.000]	-0.0261 [c]	-3.1899[0.003]
$ECT2_{t-1}$	-0.1109 [c]	-4.3984[0.000]	-0.3880 [c]	-3.5081[0.001]
		Marginal Model		
ΔP_{Ct-1}	-0.1188 [b]	-2.1278[0.039]	0.0132 [a]	1.9024[0.064]
ΔR_{Ct-1}	0.4890	0.5799[0.565]	-0.1682	-1.2760[0.208]
		Diagnostic Tests		
R^2	0.5721		0.3597	
AUTO	2.0833[0.115]		2.1080[0.100]	
RESET	0.0619[0.805]		0.8312[0.366]	
Normal	1.5086[0.470]		3.8064[0.149]	
Hetero	0.6923[0.409]		0.6190[0.435]	

Notes: [a, b, c] denote significant at the 10%, 5%, and 1% levels, respectively. AUTO is the Lagrange Multiplier test for serial correlation; RESET is the Ramsey Regression Equation Specification Error Test for functional form; Normal is a test that examines for normality in the errors; and Hetero tests for heteroscedasticity. Except for the Normal test that uses chi-squared statistics, all diagnostic tests are conducted using *F*-statistics.

-$ECT1_{t-1}$ and $ECT2_{t-1}$ correctly signed.

-PPP adjustment is greater in the price equation (-0.236) but lower in the interest equation (-0.0261). UIP adjustment is of greater pace in the interest equation (-0.388) but slower in the price equation (-0.1109).

-lagged ΔP_{Ct-1} and ΔR_{Mt-1} are significant in explaining Malaysian price changes. ΔP_{Ct-1} is significant in the interest equation.

-Together, these suggest a direct price transmission from China to Malaysia in the short-run, and Malaysian monetary policy responded to Chinese price to ease domestic inflation.

-Though with correct signs, the ΔR_{Ct-1} is insignificant in both equations, suggesting rooms of monetary autonomy in short run.

Table 5: Generalized Variance Decomposition for VECX* Model

Variables	Horizon	% of Forecasted Variance Explained by Innovations in				
		P_M	R_M	EX_M	P_C	R_C
P_M	1	**0.67866**	0.01698	0.06433	0.26760	0.01898
	4	**0.32092**	0.01291	0.17422	0.46487	0.03911
	8	**0.15890**	0.01169	0.26009	0.52116	0.04409
	12	**0.09896**	0.00947	0.30946	0.52850	0.04374
	16	**0.07012**	0.00778	0.34027	0.52632	0.04270
R_M	1	0.03342	**0.87761**	0.04833	0.02472	0.05448
	4	0.16185	**0.63780**	0.05432	0.02330	0.07480
	8	0.22081	**0.37140**	0.26632	0.02659	0.05042
	12	0.16949	**0.20011**	0.46507	0.02935	0.07938
	16	0.12094	**0.11707**	0.56407	0.03020	0.11756
EX_M	1	0.10128	0.00392	**0.71172**	0.15362	0.00304
	4	0.12654	0.00355	**0.67662**	0.16529	0.00308
	8	0.14999	0.00328	**0.64493**	0.17532	0.00319
	12	0.17130	0.00307	**0.61668**	0.18393	0.00331
	16	0.19043	0.00290	**0.59165**	0.19135	0.00345
P_C	1	0.00751	0.00785	0.04065	**0.87362**	0.06688
	4	0.00922	0.00495	0.06645	**0.84849**	0.07309
	8	0.01050	0.00418	0.10279	**0.80326**	0.08181
	12	0.01065	0.00372	0.13316	**0.77021**	0.08391
	16	0.01052	0.00342	0.15959	**0.74261**	0.08429
R_C	1	0.00012	0.00109	0.01070	0.03957	**0.95734**
	4	0.00022	0.00043	0.02447	0.03434	**0.94853**
	8	0.00014	0.00024	0.02484	0.03683	**0.94612**
	12	0.00012	0.00017	0.02331	0.03918	**0.94572**
	16	0.00011	0.00014	0.02168	0.04135	**0.94557**

Innovation from the Chinese price and exchange rate explained substantial portion of forecast error variance in Malaysian Price.

As for R_M, the major innovation also comes from the exchange rate (4%-56%) at increasing rate. Meaning that Malaysian remains the relative monetary autonomy but the exchange rate regime will affect the extent of UIP condition in the long run.

Chinese variables (P_C and R_C) seem to be the most exogenous variables, as most of the shocks are explained by their own innovations (74%–87% and 94%-95%) over the horizon of 16 quarters.