



UNIVERSITI PUTRA MALAYSIA

**AN APPLICATION OF AUGMENTED MONETARY CONDITIONS INDEX
ON THE ASEAN-FIVE**

POON WAI CHING

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**AN APPLICATION OF
AUGMENTED MONETARY CONDITIONS INDEX
ON THE ASEAN-FIVE**

By

POON WAI CHING

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirement for the Degree of Doctor of Philosophy**

June 2007



DEDICATION

To my dear family, My Beloved Parents, My Brothers and Sisters, In-law,

and

My Lovely Nephews and Nieces

To whom we pray for better tomorrow.



Abstract of thesis presented to the Senate of Universiti Putra Malaysia
in fulfilment of the requirement for the degree of Doctor of Philosophy

AN APPLICATION OF AUGMENTED MONETARY CONDITIONS INDEX ON THE ASEAN-FIVE

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June 2007

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Faculty : Economics and Management

Previous studies have suggested Monetary Conditions Index (hereafter MCI) serves as an indicator of the monetary policy stance to capture the degree of tightness of the monetary policy. The weights of the MCI in the model reflect long-term effects of the interest rate and the exchange rate on the economic activity and ultimately the inflation. Nevertheless, MCIs may not be used as an operational target as it has heavily been documented in the mainstream literature since it is not resilient to the problem of shock identification. Recognizing the caveats upon its usage empirically, the augmented MCI (AMCI) is contemplated by incorporating more informative ‘other variables’ into the conventional model which consists of two major variables i.e., the interest rate and the exchange rate. Since monetary policy affects the price level through a number of transmission mechanisms, other potential variables need to be incorporated to AMCI to account for possible channels in the transmission mechanisms. The details of “other variables” are as follows: 1) government bonds



yield as proxy for long-term interest rate; 2) the real share price as proxy for asset price channel, and 3) real claims on private sectors for credit channel. However, the lag effects of the examined determinant variables on output are dynamics and vary, at least in the short-term. Therefore, the main objective of this thesis is to estimate the weight of the AMCI, and identify the lag effect on the real Gross Domestic Product (GDP) using Autoregression Distribution Lags (ARDL) bounds test approach for cointegration analysis as proposed by Pesaran *et al.*, (2001).

Bounds test reveals an evidence of the long-run cointegration for all the ASEAN-Five founder countries. This has verified the stability of the country's GDP demand function which is used to construct the AMCI ratio. In Indonesia, the bounds test reveals an evidence of the long-run cointegration between the real GDP and its determinants, namely the bond rate, the exchange rate, and the share prices from 1983:2-2004:4. Nevertheless, the claim of private sector (COPS, the proxy of credit channel) does not appear to be a significant variable in the model. Meanwhile for both Malaysia and Singapore, the ARDL approach validates the existence of long-run cointegration between the GDP and the exchange rate, the bond and the short-term interest rate, as well as the COPS over the quarterly period of 1980:1-2004:4 and 1981:1-2004:4 respectively. Nevertheless, the asset price channel does not fit into the model significantly. While in Thailand, the bounds test reveals an evidence of the cointegration between the real GDP and its determinants, i.e., the interest rate, the exchange rate, and the share price over the quarterly period of 1980:1-2004:4). However, the credit channel does not reveal any significant result in

the model. In the Philippines, the bounds test reveals an evidence of a cointegration between the real GDP and the bond rate, the short-term interest rate, the exchange rate, the COPS, and the share price that address all the key transmission mechanisms channels in the conduct of the monetary policy, namely the interest rate channel, the exchange rate channel, the credit channel, and the asset price channel over the quarterly period of 1982:1-2004:4

Monetary conditions during the period under-study are found to be reflected in each of the central banks' reaction to the prevailing economic situation, which implies that AMCI tracks the inversed movements of the real GDP plausibly on the average, except during the onset of Asian financial crisis in 1997.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

APLIKASI INDEK KEADAAN KEWANGAN DI ASEAN-LIMA NEGARA

Oleh

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Kajian dahulu mencadangkan Indeks Keadaan Kewangan (MCI) berperanan sebagai petunjuk polisi kewangan untuk menggambarkan darjah keketatan polisi kewangan. Keberatan MCI yang ada pada model menunjukkan kesan jangka panjang faktor-faktor kadar bunga dan kadar pertukaran yang ada pada aktiviti ekonomi dan inflasi. Akan tetapi, MCI mungkin tidak digunakan sebagai sasaran operasi seperti mana yang dicatatkan pada karya-karya kerana ia tidak sensitif kepada masalah kejutan identifikasi. Kegunaan IKK dikritik secara empirika, ubahan MCI (AMCI) yang lebih informatif perlu dipertimbangkan dengan menambahkan "pembolehubah lain" kepada model garispanduan (yang hanya mengandungi dua pembolehubah utama, iaitu kadar bunga dan kadar pertukaran). Disebabkan polisi kewangan mempengaruhi paras harga melalui beberapa penghantaran mekanisma, potensi pembolehubah-pembolehubah yang lain perlu ditambahkan kepada AMCI model untuk mengambil kira kemungkinan saluran yang berpotensi pada penghantaran

mekanisme. Maklumat lengkap tentang “pembolehubah lain” adalah seperti berikut: 1) bon kerajaan sebagai proxi untuk kadar bunga jangka panjang; 2) harga saham benar sebagai proxi untuk harga asset saluran, dan 3) tuntutan ke atas sector swasta benar untuk saluran kredit. Namun, kesan ketangguhan yang ada dari penentu pembolehubah kepada output adalah dinamik dan berubah, sekurang-kurangnya untuk jangka pendek. Oleh itu, objektif utama tesis ini adalah untuk menjangka keberatan AMCI, dan mengidentifikasi kesan tangguhan yang ada pada Keluaran Dalam Negara Kasar (KDNK) benar, dengan menggunakan Ujian Autoregression Distribution Lags (ARDL) kaedah ujian lengkungan untuk menganalisa kointegrasi yang dicadangkan oleh Pesaran *et al.* (2001).

Ujian lingkungan membuktikan bahawa wujudnya kointegrasi jangka panjang pada ASEAN-Lima negara. Ini telah melanjutkan pengakuan kestabilan fungsi permintaan KDNK negara yang digunakan untuk menkonstruksi nisbah AMCI. Di Indonesia, ujian lingkungan menunjukkan bukti kointegrasi jangka panjang antara KDNK benar dan penentu pembolehubah, iaitu kadar bunga jangka panjang, kadar pertukaran, dan harga saham dari tahun 1983:2-2004:4. Akan tetapi, proxi saluran kredit tidak menunjukkan kesignifikannya pada model. Sementara itu, untuk Malaysia dan Singapura, ujian ARDL membuktikan wujudnya kointegrasi jangka panjang antara KDNK dengan kadar pertukaran, kadar bunga jangka panjang dan jangka pendek, dan tuntutan ke atas sector swasta untuk tempoh 1980:1-2004:4 dan 1981:1-2004:4 masing-masing. Akan tetapi, saluran harga aset tidak menunjukkan kesignifikan pada model.

Di Malaysia, GIKK mengesan perubahan kadar bunga dengan konstuktif, tetapi pergerakannya tidak konkrue dengan kadar pertukaran berbanding dengan kadar bunga. Di Thailand, ujian lingkungan menunjukkan bukti kointegrasi antara KDNK benar dan penentu pembolehubah, iaitu kadar bunga jangka pendek, kadar pertukaran dan harga saham dari tahun 1980:1-2004:4. Akan tetapi, saluran kredit tidak menunjukkan kesignifikannya pada model. Di Filipina, ujian lingkungan membuktikan kointegrasi antara KDNK benar dengan kadar bunga jangka panjang dan jangka pendek, kadar pertukaran, tuntutan pada sektor swasta, dan harga saham yang mengambil kira semua penghantaran mekanisma saluran, iaitu saluran-saluran kadar bunga, kadar pertukaran, kredit, dan harga asset untuk tempoh 1982:1-2004:4.

Keadaan kewangan pada tempoh kajian menunjukkan bahawa polisi yang digunakan oleh Bank Negara bertindak mengikut keadaan ekonomi, yang mana ia menunjukkan AMCI mengikut pergerakan songsang KDNK benar secara purata, kecuali semasa berlakunya krisis kewangan Asian pada 1997.

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I certify that an Examination Committee has met on 29 Jun 2007 to conduct the final examination of Poon Wai Ching on her Doctor of Philosophy thesis entitled “An Application of Augmented Monetary Conditions Index on the ASEAN-Five” in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any degree at UPM or other institutions.

POON WAI CHING

Date: 6 August 2007



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LIST OF ABBREVIATIONS

AD	Aggregate demand
ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criterion
AMCI	Augmented monetary conditions index
ARCH	Autoregressive Conditional Heteroscedasticity
ARDL	Autoregressive Distributed Lag
BLR	Base lending rate
BNM	Bank Negara Malaysia
BOC	Bank of Canada
BOE	Bank of England
BOT	Bank of Thailand
BSP	Bangko Sentral ng Pilipinas
C	Consumption
COPS	Claims on private sector
CPF	Central Provident Fund
CPI	Consumer price index
CUSUM	Cumulative sums
DMCI	Dynamic monetary conditions index
e	Exchange rate
ECM	Error correction model
ECT	Error correction term
EEF	Exchange Equalization Fund