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## The Dynamics Co-movement toward among Capital Markets in ASEAN Exchanges: C-D Vine Copula Approach

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### Abstract

ASEAN Exchanges has target to develop the ASEAN asset class. Therefore, the knowledge of international capital market needs to study more. The ASEAN Exchanges is a collaboration of the seven country stock exchanges such as Malaysia's stock market, Vietnam's stock market (this country has 2 stock exchanges), Indonesia's stock market, Philippines's stock market, Thailand's stock exchange and Singapore's stock market. But in 2012 until 2013, the only three of them such as Thailand's stock exchange, Malaysia's stock market and Singapore's stock market have already started for collaboration. The copula approach was become more standard tool for business and economics analysis especially the tool for analysis in international capital market. The specific objective of research aims to investigate the dynamics co-movement between capital markets in ASEAN Exchanges for during period of 2012-2013. The results of this study based on C-D Vine copula approach found the dynamics co-movement among of capital markets in ASEAN Exchanges. In addition, the C-D Vine copula approach in Elliptical distribution based was cleared for dynamics co-movement among of them. ASEAN Stock Exchanges collaborate achieved through creating ASEAN investment promotion for more investors and protection investment. ASEAN countries have strengthened the economic opportunities and opened up the formation of economic securities in an ASEAN Stock Exchanges.

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## Introduction

The ASEAN Exchanges is a collaboration of the seven country stock exchanges such as Malaysia's stock market, Vietnam's stock market (this country has 2 stock exchanges), Indonesia's stock market, Philippines's stock market, Thailand's stock market and Singapore's stock market to support the growth of the ASEAN capital market by bring forth more ASEAN investment occasion to more investors. In 2012, only three country such Bursa Malaysia's stock market, Singapore's stock market and the Stock Exchange of Thailand have already started collaboration in the ASEAN Exchanges. Therefore, this research will focus on only three markets in ASEAN Exchange first. The CD-Vine copula approach was employed to calculate the dynamics co-movement toward among capital markets in ASEAN Exchanges in during period of 2012-2013. Because of if they have dynamics co-movement with each other in this market then the objective of ASEAN Exchanges will be achieved by promotion for more ASEAN investment opportunities to more investors (<http://www.aseanexchanges.org>).

### 1. Research Objective

The specific objective is to find the dynamics co-movement toward among Capital Markets in ASEAN Exchanges for during period of 2012-2013.

### 2. Scope of this research

The daily data of capital markets in ASEAN Exchanges such as Thailand's set index return, Malaysia's set index return, and Singapore's set index return were collected to consider in this research. Most data were used in this research start from 2012-2013.

## 3. The research framework and methodology

### 4.1 The copula concept

The copula concept was first introduced by Sklar's theorem (Sklar, 1959) and this concept is able to explain from equations 1A.

$$H(x_1, x_2, \dots, x_n) = C(F_1(x_1), F_2(x_2), \dots, F_n(x_n)) \quad \text{---- (1A)}$$

$H$  : n-dimensional distribution with marginal  $F_i$ ,  $i=1,2,\dots,n$ .

$x_1, x_2, \dots, x_n$  : random vectors

$C$  : n-copula for all  $x_1, x_2, \dots, x_n$

Sklar's Theorem with bivariate copula is able to explain by equation 2A and this equation has already presented below that:-

$$C(u_1; u_2) = F(F_1^{-1}(u_1), F_2^{-1}(u_2)) \quad \text{----- (2A)}$$

Defined that:-

$u_1, u_2 \in [0,1]$

$F$ : distribution function of invertible margins  $F_1$  and  $F_2$

$C(.,.)$  : Elliptical copula if  $F$  is Elliptical

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