ESTIMASI *VALUE AT RISK* (VAR) PADA PORTOFOLIO SAHAM MENGGUNAKAN METODE COPULA-GARCH

(Studi Kasus Saham ICBP dan UNVR periode 1 Mei 2014 – 30 April 2018)

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Menyatakkan dengan sesunguhnya bahwa dalam skripsi saya ini tidak terdapat karya serupa yang diajukan untuk memperoleh gelar kesarjanaan disuatu perguruan tinggi lain dan skripsi saya ini karya saya sendiri dan bukan meniru hasil skripsi karya orang lain.

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DAFTAR ISI

ESTIMASI *VALUE AT RISK* (VAR) PADA PORTOFOLIO SAHAM i

HALAMAN PENGESAHAN ii

HALAMAN PERSETUJUAN iii

SURAT PERNYATAAN SKRIPSI iv

HALAMAN PERSEMBAHAN iii

MOTTO vi

DAFTAR ISI ix

DAFTAR TABEL xivv

DAFTAR GAMBAR xvii

DAFTAR SIMBOL xviii

DAFTAR LAMPIRAN xixx

INTISARI xx

ABSTRAK xxii

BAB I PENDAHULUAN 1

1.1 Latar Belakang 1

1.2 Rumusan Masalah 4

1.3 Tujuan Penelitian 5

1.4 Batasan Masalah 5

1.5 Manfaat Penelitian 6

1.6 Tinjauan Pustaka 6

1.7 Sistematika Penulisan 8

BAB II LANDASAN TEORI 11

2.1 Jakarta Islamic Index (JII) 11

2.2 Saham 12
2.3 Portofolio 14
2.4 Return 16
2.5 Resiko 17
2.6 Data Time Series 18
2.7 Variabel Random 20
2.8 Distribusi Probabilitas 20
2.8.1 Distribusi Probabilitas Diskrit 20
2.8.2 Distribusi Probabilitas Kontinu 21
2.9 Distribusi Uniform 22
2.10 Stasioner 23
2.10.1 Stasioneritas dalam Mean 23
2.10.2 Stasioneritas dalamVariansi 24
2.10.3 Uji Akar Unit (*Unit Root Test*) 25
2.11 Model Umum Runtun Waktu 27
2.11.1 *Autoregressive* (AR) 27
2.11.2 Moving Average (MA) 28
2.11.3 Autoregressive Moving Average (ARMA) 29
2.11.4 Autoregressive Integrated Moving Average (ARIMA) 29
2.12 ARCH/GARCH 30
2.13 Asumsi Klasik 32
2.14 Konsep Dasar Runtun Waktu 39
2.14.1 *Autocorrelation Function* (ACF) 39
2.14.2 Partial Autocorrelation Function (PACF) 41
2.15 White Noise 43

2.16 Korelasi 44
2.17 Distribusi Normal 48
2.18 Chi-Kuadrat 49
2.19 Maximum Likelihood 50
2.20 Copula 51
2.21 Sifat-Sifat Copula 54
2.22 Teorema Sklar 55
2.23 Copula Archamedian 59
2.24 *Value at Risk* (VaR) 62
2.25 Pemilihan Model Terbaik 64
BAB III METODELOGI PENELITIAN 65
3.1 Jenis dan Sumber Data 65
3.2 Metode Pengumpulan Data 66
3.3 Variabel Penelitian 66
3.4 Metode Penelitian 66
3.5 Metode Analisis Data 67
3.6 Alat Pengolahan Data 71
3.7 Flowcart 72
BAB IV ESTIMASI VALUE AT RISK (VAR) PORTOFOLIO MENGGUNAKAN METODE GARCH-COPULA 73
4.1 Model GARCH 73
4.2 Estimasi Parameter GARCH 76
4.3 Pemeriksaan Diagnosa 84
4.3.1 Asumsi Normalitas Residual 85
4.3.2 Asumsi Autokorelasi Residual 85

4.3.3 Asumsi Heterokedastisitas 86
4.4 Dependensi 86
4.4.1 *Kendall's Tau* 87
4.4.2 *Rho Spearman* 89
4.5 Copula 90
4.5.1 Teorema Sklar 91
4.5.2 Copula Archamedian 91
4.5.3 Estimasi Parameter Archamedian Copula 95
4.6 Copula-GARCH 99
4.7 Estimasi *Value at Risk* Portofolio dengan Copula 100
4.8 *Value at Risk* Copula-GARCH 101
BAB V STUDI KASUS 103
5.1 Gambaran Umum Sampel 103
5.2 Perhitungan Return 104
5.3 Korelasi 105
5.4 Uji Asumsi 106
5.4.1 Uji Stasioner 106
5.4.2 Uji Normalitas 108
5.5 Plot ACF dan PACF 109
5.6 Pemodelan ARIMA(p,d,q) 110
5.7 Pengujian Efek ARCH/GARCH 113
5.8 Pembentukkan Model GARCH 115
5.9 Pemeriksaan Asumsi 119
5.9.1 *Return* ICBP 119
5.9.2 *Return* UNVR 122

5.10 Pembentukkan Model 125
5.11 Korelasi Residual 125
5.12 Pemodelan Copula 126
5.12.1 *Kendall's Tau* 126
5.12.2 Estimasi Parameter dan Pemodelan Copula Archamedian 126
5.13 Simulasi Data Return berdasarkan Copula 128
5.14 Perhitungan *Value at Risk* (VaR) 130
BAB VI PENUTUP 133
6.1 Kesimpulan 133
6.2 Saran 135
DAFTAR PUSTAKA 136
LAMPIRAN 138
DAFTAR RIWAYAT HIDUP 234

DAFTAR TABEL

Tabel 1.1 Tinjauan Pustaka 8

Tabel 2.1 Stasioner Variansi 25

Tabel 2.2 Tingkat Hubungan dua Variabel 45

Tabel 2.3 Observasi Chi-Square..... 50

Tabel 5.1 Saham Konsisten Periode 1 Mei 2014 – 30 April 2018 103

Tabel 5.2 *Return* Saham 104

Tabel 5.3 Nilai *Return* Saham Positif..... 105

Tabel 5.4 Korelasi seluruh *return* 105

Tabel 5.5 Korelasi *return* 106

Tabel 5.6 Uji Aughmented Dickey-Fuller pada *Return* ICBP 107

Tabel 5.7 Uji Aughemented Dickey-Fuller pada *Retun* UNVR..... 107

Tabel 5.8 Uji Jarque-Bera untuk return ICBP..... 108

Tabel 5.9 Uji Jarque-Bera untuk Return UNVR 109

Tabel 5.10 Uji Model ARIMA(p,d,q) untuk *return* ICBP 111

Tabel 5.11 Ringkasan Model ARIMA *return* ICBP 112

Tabel 5.12 Ringkasan Model ARIMA pada return UNVR..... 113

Tabel 5.13 Uji ARCH-LM *return* ICBP 114

Tabel 5.14 Ringkasan Uji ARCH-LM *return* ICBP 114

Tabel 5.15 Ringkasan Uji ARCH-LM *return* UNVR 115

Tabel 5.16 pemodelan GARCH *return* ICBP 116

Tabel 5.17 Ringkasan Model GARCH *return* ICBP..... 118

Tabel 5.18 Ringkasan Model GARCH return UNVR..... 119

Tabel 5.19 Uji Normalitas Residual model GARCH *return* ICBP 120

Tabel 5.20 Uji ARCH-LM pada GARCH *return* ICBP 121

Tabel 5.21 Uji Normalitas Residual model GARCH *return* UNVR..... 123

Tabel 5.22 Uji ARCH-LM model GARCH pada *return* UNVR 124

Tabel 5.23 Korelasi Residual *return* ICBP dan UNVR 126

Tabel 5.24 Resiko Copula Archamedian..... 131

DAFTAR GAMBAR

Gambar 2.1 Pola Horizontal 18

Gambar 2.2 Pola Trend 19

Gambar 2.3 Pola Musiman 19

Gambar 2.4 Pola Siklis 19

Gambar 2.1 Kurva Normalitas 49

Gambar 2.2 Copula Archamedian 62

Gambar 4.1 Korelasi *Kendall's Tau* dengan copula 95

Gambar 5.1 *Collogram* ACF dan PACF (a) *return* ICBP (b) *return* UNVR 109

Gambar 5.2 *Collogram* Residual model GARCH(1,2) 120

Gambar 5.3 *Collogram* Residual model GARCH(1,1) 123

Gambar 5.4 *Scatterplot* Residual ICBP dan UNVR Sebelum dan Sesudah Transformasi *Unifrom*(0,1) 129

Gambar 5.5 Struktur depedendensi Copula Archamedian, (a) copula Clayton, (b) copula Frank, dan (c) copula Gumbel 130

DAFTAR SIMBOL

Rt	: net *return*
P_t	: harga investasi pada saat waktu *t*
P_{t-1}	: harga invetsasi pada saat waktu *t-1*
log P_t	: *log price*
log$(1+R_t)$	: logaritma narutal dari $(1+R_t)$.
A	: Variabel Random
$E(\mathrm{X})$	: Nilai Ekspektasi *X*
$Var(X)$	: Variansi dari *X*
e	: Batas atas interval
d	: Batas bawah interval
y_t	: Variabel dependen pada saat ke-*t*.
μ	: Mean
$T(y_t)$	: Fungsi transformasi dari y_t
$\lambda\ \lambda$	: parameter transformasi
W_t	: diferensi orde pertama dari variabel *y* pada saat *t*
X_t	: variabel *X* pada saat ke-*t*
P_m	: parameter autoregressive ke-*m*
c	: konstanta
ε_t	: nilai kesalahan (residual) pada saat *i*
Q_n	: parameter *moving average* ke-*n*
σ_t^2	: varian residual
a_0	: *slope*
σ_{t-q}^2	: varian residual pada saat ke-*t*
p	: parameter
ε_{t-p}^2	: nilai kesalahan (residual) pada saat *t*
z	: distribusi normal
$\bar{X}$	: rata-rata
σ	: parameter yang merupakan simpangan baku distribusi

μ	: parameter yang merupakan rata-rata distribusi
JB	: Jarque Bera
n	: jumlah data
S	: koefisien *skewness*
k	: koefisien kurtosis
γ_k	: Fungsi *autokovarians*
ρ_k	: Fungsi autokorelasi,
ϕ_{kk}	: autokorelasi parsial
ρ	: korelasi
$Var(X)$	: Variansi (X)
$Var(Y)$	: Variansi (Y)
r_i	: rank variabel X
s_i	: rank variabel Y
H	: jumlah ranking atas
L	: jumlah ranking bawah
χ^2	: *chi – kuadrat*
$\varphi(u)$	: fungsi generator u
$\varphi(v)$	: fungsi generator v
$C_\theta(u,v)$	: fungsi copula
θ	: parameter copula
VaR	: *Value at Risk*
P_o	: nilai asset atau nilai investasi awal
σ	: estimasi nilai volatilitas
α	: adalah tingkat signifikansi
T	: holding periode
τ	: korelasi *Kendall's Tau*

DAFTAR LAMPIRAN

Lampiran 1 *Return* Saham Positif 138

Lampiran 2 Deskriptif, Uji Stasioner 186

Lampiran 3 Pemodelan ARIMA return ICBP 187

Lampiran 4 Pemodelan ARIMA return UNVR 190

Lampiran 5 Uji efek ARCH dari model ARIMA return ICBP yang Signifikan ……..193

Lampiran 6 Uji efek ARCH dari model ARIMA return UNVR yang Signifikan 194

Lampiran 7 Model GARCH pada return ICBP 195

Lampiran 8 Model GARCH return UNVR 198

Lampiran 9 Uji asumsi model GARCH 201

Lampiran 10 Residual GARCH dan Tranformasi 202

Lampiran 11 Program Untuk Membangkitkan Bilangan Residual 227

ESTIMASI *VALUE at RISK* (VaR) PADA PORTOFOLIO SAHAM MENGGUNAKAN METODE COPULA-GARCH (Studi Kasus Saham ICBP dan UNVR periode 1 Mei 2014 – 30 April 2018)

INTISARI

Invetasi pada sektor finansial saat ini banyak dilakukan oleh para investor. Namun banyak investor yang tidak mengetahui hasil dari investasi yang mereka lakukan, investasi tersebut dapat mendatangkan keuntungan atau kerugian. Salah satu cara untuk mengurasi resiko yang diteima oleh para investor ialah dengan cara melakukan investasi dalam bentuk porofolio. Portofolio sendiri merupakan sekumpulan atau beberapa asset atau sekuritas yang diinvestasikan oleh para investor untuk menguragi resiko yang diperoleh. Resiko dapat dikelola dengan diperkirakan menggunakan alat ukur *Value at Risk* (VaR). Penelitian ini memakai metode Copula-GARCH untuk menghitung resiko yang diperoleh. GARCH (*Genelarized Autoregressive Conditional Heterocedasticity*) merupakan suatu model pendekatan time series Autoregressive. GARCH memiliki keunggulan variansi residual yang terbentuk cenderung konstan atau tidak terdapat efek heterokedastisitas. Akan tetapi model time series pada umumnya tidak dapat memnuhi asumsi normalitas. Copula merupakan suatu fungsi yang dapat menggabungkan atau memasangkan fungsi distribusi multivariat dengan fungsi distribusi marginal dimensi. Copula sendiri memiliki keunggulan tidak membutuhkan asumsi normalitas. Pada penelitian ini copula yang digunakan copula Clayton, copula Frank dan copula Gumbel. Sehingga bila pada pemodaln GARCH tidak terpenuhi asumsi normalitas, maka selanjutnya akan dilanjutkan dengan pemodelan Copula untuk perhitungan resiko menggunakan VaR.

Penelitian ini mengestimasi VaR dengan menggunakan Copula-GARCH pada 2 saham dengan nilai korelasi tertinggi 0,325, yaitu *return* harian saham ICBP (Indofood CBP Sukses Makmur Tbk) dan UNVR (Uniliver Indonesia Tbk) periode 1 Mei 2014 sampai 30 April 2018. Pada perhitungan VaR menggunakan simulasi Monte Carlo akan diketahui bahwa semakin besar simulasi *return* yang dilakukan akan semakin konstan resiko yang diperoleh oleh copula Archamedian. Dari copula keluarga Archamedian diperoleh bahwa copula Clayton yang memiliki nilai resiko terkecil. Simulasi return yang digunakan sebanyak 100, 500, 1000 dan 10000 dengan resiko yang diperoleh copula Clayton sebesar 12.46%, 12.12%, 11.68%, dan 11.68%

Kata Kunci : *Monte Carlo, Value at Risk* (VaR), Copula, Copula Archamedian

VALUE AT RISK (VaR) ESTIMATION OF THE STOCK PORTFOLIO USES THECOPULA-GARCH METHOD (the Study Case of Stock ICBP and UNVR on period 1 Mei 2014 – 30 April 2018)

ABSTRAK

Investment in the financial sectorbis currently being done by investors but many investors do not know the result of their investements, the investement can bring profit or loss. One way to reduce the risk receives by investors is by investing in a portfolio. The portfolio itself is a collection or several assets or securities that are invested by investors to reduce the risk received. Risk can be managed by estimating using a value at risk measure. This study uses the Copula-GARCH method to calculate the risk obtained. GARCH (Generalized Autoregressive Conditional Heterocedasticity) is an autoregressive time series approach model. GARCH has the advantages that the residuals variance that is formed tends to be constant or these is no heterocedasticity effect. However, time series models generally cannot fulfill the assumption of normality. Copula is a function that can combine or install a multivariate distribution function with a dimensional marginal distribution function. Copula itself has the advanteages of not requiring the assumption of normality. In this study, copula used copula Clayton, Copula Frank, and copula Gumbel. So if there is a normality assumption, if there is no GARCH modeling, then it will be followed by copula odelling to calculate the risk of using VaR.

This study estimates VaR by using Copula-GARCH in two stocks with the highest correlation value of 0.325, namely the iCBP and UNVR stock daily return for 1 May 2014 until 30 April 2018. In VaR calculation using the Monte Carlo simulation it will be known that the greater the return simulation performed the more constant the risk received by the Archamedian copula. The simulation return who used 100, 500, 1.000 and 10.000 with the risk of obtained copula Clayton are 12.68%, 12.12%, 11.68% dan 11.68%.

Keywords : *Monte Carlo, Value at Risk* (VaR), Copula, Copula Archamedian

BAB I

PENDAHULUAN

1.1 Latar Belakang

Investasi adalah kegiatan mengalokasikan atau menanamkan sumber daya sekarang, dengan harapan mendapatkan manfaat di kemudian hari (masa datang). Investasi secara umum terbagi menjadi 2 (dua), yaitu investasi sektor *riil* dan ivestasi sektor finansial. Investasi sektor *riil* adalah invetasi pada asset atau faktor produksi untuk melakukan usaha, misalnya investasi perkebunan, perikanan dan jenis usaha lainnya. Investasi sektor finansial adalah investasi yang bergerak pada asset keuangan, misalnya deposito, saham, obligasi, reksadana dan sebagainya (Fahmi dan Lavianti Hadi, 2011).

Investasi pada sektor finansial yang sedang mendapatkan perhatian besar dari para investor ialah investasi saham pada pasar modal. Saham sendiri memiliki definisi sebagai tanda atau kepemilikan seseorang atau badan dalam suatu perusahaan atau perseroan terbatas (Jogianto,2003). Di Indonesia PT. Bursa Efek Jakarta (BEJ) telah menerbitkan daftar reksadana, saham dan obligasi syariah dalam *Jakarta Islamic Index* (JII). *Jakarta Islamic Index* sendiri dikeluarkan oleh PT. Bursa Efek Indonesia pada tahun 2000 berdasarkan hukum-hukum syariah yang ada. Sejak tahun 2000 perkembangan *Jakarta Islamic Index* (JII) cukup signifikan.

Para investor yang menanamkan modal pada sektor finansial pada umumnya tidak mengetahui dengan pasti hasil dari investasi yang mereka lakukan, investasi tersebut dapat mendatangkan keuntungan atau kerugian. Dalam keadaan semacam itu dapat dikatakan bahwa investor menghadapi resiko pada investasi yang dilakukan. Adakalanya sebelum investor menginvestasikan dananya terhadap suatu aset sangat dianjurkan untuk meninjau aset mana yang dapat meminimumkan resiko. Salah satu cara untuk mengurangi tingkat resiko yang diperoleh oleh investor yaitu dengan melakukan investasi dalam bentuk portofolio. Portofolio sendiri dapat didefinisikan sebagai sekumpulan dari beberapa aset atau sekuritas yang diinvestasikan oleh para investor untuk mengurangi resiko yang diperoleh. Pada mulanya sebelum melakukan investasi, para investor akan memilih berinvestasi pada portofolio yang paling efisien diantara kumpulan portofolio yang ada. Kondisi pasar yang tidak bisa di prediksi menjadi kendala dalam portofolio. Oleh karena itu perlu dilakukan estimasi nilai resiko untuk mengetahui nilai kerugian portofolio yang mungkin terjadi pada kondisi pasar secara normal.

Menurut Best (1998) *Value at Risk* adalah suatu metode pengukuran resiko secara statistik yang memperkirakan kerugian maksimum yang mungkin terjadi atas suatu portofolio pada tingkat kepercayaan (*level of confindence*) tertentu. *Value at Risk* (VaR) menjadi salah satu metode yang sering digunakan dalam beberapa tahun belakangan ini.

Ada banyak cara untuk meminumkan resiko yang diperoleh oleh investor, salah satunya dengan metode yang sedang banyak digunakan oleh para peneliti belakangan ini yaitu copula. Copula adalah suatu fungsi yang dapat menggabungkan atau memasangkan fungsi distribusi multivariate dengan fungsi distribusi marginal dimensi. Copula berasal dari bahasa latin yang artinya pertalian, hubungan, ikatan dan secara logika dapat di jelaskan menjadi suatu bagian dari suatu masalah yang menghubungkan subjek dan predikat. Copula sendiri baru digunakan dalam ilmu matematika dan statistika oleh Able Sklar (1959) pada teorema yag menjelaskan fungsi "gabungan" fungsi distribusi satu dimensioanl dengan fungsi distribusi multivariat, teorema ini lebih terkenal dengan nama teorema sklar. Copula digunakan secara luas dalam pemodelan distribusi bersama (*joint distibution*) karena tidak memerlukan asumsi normalitas besama dan menguraikan *joint distribution n-dimensonal* ke dalam distribusi marginal dan fungsi copula yang menggabungkan mereka bersama-sama. Metode copula memiliki keunggulan dibandingkan dengan metode-metode sebelumnya karena tidak memerlukan asumsi distribusi normal. Dan dapat menangkap *tail dependence* diantara masing-masing variabel. Banyak metode dari copula yang digunakan oleh para peneliti, salah satunya yaitu metoode copula GARCH (*Generalized Autoregressive Conditional Heterocedasticity*).

GARCH (*Generelized Autoregressive Conditional Heterocedasticity*) merupakan suatu model ekonometrik yang diperkenalkan oleh Engle (1982) dan dikembangkan Bollersev (1986). Dalam perkembangannya model ini banyak digunakan untuk analisis *time series* pada pasar modal, yang menunjukkan

penduga volatilitas. Model GARCH dikembangkan dari model ARCH, model ARCH yang sudah ada kemudian di generalisasi sehingga terbentuk lah model GARCH. Pendekatan metode ini menggunakan *Autoregressive*, karena GARCH pada dasarnya adalah model *time series* dengan bentuk *Autoregressive*. Dan model GARCH tidak terpengaruh terhadap masalah heterokedastisitas. Metode GARCH digunakan untuk memodelkan data yang memiliki volatilitas yang tinggi dan melanjutnya akan dilanjutkan dengan menggunakan metode copula. Copula yang digunakan berasal dari keluarga copula Archamedian, yaitu Gumbel, Frank, Clayton. Selanjutnya akan dilihat resiko yang diperoleh pada copula Clayton, copula Gumbel dan Copula Frank.

1.2 Rumusan Masalah

Berdasarkan uraian di atas, maka masalah yang akan dikaji dalam penelitian ini adalah

1. Bagaimana langkah-langkah estimasi *Value at Risk* (VaR) dengan metode Copula-GARCH?
2. Bagaimana model copula-GARCH keluarga Archamedian pada saham *Jakarta Islamic Index* (JII) ?
3. Berapa besar resiko yang diperoleh dari estimasi *Value at Risk* (VaR) copula-GARCH pada saham *Jakarta Islamic Index* (JII)?

1.3 Tujuan Penelitian

Berdasarkan rumusan masalah di atas, maka tujuan dari skripsi ini adalah

1. Mempelajari dan mengetahui langkah-langkah estimasi *Value at Risk* (VaR) dengan copula-GARCH
2. Mengetahui bentuk pemodelan copula Archamedian pada saham *Jakarta Islamic Index* (JII)
3. Mengetahui besar resiko yang diperoleh dari estimasi *Value at Risk* (VaR) dengan copula-GARCH pada saham *Jakarta Islamic Index* (JII).

1.4 Batasan Masalah

Pada penelitian ini terdapat beberapa batsan-batasan yang akan dileliti, batasan-batasan ini digunakan untuk mempermudah peneliti dalam melakukan suatu penelitian, yaitu :

1. Proses estimasi copula Archamedian menggunakan *Maximum Likelihood* (MLE).
2. Objek yang akan diteliti adalah indeks harga saham syariah *Jakarta Islamic Index* (JII) pada periode 1 Mei 2014 sampai 30 April 2018.
3. Copula yang digunakan merupakan copula dari keluarga Arcamedian, Frank, Clayton, Gumbel.
4. Mengunakan software *Ms.Excel*, *Mathlab*, *SPSS 23*, dan *E-Views 9 Student Version*.

1.5 Manfaat Penelitian

Pada penelitian ini terdapat beberapa manfaat yaitu:

1. Bagi penulis

   Memperdalam dan mengetahui lebih jauh mengenai pemodelan statistika matematika khususnya. Penelitian ini juga bertujuan untuk menambah pengetahuan penulis dalam menentukkan model yang baik serta mampu mengurangi resiko dari suatu portofolio.

2. Bagi mahasiswa UIN-Sunan Kalijaga

   Penelitian ini mampu menambah wawasan mahasiswa dan mahasiswi UIN Sunan Kalijaga tentang saham syariah, berapa besar keuntungan dan resiko yang diperoleh sebuah portofolio.

3. Bagi Investor

   Dapat memberikan informasi atau masukkan kepada para investor yang akan menginvestasi dalam pengambilan keputusan, sehingga dapat meminimalisir terjadinya resiko.

1.6 Tinjauan Pustaka

Penelitian ini menggunakan berapa literatur baik yang berasal dari buku, skripsi, jurnal penelitian, dan referensi lainnya. Beberapa sumber yang digunakan

sebagai acuan pada penelitian ini dan penelitian sebelumnya membantu penulis dalam memahami teori yang terkait dalam penelitian.

Penelitian yang dilakukan oleh Farida, Heri dan Suhartono yang berjudul "*Estimasi Value at Risk (VaR) Pada Portofolio Nilai Tukar Mata Uang Dengan Pendekatan Copula*" pada tahun 2012 oleh Institut Teknologi Sepuluh November (ITS). Pada jurnal ini membahas mengenai *Value at Risk* (VaR) portofolio kurs menggunakan metode GARCH Copula serta simulasi *Monte Carlo*, hal ini bertujuan agar investasi yang dilakukan memberikan resiko yang minimal dan memberikan *return* yang optimal. Studi kasus yang digunakan dalam penelitian ini yaitu, nilai mata uang *the euro* (EURO), *the united states dollar* (USD), *the pound Sterling* (GBP), dan *Malaysian Ringgit* (MYR).

Penelitian yang dilakukan oleh Fatimah Zuhra, Lienda Noviyanti dan Achmad Bachrudin yang berjudul "*Estimasi Value at Risk Return Portofolio Menggunakan Metode Copula*" pada tahun 2015. Jurnal ini bertujuan untuk membuktikan bahwa teori copula merupakan alat yang cocok untuk memodelkan variabel-variabel yang memiliki kebergantungan. Studi kasus yang digunakan dalam penelitian ini yaitu, indeks saham LQ45dan JII.

Penelitian yang dilakukan oleh Tutus Suratina Harsoyo mahasiswa Institut Sepuluh November (ITS) yang berjudul "*Estimasi Value at Risk pada Portofolio saham LQ45 dengan Metode Copula GARCH*". Thesis ini di sahkan pada tahun 2017. Penelitian ini bertujuan untuk mengetahui diantara jenis copula Gumbel dan

t-Student mana yang memiliki resiko paling minimum dan *return* paling optimal. Studi kasus menggunakan saham LQ45.

Tinjauan pustaka yang digunakan oleh peneliti adalah beberapa penelitian yang relevan dengan tema yang diambil peneliti, antara lain disajikan pada tabel berikut :

Tabel 1.1 Tinjauan Pustaka

No.	Nama Peneliti	Tahun Penelitian	Pendekatan	Metode	Objek
1.	Farida, Heri dan Suhartono	2012	*Value at Risk* (VaR) simulasi *monte carlo*	Copula Archamedian, GARCH	Mata uang
2	Fatimah , Lienda dan Achmad	2015	*Value at Risk* (VaR)	Copula Gaussian	Saham Nasdaq dan S&P500
3	Tutus Suratina Harsoyo	2017	*Value at Risk (VaR) , GARCH*	Copula Gaussian	LQ45
4	Yayuk Tri Lestari	2018	*Value at Risk (VaR)*	Copula archamedian, GARCH	JII

1.7 Sistematika Penulisan

Untuk memberi gambaran menyeluruh dan memudahkan penulisan penelitian skripsi mengenai estimasi *Value at Risk* (VaR) pada portofolio saham syariah JII (*Jakarta Islamic Index*) dengan pendekatan Copula, maka secara garis besar sistematika penulisan ini terdiri dari :

BAB I : PENDAHULUAN

Berisi latar belakang masalah, batasan masalah, rumusan masalah, tujuan penelitian, manfaat penelitian, tinjauan pustaka dan sistematika penulisan.

BAB II : LANDASAN TEORI

Pada bab ini akan dijelaskan teori-teori yang digunakan dalam pembahasan yaitu estimasi *Value at Risk* (VaR) pada portofolio saham syariah JII *(Jakarta Islamic Index)* dengan pendekatan copula.

BAB III : METODE PENELITIAN

Berisi berbagai penjelasan mengenai proses pelaksaan penelitian ini, mulai jenis dan sumber data, metode pengumpulan data, variabel penelitian, metodologi penelitian, metode analisis data, dan alat pengolahan data.

BAB IV : Estimasi VAR Pada Portofolio Pada Saham Syariah JII (*Jakarta Islamic Index*) Dengan Pendekatan GARCH-Copula

Pada bab ini akan dijelaskan tentang pembahasan Estimasi *Value At Risk* (Var) Pada Portofolio Saham Syariah JII (*Jakarta Islamic Index*) Dengan Pendekatan Copula GARCH (*Generalized Autocorrelation Conditional Heterocedastisity*).

BAB V : STUDI KASUS

Pada bab ini akan dijelaskan tentang penerapan dan aplikasi Estimasi *Value at Risk* (VaR) Pada Portofolio Saham Syariah JII (*Jakarta Islamic Index*) dengan Pendekatan Copula-GARCH (*Generalized Autocorrelation Conditional Heterocedastisity*) dan memberikan menginterpretasi terhadap hasil yang diperoleh.

BAB VI : KESIMPULAN DAN SARAN

Pada bab ini akan dijelaskan tentang kesimpulan yang dapat diambil dari pembahsan permasalahan yang ada dan pemecahan masalah serta saran-saran yang berkaitan dengan penelitian sejenis unutuk penelitian berikutnya.

BAB VI

PENUTUP

6.1 KESIMPULAN

Berdasarkan pada pembahasan mengenai Estimasi *Value at Risk* (VaR) pada Portofolio Saham menggunakan metode Copula-GARCH (*Generalized Autoregressive Conditional Heterocedasticity*) pada *return* ICBP dan *return* UNVR dapat diambil kesimpulan sebagai berikut:

1. Langkah-langkah dalam Estimasi VaR pada Portofolio dengan pendekatan Copula–GARCH yaitu sebagai berikut:
   a. Mengumpulkan saham-saham yang konsisten pada periode 1 Mei 2014–30 April 2018
   b. Menentukkan nilai *return* dari masing-masing saham yang konsisten
   c. Menggunakan *return* saham yang postif
   d. Menghitung nilai korelasi terbesar diantara saham-saham dengan *return* positif
   e. Menguji kestasioneran data
   f. Menguji normalitas data
   g. Menentukkan model ARIMA yang sesuai
   h. Menguji efek ARCH
   i. Pembentukkan model GARCH
   j. Pengujian asumsi pada model GARCH yang terbentuk.

k. Perhitungan korelasi yang terbentuk pada data residual yang sudah ditranformasikan.

l. Mentranformasikan data distribusi marginal pada model yang terbentuk kedalam distribusi *Uniform*(0,1).

m. Pembentukkan model Copula dari keluarga Archamedian.

n. Perhitungan VaR *return* portofolio dengan menggunakan simulasi *Monte-Carlo*.

o. Bagaimana model copula-GARCH keluarga Archamedian pada saham *Jakarta Islamic Index* (JII) ?

p. Berapa besar resiko yang diperoleh dari estimasi *Value at Risk* (VaR) copula-GARCH pada saham *Jakarta Islamic Index* (JII)?

2. Model copula Archamedian yang terbentuk pada saham JII.

a. Copula Clayton

$$C(u,v)=\left[\max\left(u^{-0,5220}+v^{-0,5220}-1,0\right)\right]^{-1/0,5220}$$

b. Copula Frank

$$C(u,v)=-\frac{1}{1,9307}\ln\left(1+\frac{\left(e^{-1,9307u}-1\right)\left(e^{-1,9307v}-1\right)}{\left(e^{-1,9307}-1\right)}\right)$$

c. Copula Gumbel

$$C(u,v)=\exp\left(-\left[-\ln(u)^{1,26103}-\ln(v)^{1,26103}\right]^{1/1,26103}\right)$$

3. Pemilihan model terbaik yang terbentuk pada copula:

   Perhitungan VaR menggunakan simulasi *Monte Carlo* menggunakan perulangan simulasi *return* sebanyak 100, 500, 1.000 dan 10.000 kali. Semakin banyak peulangan simulasi *return* maka semakin konstan resiko yang diperoleh oleh para investor.

6.2 SARAN

Berdasarkan pada hasil penelitian dan studi literatur yang telah peneliti lakukan. Saran yang dapat peneliti sampaikan bagi penelitian seanjutnya adalah

a. Copula dapat digunakan untuk menganalisis lebih dari dua varuabel, oleh karena itu penelitian selanjutnya dihrapakan mampu mengaplikasikan lebih dari dua variabel.
b. Penelitian ini menggabungkan metode esimasi VaR simulasi *Monte Carlo* dengan copula Archamedian yaitu copula Clayton, Copula Frank dan Copula Gumbel, penelitian selanjutnya disarankan dapat menggunakan metode estimasi VaR yang lain.

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LAMPIRAN

Lampiran 1 *Return* Saham Positif

Date	ADRO	AKRA	BSDE	ICBP
5/5/2014	0.021692825	-0.008630043	0	0
5/6/2014	0.012793351	-0.008705169	-0.009788006	0
5/7/2014	-0.038881788	-0.004381168	0.025891414	0.002603386
5/8/2014	-0.031322471	0	0.006369448	-0.002603386
5/9/2014	0.018018506	-0.001098298	0	0
5/12/2014	0.0648175	0.022814678	0	-0.002409156
5/13/2014	0.028867984	0.001073537	0.003169575	0.005012542
5/14/2014	0.004056801	0.01067246	0.012578782	0.029558802
5/16/2014	0.00806456	-0.014973542	0	0.002327387
5/19/2014	0.023810649	-0.017391743	-0.044735894	-0.009733384
5/20/2014	0.019418086	-0.040273899	-0.003273325	-0.024756191
5/21/2014	-0.011605546	0.009090972	0.022691411	0.007590927
5/22/2014	0.011605546	0.005640173	0.019048195	-0.007590927
5/23/2014	0.003838776	-0.002252253	-0.006309169	0.022406013
5/26/2014	0	0.001126761	-0.012739026	-0.002552274
5/28/2014	-0.011560822	0.00449439	0.028437935	0.009780986
5/30/2014	-0.051701374	-0.078082746	0.003110422	-0.007228712
6/2/2014	0.036076056	0.041549003	-0.034758633	-0.012429873
6/3/2014	0.003929278	0.013857035	-0.006451635	0
6/4/2014	0.003913899	0.005717568	0.019231362	0.012429873
6/5/2014	0	-0.009163867	0.006329135	-0.009852296
6/6/2014	0.030771659	-0.011574203	0.009419222	0
6/9/2014	-0.030771659	-0.008182395	-0.01892801	-0.007553206
6/10/2014	0.015504187	0.031198371	0.006349228	0.017405503
6/11/2014	0.019048195	0.028044463	0.009448889	0
6/12/2014	-0.042395559	0.006615239	-0.009448889	0
6/13/2014	0.007843177	0.012015437	-0.003169575	0.002350177
6/16/2014	-0.043919234	-0.001086366	0	-0.022152805
6/17/2014	0.047817874	-0.010929071	0.003169575	0
6/18/2014	-0.015686596	0.006571765	-0.006349228	0
6/19/2014	-0.028057953	-0.015401845	-0.029081209	0.009950331
6/20/2014	-0.037271395	-0.022422464	0.025891414	0
6/23/2014	-0.025642431	0.005652926	-0.032470385	-0.012553717
6/24/2014	-0.017467693	0.014549781	-0.009950331	0.002603386
6/25/2014	0.008771986	0.006644543	-0.020202707	-0.002603386

Date	ADRO	AKRA	BSDE	ICBP
7/1/2014	-0.008547061	-0.011614532	-0.010152371	0.007372754
7/2/2014	0.02960047	0.02081	0.020202707	0.01478005
7/3/2014	-0.00836825	0.025975486	0.00332779	-0.007264192
7/4/2014	0	0.007773498	0.032682647	-0.007515858
7/7/2014	0.004192878	0.012094705	0.022258471	0.01478005
7/8/2014	-0.012631747	-0.013201512	0	0
7/9/2014	0	0	0	0
7/10/2014	0	0.043343729	0.018692133	0.012248622
7/11/2014	-0.043296806	-0.012807005	-0.040950604	-0.027028672
7/14/2014	-0.022372298	-0.022814678	0.028528084	-0.00497563
7/15/2014	0.035559302	0.016349138	0.018576386	-0.00500051
7/16/2014	0.004357305	0.018211537	0.018237588	0.05139355
7/17/2014	-0.035401927	-0.034560675	-0.024391453	0
7/18/2014	0.00449439	-0.008830079	0.009216655	-0.002479261
7/21/2014	0.013363228	0.00221484	0.018182319	0.002479261
7/22/2014	-0.031463269	-0.025771734	-0.009049836	-0.004773279
7/23/2014	0.009090972	0.006787356	0	0.007056385
7/24/2014	0.044255009	0.013438052	-0.024541109	-0.004762367
7/25/2014	0.025642431	-0.021361127	-0.015649772	-0.002294017
8/4/2014	0.041328195	0.048790164	-0.006329135	0.014252023
8/5/2014	0.016064603	0	0.015748357	-0.004728141
8/6/2014	0	0.006472515	-0.01892801	-0.01913934
8/7/2014	0.011881328	-0.00972455	0.01892801	0.011909476
8/8/2014	-0.011881328	-0.001086366	0	-0.011909476
8/11/2014	0.00793655	0.019376279	0.009331327	0.002316156
8/12/2014	0	-0.00320342	0.003091193	0
8/13/2014	0.015686596	0.026386755	0.006153866	0.012072581
8/14/2014	0.007751977	0	0.006116227	-0.004773279
8/15/2014	0	0.02672307	-0.006116227	0.002294017
8/18/2014	0.019121041	0.024049255	-0.003072199	-0.002294017
8/19/2014	0.007547206	-0.020000667	-0.006172859	-0.021864081
8/20/2014	-0.007547206	-0.021440331	0.009245058	0.004878534
8/21/2014	-0.030771659	0.029488664	0	-0.002338726
8/22/2014	-0.019724505	0.011952334	0.006116227	-0.014742282
8/25/2014	-0.020121403	-0.009950331	-0.006116227	0.019608471
8/26/2014	0.032002731	-0.004008021	0	-0.002527463
8/27/2014	0.053652713	-0.013138137	0	0.021758825
8/28/2014	-0.018832948	0.036948786	-0.003072199	0.004750603
8/29/2014	0	0.028987537	-0.012384059	-0.004750603
9/1/2014	0.003795071	0.046520016	0.009302393	0.037387532

Date	ADRO	AKRA	BSDE	ICBP
9/2/2014	0.011299555	0.031322471	0.006153866	0
9/3/2014	0.025879448	-0.013303966	0.006116227	0.004576667
9/4/2014	0.003642991	-0.055059777	-0.006116227	-0.004576667
9/5/2014	-0.014652277	-0.009478744	0.009160369	0
9/8/2014	0.021898685	0.009478744	-0.021506205	0.006766049
9/9/2014	-0.040521197	0.004705891	-0.012500163	-0.011363759
9/10/2014	-0.034420224	0	-0.038466281	-0.007029256
9/11/2014	0	-0.014184635	0.006514681	-0.011575932
9/12/2014	0.015444322	-0.004773279	0.006472515	0.056939298
9/15/2014	-0.023256862	0	-0.019544596	-0.002131061
9/16/2014	-0.003929278	0	0	-0.02483929
9/17/2014	0.038614836	0	0.054413422	0.02038494
9/18/2014	-0.022989518	0.004773279	-0.00625002	0.002140564
9/19/2014	-0.019570096	0	-0.00313972	0.006748383
9/22/2014	-0.00793655	0	0.006269613	-0.008888947
9/23/2014	0.011881328	-0.004773279	-0.028528084	-0.034147887
9/24/2014	-0.003944778	0.009523882	0.009600074	0.016129382
9/25/2014	0.007874056	-0.009523882	0.040567185	0.013544225
9/26/2014	-0.064799993	-0.004796172	-0.021639175	0.013363228
9/29/2014	-0.025425098	0.023754086	-0.01892801	0.004415018
9/30/2014	0.008547061	0.023202897	-0.016051709	0
10/1/2014	-0.012848142	-0.018519048	0.012861914	-0.013303966
10/2/2014	-0.03509132	-0.033257222	-0.042420716	-0.041008024
10/3/2014	-0.01348335	-0.004842624	-0.033901552	0.018433702
10/6/2014	0.031182927	-0.019608471	0.017094433	-0.002377253
10/7/2014	0	-0.004962789	0.003384098	-0.006797124
10/8/2014	0.013072082	-0.029280234	-0.023932766	-0.023311079
10/9/2014	-0.013072082	-0.002051283	0.037355787	0.043746017
10/10/2014	-0.044850566	-0.022846269	-0.027028672	0.00234509
10/13/2014	-0.076227365	0.00836825	-0.017271587	-0.006870394
10/14/2014	0	-0.019990145	0.013841051	0
10/15/2014	-0.071825735	0.021031269	0.013652089	0.033538641
10/16/2014	0.026248226	0.015488177	0.013468217	-0.006688988
10/17/2014	0.01542447	0.008163311	0.02965621	0.006688988
10/20/2014	-0.020619287	-0.006116227	0.025642431	-0.035718083
10/21/2014	0.015504187	-0.016495219	-0.006349228	0.029029094
10/22/2014	0.05487661	0.031716213	0.01892801	-0.013334716
10/23/2014	0.019231362	-0.012158204	0	0.017740398
10/24/2014	0.004750603	0.003053437	-0.009419222	0.002283307
10/27/2014	-0.009523882	0.005068435	-0.038589997	-0.026668247

Date	ADRO	AKRA	BSDE	ICBP
10/28/2014	-0.014458083	-0.028719923	-0.003284075	-0.018182319
10/29/2014	0.065751378	-0.008359505	0.029175489	0.013667639
10/31/2014	0.031322471	0.033026738	0.025237933	-0.004535155
11/3/2014	0.013129291	-0.01534557	-0.00625002	0
11/4/2014	-0.00873368	0.006166515	-0.00313972	-0.009132484
11/5/2014	-0.035718083	-0.008230499	-0.009478744	-0.004597709
11/6/2014	-0.018349139	-0.004140793	-0.006369448	-0.004618946
11/10/2014	0.004618946	-0.028408012	-0.025891414	0.022884294
11/17/2014	-0.076592445	-0.005350468	0.016260521	-0.002355714
11/19/2014	0.024571261	0.009610325	0.056441311	0.011364784
11/27/2014	0.065751378	-0.011758553	0.056311172	0.019890551
11/28/2014	-0.018349139	0	0.019972133	-0.01096192
12/1/2014	-0.013986242	-0.00972455	0.027856955	0.013245227
12/2/2014	0.018605188	-0.001086366	0.00820798	0
12/3/2014	0.009174376	-0.036528688	-0.00820798	0
12/4/2014	0.035878288	0.018984378	0.005479466	0.017391743
12/5/2014	-0.013303966	0.001105583	0.008163311	0.012848142
12/8/2014	-0.022574322	0.002207506	-0.002713706	-0.012848142
12/9/2014	-0.004576667	-0.013318732	0	0.021322769
12/10/2014	-0.023202897	0.021006853	-0.008185585	-0.004228336
12/11/2014	-0.004705891	0.005455551	-0.008253142	-0.025752496
12/12/2014	-0.033576296	0.016190316	-0.01390843	0.017241806
12/15/2014	0	0	-0.051735674	0.00851069
12/16/2014	0.014528101	-0.026031839	-0.020865138	-0.025752496
12/17/2014	0.009569451	-0.026727649	0.061333088	0.023546675
12/18/2014	0.014184635	-0.022832042	0.041614881	0.019012939
12/19/2014	-0.004705891	-0.01044699	-0.005449605	0.026641931
12/22/2014	0	-0.026006194	-0.019310945	-0.004065377
12/23/2014	-0.004728141	0.007159935	0	0
12/24/2014	0.004728141	-0.030177305	-0.002789402	0.010213269
12/29/2014	-0.019048195	0	0	0.008032172
12/30/2014	0	0.009756175	0.008344972	0.046883586
1/2/2015	0	0.088224233	0.032700461	0.003809528
1/5/2015	-0.014528101	0.011049836	0.031664915	0
1/6/2015	-0.014742282	0	-0.013072082	-0.023077947
1/7/2015	0	-0.002200221	0.015666117	0.011605546
1/8/2015	-0.025063969	0.007679687	0.023048395	0
1/9/2015	0.020101179	0.006535971	-0.007623925	-0.003853569
1/12/2015	-0.010000083	-0.005443672	-0.012837147	-0.035367144
1/13/2015	-0.030614636	0.001091108	0.017926216	0.01776133

Date	ADRO	AKRA	BSDE	ICBP
1/14/2015	-0.020943174	-0.012068166	-0.00508907	-0.00188798
1/15/2015	-0.010638398	0.010977059	0.00508907	0.007843177
1/16/2015	0	0.002181026	0.005063302	-0.005955197
1/19/2015	0.010638398	-0.017582871	0.012547216	0.027135551
1/20/2015	0.036367644	0	0.007453451	0.024629182
1/21/2015	0.025190249	0.014309545	0.019608471	0.078893942
1/22/2015	0.009901071	-0.009884759	0.04043357	0.011928571
1/23/2015	-0.014888612	-0.015573173	-0.04043357	0.00854996
1/26/2015	-0.020202707	-0.001121705	0.002424244	-0.048452383
1/27/2015	0.020202707	0.034200796	0.016807118	0.046694082
1/28/2015	-0.005012542	0.002166848	-0.053802706	-0.005021385
1/29/2015	-0.010101096	0.017167804	0.002509412	0
1/30/2015	0.015113638	-0.001064396	0.012453461	-0.013698844
2/2/2015	-0.005012542	-0.009630893	-0.007453451	-0.013889112
2/3/2015	-0.005037794	-0.014077114	0.041520005	0
2/4/2015	0.010050336	0.001089918	-0.021766276	-0.01408474
2/5/2015	-0.005012542	-0.00546151	-0.007361996	-0.001845674
2/6/2015	0	0.008724156	0.019512814	0.022899083
2/9/2015	-0.015190165	0.015086493	0.012004946	0.008574247
2/10/2015	0.015190165	0.005333346	0.002383791	-0.024393153
2/11/2015	-0.015190165	0.01268516	-0.007168489	-0.007080177
2/12/2015	0.00508907	0.019761433	0.004784698	0.010601555
2/13/2015	0.015113638	0.008205174	0.007134394	0
2/16/2015	-0.010050336	-0.021683865	-0.0264121	0.01049034
2/17/2015	0.010050336	0.005205634	-0.017178337	-0.012179054
2/18/2015	-0.005012542	0.009302393	0.050674291	0.007017573
2/20/2015	0	0.002055499	-0.002355714	-0.007017573
2/23/2015	-0.015190165	-0.012396853	-0.011862535	-0.010619569
2/24/2015	-0.01542447	0.006217637	-0.00718566	-0.001852248
2/25/2015	-0.005194817	0.001032525	0.019048195	0.001852248
2/26/2015	-0.015748357	0	0.037041272	0.012308283
2/27/2015	0.015748357	0.005146692	0.009049836	0.005328858
3/2/2015	0.060624622	0.021331434	-0.009049836	0.001676915
3/3/2015	-0.004914015	0.003010539	-0.004555817	0.027542363
3/4/2015	-0.03000225	0.011952334	-0.018433702	-0.011887822
3/5/2015	0.020101179	0.004938282	-0.004662013	-0.012169975
3/6/2015	-0.020101179	-0.019901154	-0.023641763	0.010381435
3/9/2015	0.005063302	0.005012542	-0.019324273	-0.020871775
3/10/2015	-0.005063302	0.034401427	0.00486619	0.019217971
3/11/2015	-0.030930301	-0.004842624	-0.029558802	-0.013889112

Date	ADRO	AKRA	BSDE	ICBP
3/12/2015	0.015584731	-0.01467019	0.014888612	0.020761991
3/13/2015	0	0.009804	-0.002466092	0.001642486
3/16/2015	-0.026111144	-0.019705071	-0.004950505	0.025386186
3/17/2015	0.010526413	-0.004987542	0.026929412	-0.006688988
3/18/2015	0	0.004987542	-0.009708814	0
3/19/2015	0.015584731	-0.014028286	-0.007343974	-0.003361348
3/20/2015	-0.020834087	-0.03178125	-0.007398307	0.016694879
3/23/2015	0.020834087	0.045809536	0	-0.020067563
3/24/2015	0.0051414	0.009901071	0.017178337	-0.006779687
3/25/2015	-0.01030937	-0.014888612	-0.00732604	-0.024097552
3/26/2015	-0.020943174	-0.0010005	-0.017305747	-0.012340642
3/27/2015	0.005277057	0	0	-0.005234503
3/30/2015	0.0104713	0.0010005	0.046293284	0.007067167
3/31/2015	-0.0104713	0.024692613	0.016529302	0.032835256
4/1/2015	0.0104713	0.042966036	0.007001195	-0.018849014
4/2/2015	0.020619287	0.032186686	0.009259325	-0.005291754
4/6/2015	0	0	0	0
4/7/2015	0	0.01348335	0.011454879	0.00181349
4/8/2015	-0.01542447	-0.00447428	-0.018391323	0.010398707
4/9/2015	0.01542447	-0.022676709	0	-0.001794713
4/10/2015	-0.005115101	-0.042160811	-0.002322881	-0.01559703
4/13/2015	-0.020726131	-0.019324273	-0.037919235	-0.003514942
4/14/2015	0	-0.024692613	-0.004842624	-0.003527341
4/15/2015	0.005221944	0.004987542	0.042761859	0.001694676
4/16/2015	0.005194817	0.009901071	-0.004662013	0.015818906
4/17/2015	-0.005194817	0.048086187	-0.002339182	-0.003478264
4/20/2015	-0.0104713	0.009345862	-0.016529302	-0.010507978
4/21/2015	0.025975486	0.022989518	0.007117468	0.007017573
4/22/2015	-0.0051414	0	0.011751017	-0.003502631
4/23/2015	0.0102565	-0.018349139	-0.007034027	-0.010582109
4/24/2015	-0.0102565	-0.047402239	-0.007083855	0
4/27/2015	-0.052922401	-0.009756175	-0.036192129	-0.021506205
4/28/2015	0.010810916	0.019418086	-0.037551346	-0.052056362
4/29/2015	-0.038360868	0	-0.052367986	-0.034955015
4/30/2015	-0.022599832	0	0.002684565	0.042559614
5/4/2015	-0.034887259	-0.039220713	0.013315776	0.029852963
5/5/2015	0.029156584	0.004987542	0.023530497	0.009076332
5/6/2015	0.005730675	0.048553225	-0.015625318	-0.003649906
5/7/2015	-0.023122417	-0.014320054	-0.026597313	0.016392621
5/8/2015	0.00583092	0.019048195	-0.027324104	-0.009106083

Date	ADRO	AKRA	BSDE	ICBP
5/11/2015	0.051002554	0.004705891	0.01648389	-0.003636632
5/12/2015	0.010989122	-0.043172172	0.00272109	-0.003649906
5/13/2015	0.016260521	0.024214258	0.055496405	-0.003663276
5/15/2015	-0.027249642	0.028303776	-0.012936791	-0.001763151
5/18/2015	-0.028013036	0.009259325	0.015504187	0.010969031
5/19/2015	0.016901811	0.031748698	0.012739026	-0.003642991
5/20/2015	-0.005602256	0.022075952	0.002528446	0.021661497
5/21/2015	-0.011299555	-0.022075952	0	-0.014388737
5/22/2015	0.005665738	0	-0.015267472	0.008945378
5/25/2015	-0.011363759	-0.00896867	-0.01030937	0.00358449
5/26/2015	0.028170877	-0.027398974	0.023048395	0.010677018
5/27/2015	-0.005571045	0.013793322	-0.012739026	0.005366487
5/28/2015	0.005571045	0.004555817	-0.025975486	-0.003527341
5/29/2015	-0.045462374	-0.004555817	0.002628122	-0.003539827
6/1/2015	0.022989518	0.013605652	-0.010554188	0
6/3/2015	0.04987183	-0.018182319	0	-0.025135973
6/4/2015	-0.038572275	0.018182319	-0.002656044	-0.005542605
6/5/2015	0.005602256	0.026668247	0.021053409	-0.016517113
6/8/2015	-0.034094211	-0.044850566	-0.058998341	-0.036031751
6/9/2015	-0.035297782	-0.056618894	-0.039441732	-0.005720043
6/10/2015	-0.006006024	0.056618894	0.017094433	0.021017879
6/11/2015	0.011976191	0.036039936	-0.005665738	0.017009517
6/12/2015	-0.011976191	-0.004434597	-0.025900728	-0.003738322
6/15/2015	-0.081549867	-0.022472856	-0.060078124	-0.049914391
6/16/2015	0.019418086	0.018018506	0.030490167	0
6/17/2015	0.031548358	-0.00896867	0.058325567	0.015625318
6/18/2015	-0.037979248	0.01342302	0.019635975	0.019194447
6/19/2015	0.044171218	0	0.011049836	-0.01532597
6/22/2015	-0.025001302	-0.00445435	-0.022223137	0.001851567
6/23/2015	-0.006349228	-0.00447428	-0.011299555	-0.005720043
6/24/2015	0.006349228	0.056660034	0.025246783	-0.0038835
6/25/2015	-0.012739026	0.03333642	-0.002773927	-0.00389864
6/26/2015	0.006389798	-0.008230499	-0.025317808	-0.015748357
6/29/2015	-0.032365285	-0.012474174	-0.046655692	-0.044632154
6/30/2015	0	-0.008403411	-0.002989539	0.034581818
7/1/2015	-0.006600684	-0.017021688	-0.006006024	-0.009990415
7/2/2015	0.006600684	-0.021692825	0.032595478	0
7/3/2015	0	-0.00881063	0.034387342	0.017975127
7/6/2015	-0.026668247	-0.026907453	-0.037307052	-0.024147986
7/7/2015	-0.055569851	0.009049836	-0.005865119	-0.014277751

Date	ADRO	AKRA	BSDE	ICBP
7/8/2015	-0.066445099	-0.022780028	0.01169604	0.004123717
7/9/2015	-0.038915416	-0.013921339	0	-0.025001302
7/10/2015	0.00790518	-0.00938974	0.037094124	0.022859092
7/13/2015	-0.023905521	-0.014252023	0.043842638	0.030541685
7/14/2015	-0.058107631	0.037563102	-0.035474388	0
7/15/2015	0.016949558	0.022780028	0.038151766	0.003992021
7/22/2015	-0.034191365	0.035401927	-0.002677378	0.039067468
7/23/2015	0.034191365	0.012959145	0.002677378	-0.045141656
7/24/2015	-0.060624622	0.008547061	-0.024358444	-0.004016392
7/27/2015	-0.00896867	0.004246291	-0.036266178	-0.018194134
7/28/2015	0.077961541	0.020965128	-0.049500644	-0.012371292
7/29/2015	-0.016807118	-0.020965128	0.023599915	-0.002160007
7/30/2015	-0.00851069	-0.017094433	0.011594333	-0.001998003
7/31/2015	0.00851069	-0.008658063	0.031208206	0.024692613
8/3/2015	-0.034486176	-0.013129291	0.030263658	0.028057953
8/4/2015	0.034486176	0.004395611	-0.013642776	-0.003960401
8/5/2015	0.016807118	0.038714512	0.010929071	0.005855837
8/6/2015	-0.00836825	-0.004228336	-0.021978907	0.003937323
8/7/2015	-0.025533302	0	-0.005571045	0
8/10/2015	-0.026202372	-0.025752496	-0.025461064	0.002041298
8/11/2015	-0.063948725	-0.004357305	-0.037960762	-0.013900082
8/12/2015	-0.088728116	-0.013187004	-0.055059777	-0.022031928
8/13/2015	0.026451186	0.021882711	0.04908961	-0.004073325
8/14/2015	0.004008021	-0.026317308	0.011904903	0.020202707
8/18/2015	-0.026343975	-0.01342302	-0.023953241	0
8/19/2015	-0.002055499	0.00449439	0.018018506	0.013824007
8/20/2015	-0.004123717	-0.00449439	-0.030213779	-0.015906173
8/21/2015	0.012320484	-0.009049836	-0.056797598	-0.001925855
8/24/2015	-0.033198069	0.018018506	-0.098888001	0.015936592
8/25/2015	0.139578473	-0.031748698	0.031748698	-0.019960743
8/26/2015	-0.009216655	-0.004618946	-0.021053409	-0.002098976
8/27/2015	0.088553397	0.058443596	0.110665568	0.023955154
8/28/2015	0.049596941	0.04691692	0.006329135	-0.029953389
8/31/2015	-0.041158072	0.01242252	0.012539349	0.035932009
9/1/2015	-0.034191365	-0.046324072	-0.018868484	-0.031875209
9/2/2015	0.059088916	-0.008658063	0	-0.006172859
9/3/2015	0.016260521	-0.00873368	0.006329135	-0.006047252
9/4/2015	-0.066691374	-0.031182927	-0.032054026	-0.004106782
9/7/2015	-0.04405999	-0.004535155	-0.063887267	-0.002142211
9/8/2015	0.026668247	0.031322471	0.037483093	0

Date	ADRO	AKRA	BSDE	ICBP
9/9/2015	0.017391743	0.021787354	-0.020270964	0
9/10/2015	-0.071458964	-0.004319661	0.010186845	0.002142211
9/11/2015	0.045256592	-0.026317308	0.01342302	-0.004123717
9/14/2015	0.00881063	0.021978907	0	0
9/15/2015	0.017391743	-0.030907537	-0.040821995	0.01019578
9/16/2015	-0.017391743	0	-0.013986242	0.020245246
9/17/2015	0.025975486	0.035245939	0.020906685	0.045141656
9/18/2015	0.025317808	-0.004338402	0.053704179	-0.007692346
9/21/2015	0	-0.004357305	-0.013158085	-0.033448985
9/22/2015	-0.00836825	0.030109801	-0.020067563	-0.022120866
9/23/2015	-0.025533302	-0.017094433	-0.041385216	-0.041672696
9/25/2015	0.008583744	0.033901552	-0.035846132	-0.010781314
9/28/2015	-0.061693569	-0.021053409	-0.040974074	-0.032703798
9/29/2015	-0.027651531	0.01268516	0.073292865	0.089231134
9/30/2015	0	-0.016949558	-0.007092228	0.00809721
10/1/2015	-0.00938974	-0.012903405	0	0.013934717
10/2/2015	-0.019048195	0	0.017637141	-0.04256653
10/5/2015	0.028437935	0.012903405	0.034367644	0.018418544
10/6/2015	0.045670037	0.021142437	0.033225648	0.055464151
10/7/2015	0.093685484	-0.047117923	0.028987537	-0.031316165
10/8/2015	0.00809721	0.004376375	0.034324743	-0.017975127
10/9/2015	0.09237332	0.021599112	0.062427399	0.056969462
10/12/2015	0.028987537	0.012739026	0.014306396	0.00381709
10/13/2015	-0.097455336	-0.008474627	-0.079805993	-0.028911343
10/15/2015	0.007843177	0	0.015267472	0.034685558
10/16/2015	0	0.029352212	-0.018349139	0
10/19/2015	0.00778214	-0.004140793	0.039339415	0.009350091
10/20/2015	0.038027396	0	-0.014947961	0
10/21/2015	-0.030305349	0.00826451	0.003007521	-0.01695469
10/22/2015	-0.023347364	-0.01242252	0.020803128	0.015151805
10/23/2015	0.053652713	-0.021053409	0.026126305	0.020392163
10/26/2015	0.014815086	-0.021506205	0.011396135	0.009239635
10/27/2015	-0.022305758	-0.01754431	-0.03458558	0
10/28/2015	-0.022814678	0.013187004	-0.017751945	-0.025879448
10/29/2015	-0.055350095	-0.017621601	-0.036478209	-0.001949465
10/30/2015	-0.033060862	0.047731403	0.003091193	-0.009350091
11/2/2015	0.024897552	-0.00851069	0.003081667	-0.005774214
11/3/2015	0.048009219	0	0.045120435	0
11/4/2015	0.023167059	0.025317808	0.017493157	0.01136462
11/5/2015	-0.038915416	-0.012578782	-0.011628038	-0.01518171

Date	ADRO	AKRA	BSDE	ICBP
11/6/2015	-0.016000341	0.016736792	-0.00292826	-0.005676168
11/9/2015	-0.00809721	-0.01252626	-0.035824727	-0.007722046
11/10/2015	-0.008163311	0.00836825	-0.003044142	-0.029580508
11/11/2015	0.048009219	-0.004175371	0	0
11/12/2015	-0.048009219	-0.021142437	0.018127385	-0.001918159
11/13/2015	-0.050430854	0.04184711	-0.012048339	-0.008032172
11/16/2015	-0.03509132	-0.012371292	-0.006079046	-0.00404041
11/17/2015	-0.00896867	0.020534602	0.003044142	0.020040751
11/18/2015	0.035401927	-0.041499731	-0.00609758	0.011834458
11/19/2015	0.042559614	0.025105921	0.009132484	-0.009931508
11/20/2015	-0.025317808	0	0.015037877	0.021627547
11/23/2015	-0.025975486	-0.012474174	-0.002989539	-0.00778214
11/24/2015	-0.00881063	-0.008403411	-0.009022618	-0.011787956
11/25/2015	0.034786116	0.008403411	0.032692362	-0.003960401
11/26/2015	0	-0.004192878	0.014514043	-0.002065624
11/27/2015	-0.034786116	0.01252626	-0.011594333	0
11/30/2015	-0.026907453	0.012371292	-0.017647517	0.003968574
12/1/2015	-0.009132484	0.020284671	0.032119549	0.029349593
12/2/2015	-0.009216655	0.015936592	0.014265577	-0.002002003
12/3/2015	-0.009302393	-0.019960743	0.002828856	-0.023394704
12/4/2015	-0.018868484	0.023905521	-0.019972133	-0.013824007
12/7/2015	-0.028987537	0.061087692	0.005747142	-0.004008021
12/8/2015	-0.040005335	0.057569852	-0.052953547	-0.022418093
12/9/2015	0	0	0	0
12/10/2015	-0.031090587	-0.06500483	-0.003025721	-0.018571252
12/11/2015	0.020834087	0.018484815	0	-0.034045841
12/14/2015	-0.0166324	0.014545711	-0.027651531	0.014952586
12/15/2015	-0.029789437	-0.029306127	0.0062112	0.035691147
12/16/2015	0.060751662	0.040078224	0.039458837	0.028399475
12/17/2015	0.035932009	0.017699577	0.029327615	0.015873349
12/18/2015	-0.040005335	-0.007042283	-0.047346121	-0.023905521
12/21/2015	0.010152371	0.017513582	0.026907453	0.029715383
12/22/2015	0.010050336	-0.017513582	0.026202372	0.0155355
12/23/2015	0	-0.017825784	0	0.005840779
12/28/2015	0.019802627	-0.014493007	0.033901552	-0.003838776
12/29/2015	0.019418086	0.007272759	0	0.011472401
12/30/2015	-0.009661911	0.03908135	0	0.024340144
1/4/2016	-0.041631383	0.003478264	-0.005571045	-0.020545073
1/5/2016	0.010070579	-0.0104713	0.016620881	-0.015267472
1/6/2016	0.002002003	0.006993035	0.010929071	0.065067228

Date	ADRO	AKRA	BSDE	ICBP
1/7/2016	-0.030459207	0.057545486	-0.013680104	0
1/8/2016	0.016360283	0.003284075	0.010959014	0.014312539
1/11/2016	-0.01430055	-0.053885088	-0.038893791	-0.008849615
1/12/2016	-0.010341354	0	0.014064929	0.007142888
1/13/2016	-0.016771882	-0.003466208	0.016620881	-0.005423936
1/14/2016	-0.019210836	-0.028170877	-0.005509656	-0.00530962
1/15/2016	-0.032861664	-0.028987537	0	0.012440283
1/18/2016	0.002224695	0.032552603	-0.019526422	0
1/19/2016	0.02415046	0.021127546	0.002812941	0.015930414
1/20/2016	-0.053464848	0.003478264	-0.040119994	0.008633949
1/21/2016	0.029314388	-0.021053409	-0.035718083	0.010345633
1/22/2016	0.134919318	-0.003552402	0.003025721	0.005201216
1/25/2016	-0.033566824	0.017637141	-0.003025721	-0.024180798
1/26/2016	-0.045182223	-0.007017573	0.020990276	0.027587957
1/27/2016	0.002098637	0.048119248	0.008862687	0.013513719
1/28/2016	0.086312321	-0.01011813	0.014598799	-0.003361348
1/29/2016	0.009569451	-0.003395589	0.002894358	-0.027305451
2/1/2016	-0.019231362	0.006779687	-0.041303806	0.001659522
2/2/2016	0.074801213	0.01675081	-0.003016594	-0.00512573
2/3/2016	0.035401927	0.035892923	0.012012156	0.057351296
2/4/2016	0.075349437	0.040821995	0.011869576	0.0130295
2/5/2016	0.031748698	0.030305349	0.043296806	0.071793692
2/9/2016	-0.081345639	-0.024170361	-0.019972133	-0.046233195
2/10/2016	-0.025752496	-0.034217957	0	-0.032054026
2/11/2016	0.050858417	0.009448889	0.017143277	-0.019737483
2/12/2016	-0.008298803	-0.009448889	-0.005681833	-0.021899176
2/15/2016	-0.025317808	-0.006349228	0.002844952	0.031816612
2/16/2016	0.050010421	-0.029081209	0.011299555	0.011382343
2/17/2016	0.00809721	0.006535971	0.011173301	0.009709443
2/18/2016	-0.02449102	0.00972455	-0.016807118	-0.01780771
2/19/2016	-0.033616611	-0.006472515	-0.022858138	-0.009884759
2/22/2016	0.016949558	-0.009788006	0	0.019672766
2/23/2016	0	-0.053885088	-0.041303806	-0.008215473
2/24/2016	0	0.057158414	0.020865138	-0.024790824
2/25/2016	-0.042925045	0.009756175	-0.008888947	-0.006734032
2/26/2016	0.051293294	0.006451635	0.00297177	0.021655705
2/29/2016	0.008298803	0.050167259	0	0.040557479
3/1/2016	0.102049254	-0.031058397	0.023461487	-0.006369448
3/2/2016	-0.015037877	-0.032054026	0.002894358	0.012698583
3/3/2016	-0.015267472	0.01615544	0.005763705	0.0077929

Date	ADRO	AKRA	BSDE	ICBP
3/4/2016	0.045120435	-0.012903405	0.002869442	-0.003134995
3/7/2016	0.09129142	0	-0.011527505	-0.026987381
3/8/2016	0.058648727	0	-0.00581397	0
3/10/2016	-0.025642431	0.009693129	-0.00584797	-0.014687987
3/16/2016	-0.053345981	-0.046060773	0.062520357	0.008215473
3/17/2016	0.020339684	0.013378126	0.032523192	0.014440684
3/18/2016	-0.09129142	-0.01675081	0.013245227	0.009554821
3/21/2016	0.036105005	-0.037870274	0.005249356	-0.00152265
3/22/2016	-0.014285957	0.013937508	-0.023842189	-0.020915627
3/23/2016	-0.007220248	-0.02097979	0	-0.008071909
3/24/2016	-0.044451763	-0.021429391	-0.010781776	-0.004979698
3/28/2016	0.015037877	-0.0108894	-0.01089929	-0.008178386
3/29/2016	-0.030305349	0.003642991	0	-0.005045821
3/30/2016	0.022814678	0.03220314	0.008185585	0.006633964
3/31/2016	-0.030536724	-0.021353124	-0.00272109	0.005012542
4/1/2016	0.030536724	-0.007220248	-0.010959014	0.008124799
4/4/2016	0.022305758	0.014388737	0	0.008188777
4/5/2016	-0.014815086	0	0.005494519	-0.0130295
4/6/2016	0.036634133	-0.007168489	0.005464494	-0.003284075
4/7/2016	-0.007220248	-0.018149319	0	-0.005012542
4/8/2016	0.021506205	-0.011049836	0.008141158	0
4/12/2016	-0.014285957	-0.041593897	-0.002706362	-0.008232685
4/19/2016	0	0	0	0
4/20/2016	0.035339366	0.01532597	0.065554265	0
4/21/2016	0.040821995	0.011342277	-0.030930301	0.001598721
4/22/2016	-0.006688988	-0.003766483	0.013004084	0.001729069
4/25/2016	0.006688988	0.003766483	0.002580647	0.004904895
4/26/2016	-0.040821995	-0.007547206	0	-0.011571586
4/27/2016	0.006920443	0.011299555	0	-0.001740644
4/28/2016	0.013698844	-0.018904155	-0.015584731	0.006678267
4/29/2016	-0.006825965	-0.007662873	-0.031917603	0.016503114
5/2/2016	-0.020761991	-0.023347364	-0.04987183	0.001700792
5/3/2016	0	-0.048396541	0.002836881	0
5/4/2016	0.006968669	-0.025105921	0.016854332	0.003262646
5/9/2016	-0.035339366	0.025105921	-0.036883613	0.003252035
5/10/2016	-0.044124805	0.064021859	-0.005797118	0
5/11/2016	0.029631798	-0.00778214	0.022989518	0.006472515
5/12/2016	0.014493007	-0.003913899	-0.025900728	0.003220615
5/13/2016	-0.036634133	-0.040005335	0.00291121	0.003210276
5/16/2016	0.022141126	-0.063178902	-0.00291121	-0.008109718

Date	ADRO	AKRA	BSDE	ICBP
5/17/2016	0.014493007	0.025752496	0.00291121	0.027157913
5/18/2016	-0.007220248	0.045556532	0.031476132	0.030962226
5/19/2016	-0.021978907	0	0.011204599	-0.02945393
5/20/2016	-0.007434978	-0.004056801	0.002781643	0.003134995
5/23/2016	0	0	0.002773927	0
5/24/2016	-0.015037877	-0.024692613	-0.019581045	-0.00627985
5/25/2016	0.029852963	-0.00836825	0.025105921	0.001636559
5/26/2016	0.028987537	0	0	0
5/27/2016	-0.007168489	0.01252626	0	0.024845999
5/30/2016	0	0.044632154	0.002751033	-0.023337703
5/31/2016	0.021353124	0.015748357	0.005479466	0.017183837
6/1/2016	0.013986242	0.00389864	0.010869672	-0.004702397
6/2/2016	0.047466537	-0.031623188	-0.005420067	-0.015626295
6/3/2016	0.076470364	-0.00402415	0.008119124	0.012520509
6/6/2016	0.030213779	-0.012170536	0.008053735	0.013962048
6/7/2016	0.080042708	0.004073325	0.002670229	0.02723315
6/8/2016	-0.044951388	-0.012270093	0.002663117	-0.002989539
6/9/2016	0.061300526	0	-0.016086138	-0.018127385
6/10/2016	-0.038572275	-0.004123717	0.002699057	-0.004644917
6/13/2016	-0.034289073	0.008230499	-0.013568729	-0.010716368
6/14/2016	-0.017595762	-0.024897552	0.002728515	0.03348867
6/15/2016	0.02339288	-0.004210533	0.016216572	-0.007573517
6/16/2016	-0.02339288	-0.004228336	-0.005376357	0.007573517
6/17/2016	-0.0547249	0.004228336	0.057607549	0.017804625
6/20/2016	0.0547249	0.029108084	0.002541297	0.010183268
6/21/2016	0	0.004089985	0.059130523	-0.007246409
6/22/2016	0	0	-0.004796172	0.024563858
6/23/2016	0.005899722	0.008130126	-0.029270382	-0.018715888
6/24/2016	-0.011834458	0.012072581	0.009852296	-0.00584797
6/27/2016	-0.005970167	-0.004008021	0.028987537	0.01166194
6/28/2016	0.023669744	-0.024391453	-0.009569451	0.002894358
6/29/2016	0	0.044272824	0.009569451	-0.017493157
6/30/2016	-0.005865119	0.007843177	0.004750603	0.013090416
7/1/2016	0.040351296	0.00389864	-0.009523882	-0.016035926
7/11/2016	0.044206093	0.045635295	0.023641763	0.027580732
7/12/2016	0.047502334	-0.011215071	-0.014117882	-0.00137836
7/13/2016	0.05515182	-0.015151805	-0.004750603	-0.0028777
7/14/2016	0.014528101	-0.003824096	-0.024097552	-0.020379162
7/15/2016	-0.044233255	0.003824096	-0.024692613	0
7/18/2016	0.034571344	0.026366876	0.024692613	-0.004480611

Date	ADRO	AKRA	BSDE	ICBP
7/19/2016	-0.00486619	0.011090687	-0.024692613	0.011748255
7/20/2016	0.009708814	-0.003683245	0.029558802	0.01885866
7/21/2016	0.01913934	-0.037598414	-0.009756175	-0.014430265
7/22/2016	-0.004750603	0.030190972	-0.004914015	0.010065452
7/25/2016	0.018868484	0.025689486	0.024332101	0.010079114
7/26/2016	-0.00938974	-0.014598799	0.004796172	0.019746763
7/27/2016	-0.014252023	0.010969031	-0.004796172	0.005571045
7/28/2016	0.014252023	-0.022059718	-0.009661911	-0.016807118
7/29/2016	-0.019048195	0.003710579	0.014458083	-0.028655256
8/1/2016	0	0.007380107	-0.004796172	0.037094124
8/2/2016	0.060624622	-0.011090687	-0.009661911	-0.014104606
8/3/2016	0.031182927	0.007407441	-0.019608471	0
8/4/2016	-0.026668247	-0.018622512	0.019608471	0.005665738
8/5/2016	0.031044622	0.007490672	0.019231362	0.008438869
8/8/2016	0.004357305	0.022141126	0.055569851	-0.011267725
8/9/2016	0.042559614	-0.00732604	0.039740329	-0.008534902
8/10/2016	-0.038221213	0.032552603	-0.017467693	0
8/11/2016	-0.062520357	-0.007142888	0.026088436	-0.002861232
8/12/2016	0.045052664	-0.021739987	-0.008620743	-0.014430265
8/15/2016	-0.013303966	-0.011049836	-0.044255009	0.005797118
8/16/2016	0.022075952	0.018349139	0.017937701	0.008633147
8/18/2016	0.021599112	-0.018349139	-0.008928631	0.053011016
8/19/2016	-0.057158414	-0.01492565	-0.00449439	-0.01920498
8/22/2016	0.00900907	0.007490672	-0.00451468	0.024625047
8/23/2016	-0.031893364	-0.007490672	-0.009090972	0.010752792
8/24/2016	-0.018692133	0	0.022574322	-0.005361943
8/25/2016	0.037041272	0.022305758	-0.00896867	0.03434948
8/26/2016	-0.018349139	0.003669729	0.00449439	0.015464226
8/29/2016	-0.013986242	0.007299302	-0.045879606	-0.028536307
8/30/2016	0.063657852	0.010850016	-0.014184635	0.020834087
8/31/2016	0.013129291	-0.040372455	0.023530497	0.027956077
9/1/2016	0.029980832	0.011173301	-0.042761859	0.00250313
9/2/2016	-0.012739026	0	0.028710106	-0.030459207
9/5/2016	0.04184711	0.014706147	0.014051753	-0.026111144
9/6/2016	0.004089985	0.007272759	0.013857035	0.002642009
9/7/2016	0.016194686	0	0.004576667	0.023469135
9/8/2016	0.019881371	0	-0.027779564	0.0102565
9/9/2016	0	-0.014598799	-0.023754086	-0.039016652
9/13/2016	-0.086295813	-0.052842481	-0.004819286	0
9/14/2016	-0.039392402	0.030536724	-0.036904557	-0.043367229

Date	ADRO	AKRA	BSDE	ICBP
9/15/2016	0.039392402	-0.003766483	0.065477929	0.046016237
9/16/2016	0	-0.022901764	-0.028573372	0.002642009
9/19/2016	0.017021688	0.011516442	0.023867481	0.023469135
9/20/2016	-0.004228336	0.018904155	0	-0.010362787
9/21/2016	-0.00851069	-0.007518832	0.014051753	0
9/22/2016	0.012739026	-0.007575794	0.013857035	-0.013106348
9/23/2016	0.020877585	0.029964789	0.013667639	0.002635048
9/26/2016	-0.008298803	-0.022388995	-0.022884294	-0.015915455
9/27/2016	0.008298803	0.011257155	0.022884294	-0.005361943
9/28/2016	-0.008298803	-0.038027396	0.00451468	0.03434948
9/29/2016	0.064538521	0.019194447	-0.00451468	0.010336009
9/30/2016	-0.060380511	-0.019194447	-0.004535155	-0.026043139
10/3/2016	0.075884698	0.007722046	0.022472856	0.028610534
10/4/2016	0.003838776	0.022814678	-0.017937701	0
10/5/2016	-0.011560822	-0.007547206	-0.013667639	-0.002567396
10/6/2016	0.052842481	-0.015267472	0.009132484	0
10/7/2016	0.010969031	-0.011605546	-0.013730193	-0.015544354
10/10/2016	0.007246409	-0.00781254	-0.013921339	0.005208345
10/11/2016	0.010772097	0.003913899	0.018519048	0.018018506
10/12/2016	0.003565066	-0.011787956	0	0
10/13/2016	0	0.007874056	-0.018519048	-0.033725635
10/14/2016	0.014134511	0.030890487	0.018519048	0.033725635
10/17/2016	0.024264622	0	-0.004597709	-0.020619287
10/18/2016	-0.013793322	0.037317763	0.027274418	-0.007843177
10/19/2016	0.060624622	0.010929071	-0.00449439	-0.00790518
10/20/2016	-0.013158085	-0.036904557	0	0.002642009
10/21/2016	-0.006644543	-0.018975901	-0.013605652	0.010498784
10/24/2016	0.016529302	0.041281659	0.004555817	-0.007863736
10/25/2016	0	0.025409716	0	0.0104713
10/26/2016	0.019481136	-0.018083675	-0.009132484	-0.007843177
10/27/2016	-0.003220615	0.007272759	-0.004597709	0.005235614
10/28/2016	0.019169916	-0.021978907	0	-0.005235614
10/31/2016	0.00315956	0.050552279	0	-0.013210232
11/1/2016	0.034111835	-0.03220314	-0.018605188	-0.021506205
11/2/2016	0.047628049	-0.010969031	-0.014184635	-0.005449605
11/3/2016	-0.047628049	-0.045120435	-0.019231362	-0.039002158
11/4/2016	0.018127385	0.037740328	0	0.033522692
11/7/2016	0.008941937	-0.003710579	0.004842624	0.019048195
11/8/2016	-0.033185549	0.040078224	0.023867481	0.031832927
11/9/2016	-0.037504395	-0.007168489	-0.023867481	-0.013140794

Date	ADRO	AKRA	BSDE	ICBP
11/10/2016	0.049699669	-0.003603608	0.014388737	-0.002649008
11/11/2016	0.006042314	-0.059497099	-0.094834103	-0.071458964
11/14/2016	-0.033693846	0	-0.070489878	-0.025975486
11/15/2016	-0.091268514	0	-0.008462674	0.011628038
11/16/2016	0.046675139	0.048607699	0.038893791	0.020029282
11/17/2016	-0.013114942	0.007272759	-0.00820798	0.030685811
11/18/2016	-0.009950331	0.010810916	0.002743486	0
11/21/2016	0.019802627	-0.007194276	-0.019364367	-0.036367644
11/22/2016	0.057158414	-0.033030526	0.019364367	-0.005714301
11/23/2016	0.006153866	-0.011257155	-0.005494519	0.005714301
11/24/2016	0.009160369	-0.026770241	-0.030771659	-0.025975486
11/25/2016	-0.003044142	0.030536724	-0.020086759	-0.032692362
11/28/2016	0.024097552	-0.030536724	-0.026433257	0.009022618
11/29/2016	-0.030213779	0.007722046	0.026433257	0.008941937
11/30/2016	-0.063312279	0.026567027	-0.014598799	0.026355845
12/1/2016	0.050966444	-0.038172574	0.043172172	-0.002894358
12/2/2016	0.033590944	0.0038835	0.019526422	0.014388737
12/5/2016	0.038296285	0.007722046	0.021858794	0.014184635
12/6/2016	0	-0.003853569	0.008075414	-0.01991531
12/7/2016	-0.011628038	0.003853569	-0.016216572	-0.0028777
12/8/2016	-0.035718083	-0.023347364	0	0.019972133
12/9/2016	0.018018506	0.007843177	-0.010959014	0
12/13/2016	0.011834458	0.011650617	-0.019472103	0.011236073
12/14/2016	-0.005899722	-0.027398974	-0.005633818	-0.002797205
12/15/2016	-0.011904903	0	-0.011363759	-0.025533302
12/16/2016	-0.006006024	-0.032260862	0.005698021	-0.008658063
12/19/2016	0.020865138	-0.020704673	-0.020086759	-0.035401927
12/20/2016	0.00294551	-0.034045841	0.011527505	-0.018182319
12/21/2016	-0.017804625	-0.013072082	-0.020261185	-0.031058397
12/22/2016	0.005970167	-0.035718083	-0.029675768	-0.019108862
12/23/2016	-0.014992785	0.013544225	-0.036813973	-0.029365895
12/27/2016	0.012012156	0.026550232	0.015504187	0.051624365
12/28/2016	0.008915364	0.01731645	0.048057295	0.046091107
12/29/2016	0	0.025425098	0.01166194	0.035401927
12/30/2016	0.002954212	0.004175371	0.017241806	-0.00581397
1/2/2017	0	0	0	0
1/3/2017	0.026202372	-0.02960047	-0.014347448	0.00291121
1/4/2017	-0.023256862	0.017021688	0.045205437	0
1/5/2017	-0.020803128	-0.012739026	0	-0.00291121
1/6/2017	0.017857617	0.00851069	0.019152432	-0.00584797

Date	ADRO	AKRA	BSDE	ICBP
1/9/2017	0.01464155	0.008438869	-0.027474256	0.031748698
1/10/2017	-0.020558727	0.049190244	-0.031119909	-0.002844952
1/11/2017	0.034988992	0	-0.011560822	-0.023055776
1/12/2017	-0.017341475	-0.008032172	0.008683123	-0.00291971
1/13/2017	-0.00878483	-0.012170536	-0.002886005	-0.00292826
1/16/2017	0	-0.012320484	0	-0.008836582
1/17/2017	0	-0.008298803	0.020029282	-0.002962965
1/18/2017	0.01169604	0.008298803	0.019635975	0.017647517
1/19/2017	0.005797118	0.056239718	0.038151766	0.00291121
1/20/2017	0	0.015504187	-0.013459153	-0.01169604
1/23/2017	-0.002894358	0.037740328	-0.021918686	-0.005899722
1/24/2017	0	0.011049836	0.021918686	0.002954212
1/25/2017	0.008658063	0.003656311	0.00809721	0.01464155
1/26/2017	-0.005763705	-0.003656311	0.008032172	-0.00583092
1/27/2017	-0.002894358	-0.018484815	-0.008032172	0
1/30/2017	-0.00581397	-0.007490672	-0.010810916	-0.00881063
1/31/2017	-0.01173034	0.00375235	-0.005449605	-0.008888947
2/1/2017	0.031933047	-0.00375235	0.002728515	0.00297177
2/2/2017	-0.005730675	0.036904557	0.013532006	0.002962965
2/3/2017	-0.011560822	0.00361664	0.018642351	0
2/6/2017	0.011560822	-0.00361664	-0.002642009	0.014684552
2/7/2017	-0.005763705	-0.029413885	-0.005305052	-0.01173034
2/8/2017	-0.005797118	-0.007490672	0.013210232	0.00294551
2/9/2017	0.00290276	-0.011342277	-0.002628122	0
2/10/2017	-0.00873368	-0.01532597	0.002628122	0.005865119
2/13/2017	-0.017699577	0.026668247	0	-0.005865119
2/14/2017	-0.021053409	-0.015151805	-0.010554188	-0.005899722
2/15/2017	0	0	0	0
2/16/2017	0.032887867	-0.003824096	0.007926065	-0.005934736
2/17/2017	-0.023810649	-0.015444322	-0.005277057	-0.002980628
2/20/2017	0.020865138	-0.047817874	0	0
2/21/2017	0.01464155	0.004073325	0.005277057	-0.015037877
2/22/2017	-0.00875918	0.032002731	0.002628122	0
2/23/2017	0.00584797	0.038614836	0.002621233	0.006042314
2/24/2017	-0.00878483	0.026169718	-0.005249356	0.003007521
2/27/2017	0	-0.053042736	-0.02396919	0.002998503
2/28/2017	-0.00294551	-0.011741818	-0.013568729	-0.002998503
3/1/2017	-0.011869576	-0.015873349	-0.022100347	-0.006024115
3/2/2017	0.005952399	0	-0.002797205	-0.003025721
3/3/2017	0	-0.008032172	-0.011267725	-0.003034904

Date	ADRO	AKRA	BSDE	ICBP
3/6/2017	0	0.019960743	0	0.009077218
3/7/2017	0.005917177	-0.024001152	0.011267725	-0.009077218
3/8/2017	0	-0.008130126	-0.011267725	-0.003044142
3/9/2017	-0.005917177	0.016194686	0	-0.006116227
3/10/2017	-0.051761935	-0.016194686	-0.002836881	0
3/13/2017	0.015504187	0.024194729	-0.017192401	0.021245109
3/14/2017	0.012232568	0	0.005763705	0.005988042
3/15/2017	0.003034904	0.003976148	0	0.011869576
3/16/2017	0.018018506	0.03509132	0.01991531	0.04046795
3/17/2017	0.014771317	0.011428696	0.035965149	-0.014265577
3/20/2017	0	0.015037877	-0.00272109	0.002869442
3/21/2017	0.014556298	-0.003738322	0	0
3/22/2017	0	-0.015094626	0.026883339	0.008559253
3/23/2017	0.005763705	0.003795071	-0.021448543	-0.002844952
3/24/2017	0.017094433	0	0.010781776	-0.020144566
3/27/2017	0.016807118	-0.038614836	-0.013495481	-0.020558727
3/29/2017	0.011049836	0.007843177	0	-0.005952399
3/30/2017	0	-0.015748357	0.010810916	-0.015037877
3/31/2017	-0.039220713	-0.00796817	0.013351333	-0.012195273
4/3/2017	0.030944804	0.003992021	-0.002656044	0.033185549
4/4/2017	0.066959411	0.031375123	0	-0.00297177
4/5/2017	-0.020943174	-0.035367144	-0.002663117	-0.00896867
4/6/2017	0.002642009	-0.016129382	-0.021564178	-0.012084739
4/7/2017	-0.002642009	0.032002731	-0.010959014	-0.00609758
4/10/2017	0	0	0.005494519	0
4/11/2017	-0.010638398	0.003929278	-0.027779564	-0.006134989
4/12/2017	0.010638398	0.003913899	0.002812941	-0.003081667
4/13/2017	-0.016000341	0.023167059	-0.008462674	0.003081667
4/17/2017	-0.005390849	-0.003824096	0	0.003072199
4/18/2017	-0.008141158	0.003824096	0.030685811	0.006116227
4/19/2017	0	0	0	0
4/20/2017	0.00272109	-0.019268419	-0.008275909	-0.003053437
4/21/2017	0	0.026873018	0.008275909	0.027150989
4/25/2017	0.002713706	0	-0.005509656	0.011834458
4/26/2017	-0.013642776	0.015037877	0.008253142	0.00293686
4/27/2017	0.010929071	0.022141126	-0.013793322	0.020320002
4/28/2017	-0.035965149	-0.011009286	-0.005571045	0.008583744
5/2/2017	-0.031476132	-0.018622512	-0.008415197	-0.025975486
5/3/2017	-0.053744276	-0.030536724	-0.005649733	0.00583092
5/4/2017	-0.009245058	-0.023530497	0.005649733	0

Date	ADRO	AKRA	BSDE	ICBP
5/5/2017	-0.034649135	0.023530497	0.022285045	0.00290276
5/8/2017	0.034649135	0.038027396	0.008230499	-0.00290276
5/9/2017	-0.041080026	-0.018832948	-0.00273598	0.00290276
5/10/2017	-0.036128724	-0.034819765	-0.036266178	0.008658063
5/12/2017	-0.010084119	0	0.028013036	-0.011560822
5/15/2017	0.003372684	-0.00790518	-0.00554018	0.00290276
5/16/2017	-0.01355953	-0.003976148	0.002773927	-0.00581397
5/17/2017	-0.038265538	0	-0.059932341	0.014472033
5/18/2017	0.017575145	0.00793655	0.00293686	0
5/19/2017	0.020690393	0.007874056	0.045853304	0.044951388
5/22/2017	-0.020690393	0.01169604	0.00836825	-0.039220713
5/23/2017	0.027493141	-0.015625318	0	0.008534902
5/24/2017	0.003384098	0.007843177	0.013793322	0
5/26/2017	0.003372684	-0.015748357	-0.002743486	-0.002836881
5/29/2017	-0.01355953	-0.016000341	-0.011049836	0.002836881
5/30/2017	-0.003418807	0.016000341	-0.005571045	-0.017143277
5/31/2017	0.040273899	0.050300738	0.011111225	0.0028777
6/1/2017	0	0	0	0
6/2/2017	-0.033447934	0.011257155	-0.00554018	0
6/5/2017	0.04976151	-0.003738322	0.00554018	0.011428696
6/6/2017	0.038099846	-0.030420597	-0.016713481	-0.005698021
6/7/2017	-0.003120127	-0.027398974	0.011173301	-0.002861232
6/8/2017	-0.015748357	0.015748357	0	-0.029071815
6/9/2017	-0.012779727	0.00778214	0	-0.008888947
6/12/2017	-0.009693129	-0.00778214	-0.019635975	0.008888947
6/13/2017	0.038221213	0	0.019635975	0.00294551
6/14/2017	0.036813973	0.026976588	0.021978907	0.028987537
6/15/2017	-0.009077218	-0.01532597	-0.021978907	0
6/16/2017	-0.024616628	-0.027398974	-0.011173301	0
6/19/2017	-0.025237933	0.00790518	0.019472103	-0.008608375
6/20/2017	0.046810418	0.023347364	0	0.011461444
6/21/2017	-0.027822506	0.015267472	-0.005524876	0.002844952
6/22/2017	-0.009448889	-0.011428696	0.013755375	0
6/23/2017	0	0	0	0
6/26/2017	0	0	0	0
6/27/2017	0	0	0	0
6/28/2017	0	0	0	0
6/29/2017	0	0	0	0
6/30/2017	0	0	0	0
7/3/2017	0.031155168	0.007633625	0.021622464	0

Date	ADRO	AKRA	BSDE	ICBP
7/4/2017	-0.031155168	-0.042724945	0.00798939	0
7/5/2017	0.025001302	-0.003976148	-0.021448543	-0.014306396
7/6/2017	0.009216655	0.003976148	0.013459153	-0.017442303
7/7/2017	-0.015408625	0.003960401	-0.040933409	-0.00293686
7/10/2017	-0.009360443	-0.003960401	0.00555557	0
7/11/2017	0.01246122	0	-0.013947227	-0.00294551
7/12/2017	0.030490167	-0.003976148	0.005602256	0.00588237
7/13/2017	-0.024317308	0.011881328	0.005571045	0.00875918
7/14/2017	0.024317308	-0.00790518	0.016529302	0.011560822
7/17/2017	0.020803128	0	-0.030515544	-0.005763705
7/18/2017	-0.00294551	0.011834458	-0.011331566	-0.002894358
7/19/2017	0.04046795	-0.007874056	-0.002853069	-0.014598799
7/20/2017	0.030685811	-0.003960401	-0.011494379	0
7/21/2017	0	0	0.005763705	-0.00294551
7/24/2017	0.00820798	0.023530497	0.011428696	0.020438668
7/25/2017	-0.002728515	0.003868477	0	0.002886005
7/26/2017	-0.016529302	-0.003868477	0	-0.005780363
7/27/2017	0	0.026770241	0.005665738	-0.00290276
7/28/2017	0.013793322	0.022388995	-0.011363759	-0.01464155
7/31/2017	-0.022161572	0.018282045	0.022599832	-0.014859114
8/1/2017	0.041158072	0.007220248	-0.014064929	-0.002998503
8/2/2017	0.018642351	-0.018149319	0.016854332	-0.003007521
8/3/2017	-0.026739561	-0.037317763	0.00555557	0
8/4/2017	0.013459153	-0.003809528	-0.008344972	0
8/7/2017	-0.010752792	0.007604599	-0.014064929	-0.003016594
8/8/2017	0.010752792	0.022472856	0.022409901	0.009022618
8/9/2017	-0.035377839	-0.026267927	0.008275909	0
8/10/2017	0.024625047	0.003795071	0.016349138	-0.006006024
8/11/2017	-0.016349138	-0.011428696	-0.044206093	0.006006024
8/14/2017	0.016349138	0.018975901	0.022347299	0
8/15/2017	0.002699057	0.00375235	0.005509656	0.005970167
8/16/2017	0.013387081	-0.015094626	0.002743486	0.03221362
8/17/2017	0	0	0	0
8/18/2017	-0.002663117	0.026267927	-0.005494519	0.0028777
8/21/2017	-0.005347606	-0.030077455	0.019100171	-0.0028777
8/22/2017	-0.002684565	0.011385322	0	0.005747142
8/23/2017	0.049813706	-0.007575794	0	0
8/24/2017	0.005102052	0.003795071	-0.016349138	-0.014430265
8/25/2017	-0.010230268	0.003780723	0.005479466	0.028655256
8/28/2017	-0.028685148	0.014981554	-0.00273598	-0.005665738

Date	ADRO	AKRA	BSDE	ICBP
8/29/2017	-0.010638398	0.018416727	0.01089929	-0.014306396
8/30/2017	0.010638398	-0.011009286	-0.01089929	-0.002886005
8/31/2017	-0.034996842	0	0.005464494	0.008633147
9/1/2017	0	0	0	0
9/4/2017	-0.005494519	0.011009286	-0.00820798	-0.005747142
9/5/2017	0.02449102	0.014493007	0	-0.011594333
9/6/2017	0.016000341	0.021353124	0.002743486	0.023055776
9/7/2017	-0.013315776	0.010507978	0.008185585	-0.005714301
9/8/2017	0.010666768	0.003478264	0	0
9/11/2017	0.007926065	0	0.002713706	-0.002869442
9/12/2017	-0.018592833	-0.042559614	-0.033060862	0.008583744
9/13/2017	-0.083847972	-0.010929071	-0.002805051	0
9/14/2017	0.014472033	0.003656311	0.005602256	-0.005714301
9/15/2017	0.01991531	0.018083675	0.002789402	-0.002869442
9/18/2017	0.025036078	-0.007194276	0.002781643	0.008583744
9/19/2017	0.02710193	0.010772097	0.00554018	0.005681833
9/20/2017	-0.005361943	0	-0.00554018	0.002828856
9/21/2017	0	0	0	0
9/22/2017	-0.02449102	0.021202208	-0.019635975	0.002820876
9/25/2017	-0.033616611	-0.010544913	0.008462674	0.002812941
9/26/2017	-0.025975486	-0.014235116	0	-0.011299555
9/27/2017	-0.023669744	0.021277398	-0.005633818	0.002836881
9/28/2017	0.055327064	-0.017699577	-0.002828856	-0.011396135
9/29/2017	0.033429297	0.014184635	0.002828856	0
10/2/2017	-0.027779564	0.007017573	0.011236073	0.017045867
10/3/2017	0.002812941	0.006968669	0.005571045	-0.01991531
10/4/2017	0.024966623	-0.003478264	0	0.008583744
10/5/2017	0.00273598	-0.024692613	0.002773927	-0.011461444
10/6/2017	0.024292693	-0.014388737	0	-0.002886005
10/9/2017	0.00796817	0.021506205	0	0.005763705
10/10/2017	0.005277057	0	-0.00555557	0
10/11/2017	-0.010582109	0.027973852	-0.014025475	0.002869442
10/12/2017	0.010582109	0.003442344	0.002820876	-0.002869442
10/13/2017	0	-0.006896579	-0.014184635	0.014265577
10/16/2017	-0.015915455	-0.024519617	0.008534902	-0.014265577
10/17/2017	0.015915455	0	0.011267725	0.017094433
10/18/2017	-0.010582109	0.017575145	-0.002805051	0.002820876
10/19/2017	-0.008010724	0.024097552	0.005602256	0.005617992
10/20/2017	-0.005376357	0.020202707	-0.005602256	-0.02266386
10/23/2017	-0.002699057	-0.006688988	-0.005633818	0.014224991

Date	ADRO	AKRA	BSDE	ICBP
10/24/2017	0.02139119	0.029754261	0	-0.014224991
10/25/2017	0.005277057	0.028894466	-0.005665738	0.017045867
10/26/2017	-0.040273899	0.00315956	-0.005698021	0.002812941
10/27/2017	0.008185585	-0.041874072	-0.014388737	0
10/30/2017	-0.00272109	-0.047146778	0	-0.008462674
10/31/2017	-0.005464494	0.027212564	-0.00290276	-0.002836881
11/1/2017	0.045523255	-0.023770219	0.00290276	0.005665738
11/2/2017	-0.005249356	0.040409538	0.008658063	-0.025752496
11/3/2017	-0.002635048	0	0.017094433	0.025752496
11/6/2017	0.002635048	0.009852296	-0.002828856	-0.011363759
11/7/2017	0	-0.006557401	-0.002836881	-0.020202707
11/8/2017	-0.043017385	-0.013245227	0.005665738	-0.00878483
11/9/2017	0.005479466	-0.023609866	-0.022858138	0
11/10/2017	-0.008230499	-0.003418807	-0.02339288	0.00293686
11/13/2017	0.002751033	-0.006872879	-0.02092752	0.00292826
11/14/2017	-0.002751033	-0.010398707	0.009022618	0
11/15/2017	-0.045078054	-0.03546471	-0.018127385	0.00291971
11/16/2017	0.011461444	0.014337163	-0.003053437	0.020202707
11/17/2017	0.00851069	-0.014337163	0.021180822	0.022599832
11/20/2017	-0.00851069	-0.036768848	-0.018127385	-0.002797205
11/21/2017	-0.023055776	0.007462721	-0.009188426	-0.002805051
11/22/2017	0.017341475	-0.014981554	0.042174925	-0.008462674
11/23/2017	-0.011527505	0.02607224	0	-0.011396135
11/24/2017	-0.00873368	-0.014815086	-0.005917177	-0.020261185
11/27/2017	-0.00881063	-0.015037877	-0.00297177	0.014514043
11/28/2017	0.01173034	-0.030771659	-0.005970167	0
11/29/2017	0.034387342	0.00389864	-0.024243612	0.011461444
11/30/2017	-0.043172172	-0.011741818	0.012195273	-0.037740328
12/1/2017	0	0	0	0
12/4/2017	0.043172172	0.011741818	-0.012195273	0.034887259
12/5/2017	0.002812941	-0.043744549	-0.043894194	-0.011494379
12/6/2017	-0.014144507	-0.008163311	0.019048195	0.022858138
12/7/2017	-0.025975486	0.012220111	0.012500163	-0.019972133
12/8/2017	0.00873368	0.00806456	0.012345836	0.011461444
12/11/2017	-0.00873368	-0.024391453	-0.027995607	-0.008583744
12/12/2017	0.056833475	0.004106782	0.009419222	0.011428696
12/13/2017	0.002758622	0.028284714	0.00623055	-0.002844952
12/14/2017	-0.005524876	0.011881328	0.015408625	0.002844952
12/15/2017	0	-0.00790518	0.027150989	-0.008559253
12/18/2017	-0.002773927	-0.032260862	-0.005970167	0.02266386

Date	ADRO	AKRA	BSDE	ICBP
12/19/2017	0.019257817	-0.008230499	0.029500664	-0.005617992
12/20/2017	-0.019257817	0	-0.035506688	0.005617992
12/21/2017	0.038151766	0.02851517	0.014947961	0.016667052
12/22/2017	0.010638398	0.019881371	0.002962965	-0.008298803
12/25/2017	0	0	0	0
12/26/2017	0	0	0	0
12/27/2017	0.002642009	0.015625318	0	0
12/28/2017	-0.002642009	-0.0038835	0	-0.011173301
12/29/2017	-0.016000341	-0.011741818	0.005899722	0
1/1/2018	0	0	0	0
1/2/2018	0.010695289	-0.023905521	0	0.022223137
1/3/2018	-0.02695581	-0.00404041	0	0
1/4/2018	0.045401656	0.00404041	0.005865119	0.002743486
1/5/2018	0.038417016	0	-0.00881063	0.016304709
1/8/2018	0.081973583	0.039530839	0.00588237	-0.030098031
1/9/2018	0.009216655	-0.023530497	-0.00293686	-0.013986242
1/10/2018	0.013667639	-0.011976191	-0.020803128	-0.017045867
1/11/2018	-0.013667639	0.008000043	0.002998503	0
1/12/2018	0.022676709	0	0.008941937	0.014224991
1/15/2018	0	0.00793655	0.008862687	0
1/16/2018	-0.018100042	0.003944778	0.005865119	0
1/17/2018	-0.009174376	0.011741818	0.00291971	0.002820876
1/18/2018	0	-0.00781254	0.00581397	0
1/19/2018	0.004597709	-0.011834458	-0.020498522	-0.01991531
1/22/2018	0.057922648	-0.016000341	-0.014903406	0
1/23/2018	0.046520016	0.00402415	0.014903406	0.017094433
1/24/2018	0.008230499	0.011976191	0.026278884	0
1/25/2018	0.004089985	-0.003976148	-0.005780363	-0.002828856
1/26/2018	-0.004089985	0	0.025752496	0
1/29/2018	0.048009219	0.019724505	0.038786025	0.005649733
1/30/2018	-0.003913899	-0.019724505	-0.033152207	-0.01991531
1/31/2018	-0.040005335	-0.008000043	0.022223137	0.002869442
2/1/2018	-0.020619287	-0.036813973	0.029772158	-0.002869442
2/2/2018	0.028749413	-0.02960047	0.005319161	0.011428696
2/5/2018	0.020040751	-0.030503454	-0.026883339	-0.005698021
2/6/2018	-0.028170877	-0.004434597	-0.041730672	0
2/7/2018	0	-0.01342302	0.022472856	0.008534902
2/8/2018	-0.012320484	0.031044622	-0.002781643	0.014064929
2/9/2018	-0.042200354	-0.008771986	-0.019691213	-0.002797205
2/12/2018	0.012848142	0.038881788	0	-0.002805051

Date	ADRO	AKRA	BSDE	ICBP
2/13/2018	0.029352212	0.008438869	0.014104606	0
2/14/2018	0.008230499	-0.004210533	0.00836825	0.005602256
2/15/2018	0.012220111	0.025001302	-0.002781643	0.002789402
2/16/2018	0	0	0	0
2/19/2018	0.00806456	0.012270093	0.013831479	0.013831479
2/20/2018	-0.024391453	-0.028867984	-0.016620881	-0.025036078
2/21/2018	0.016326893	0.004175371	0	-0.005649733
2/22/2018	0.00404041	-0.016807118	-0.016901811	0.008462674
2/23/2018	0	0.004228336	0.005665738	0.002805051
2/26/2018	-0.036965194	0.016736792	-0.011363759	0
2/27/2018	0.004175371	0	0.022599832	0.00836825
2/28/2018	-0.021053409	0.012371292	0.077891707	-0.002781643
3/1/2018	0.029352212	0.008163311	-0.044921687	0.002781643
3/2/2018	-0.046520016	-0.028867984	-0.002706362	0.011049836
3/5/2018	0.004319661	0.008333382	-0.01089929	-0.011049836
3/6/2018	0.004301082	-0.01252626	-0.022161572	-0.00836825
3/7/2018	-0.075760046	-0.02123222	-0.019802627	-0.02266386
3/8/2018	0.013793322	0.017021688	0.016997576	0.008559253
3/9/2018	-0.009174376	-0.025642431	0.011173301	0.022472856
3/12/2018	0.022780028	0	-0.00836825	0.011049836
3/13/2018	-0.022780028	0.012903405	-0.02266386	-0.042081945
3/14/2018	-0.04717856	-0.017241806	-0.014430265	-0.002869442
3/15/2018	-0.009708814	0.008658063	0.014430265	-0.008658063
3/16/2018	-0.004889985	-0.004319661	0.005714301	0.014388737
3/19/2018	0	0.054750515	0.00851069	0.008534902
3/20/2018	0.014598799	-0.008230499	-0.031566466	-0.02873761
3/21/2018	-0.014598799	-0.020877585	0.011594333	0.00291121
				0.017095932

Date	INDF	TLKM	UNTR	UNVR
5/5/2014	-0.003552402	0.01081092	-0.00451468	0.017819733
5/6/2014	0	0.00214823	0.002259888	-0.01184447
5/7/2014	0	0.00854706	0.005627477	0.028525424
5/8/2014	0	-0.00212993	-0.002247192	0.005773212
5/9/2014	0.003552402	0.00212993	0.003368897	0.011447386
5/12/2014	0.003539827	0	0.003357586	-0.005707313
5/13/2014	-0.003539827	0.00424629	0.001116695	-0.012340757
5/14/2014	0	0.01680712	0.002229655	0.019672766
5/16/2014	0.007067167	0.0547249	-0.020248161	0
5/19/2014	-0.010619569	0.01759576	-0.007986352	-0.009788006
5/20/2014	-0.036235848	-0.05989814	-0.030234861	-0.029952322
5/21/2014	-0.003696862	0.0203673	0.012903405	0.01342302
5/22/2014	0.003696862	0.02193508	0.009280809	0.000832986
5/23/2014	-0.01113184	0	-0.001155402	0
5/26/2014	0.01113184	0.01176484	0	0.003325024
5/28/2014	0.003683245	-0.00586512	0.017192401	0.002486533
5/30/2014	0.003669729	0.00975617	-0.014882931	-0.036245012
6/2/2014	0.007299302	-0.02159063	0.022806006	0.02123222
6/3/2014	0.010850016	0.01183446	0.007860793	0.010033529
6/4/2014	-0.007220248	-0.01183446	0.004464293	0.007459628
6/5/2014	-0.007272759	0	0.004444452	0.005763705
6/6/2014	-0.00732604	0.0039604	0.013216051	0.000820681
6/9/2014	0	-0.02400115	-0.008791265	-0.016542974
6/10/2014	0.00732604	0.02202291	0.009884759	0.007478223
6/11/2014	0.007272759	-0.0179825	0.005449605	0.009064751
6/12/2014	-0.003629768	-0.03070866	0	-0.015709294
6/13/2014	0	0.01444814	-0.004357305	-0.006688988
6/16/2014	-0.010969031	-0.01237129	-0.041231467	-0.005046268
6/17/2014	0.003669729	0.00414079	0.02472036	-0.005071862
6/18/2014	0	0	0	-0.003395589
6/19/2014	0	-0.00414079	0	0.00508907
6/20/2014	0	0	0.001109262	0.010938266
6/23/2014	0	0.01850001	0.007730574	-0.002513617
6/24/2014	0	0.00406505	0.012028576	-0.003361348
6/25/2014	-0.007352974	-0.00610378	-0.004357305	0
6/26/2014	0.007352974	0.00610378	0.00761287	0.003361348
6/27/2014	-0.003669729	-0.01636028	-0.014184635	-0.010965947
6/30/2014	-0.014815086	0.01636028	0.015267472	-0.006808537
7/1/2014	0.007434978	0.00606675	-0.009788006	0.016095223
7/2/2014	0.011049836	0.00803217	0.011950169	0.019143323

Date	INDF	TLKM	UNTR	UNVR
7/3/2014	0	-0.01005034	0	-0.00413053
7/4/2014	-0.003669729	0.02000067	0	0.003305788
7/7/2014	0.014598799	0.02927038	0.021368334	0.019608471
7/8/2014	0	0.00575265	0.014690715	0.010462872
7/9/2014	0	0	0	0
7/10/2014	0.025046032	-0.00960622	0.024692613	0.005588837
7/11/2014	0.003527341	-0.00580834	-0.045746022	-0.032365285
7/14/2014	-0.007067167	0.01350069	0.009528923	0
7/15/2014	0	0.01709443	0.003156236	0.031568789
7/16/2014	0.003539827	-0.00188501	-0.02123222	-0.003992021
7/17/2014	-0.014235116	-0.00188857	-0.01731645	-0.011263192
7/18/2014	0.014235116	0.01314573	-0.00767127	0.000808734
7/21/2014	-0.003539827	0.00558141	0.012028576	0.005642901
7/22/2014	-0.007117468	-0.01683856	-0.007637789	0.003210276
7/23/2014	0.007117468	-0.01520942	-0.005491502	0.000800961
7/24/2014	0.003539827	0.0114287	0.008771986	-0.002404811
7/25/2014	0	0.00378072	0	-0.012924251
8/4/2014	0.014035318	0.01498155	0.042741548	0.023303586
8/5/2014	-0.014035318	0.00740744	0.005216496	-0.018437396
8/6/2014	-0.003539827	-0.02050398	-0.009409374	-0.00486619
8/7/2014	-0.007117468	0.01309654	0.00732604	0.000812678
8/8/2014	-0.003577821	0.00371058	0	-0.008975988
8/11/2014	0.014235116	0.01834914	0.008307421	0.024292693
8/12/2014	0.003527341	0.01085002	-0.020899402	0.003194891
8/13/2014	0.003514942	0.00179695	0.030163493	0.020521636
8/14/2014	0.003502631	-0.01083043	-0.012371292	-0.000781555
8/15/2014	-0.007017573	-0.01646881	0.001036807	-0.002348338
8/18/2014	0.003514942	0.00551979	-0.001036807	-0.012618464
8/19/2014	-0.017699577	-0.00921666	0.005173317	-0.001588563
8/20/2014	0.010657294	0.00921666	0.007197975	0.014207027
8/21/2014	0.007042283	-0.00367647	-0.009264091	0
8/22/2014	-0.003514942	-0.01111123	-0.027255356	-0.009448889
8/25/2014	-0.003527341	0	-0.016068905	-0.003169575
8/26/2014	-0.010657294	0.00742118	-0.020731785	0.00554018
8/27/2014	-0.007168489	0.01102952	-0.024554805	0.008644455
8/28/2014	0	-0.00549956	0	0.004683849
8/29/2014	-0.010850016	-0.02042782	0.001129306	-0.034062699
9/1/2014	0.021583572	0.01674458	0.001128032	0.030942572
9/2/2014	0	-0.00369686	0.002252253	0
9/3/2014	0.007092228	0.00921666	0.010072833	0

Date	INDF	TLKM	UNTR	UNVR
9/4/2014	-0.007092228	0.00183318	-0.040914798	-0.010208177
9/5/2014	-0.007142888	0	0	0.004724418
9/8/2014	0.003577821	0.03774033	0.011534153	0.000785238
9/9/2014	0	-0.00530505	-0.037387532	-0.017419284
9/10/2014	-0.007168489	-0.0035524	-0.028987537	-0.004803852
9/11/2014	0	-0.00535238	0.004889985	0.000802246
9/12/2014	0.014285957	-0.00179051	0.016929062	0.004001606
9/15/2014	-0.003552402	-0.00539085	-0.019371066	0.000798403
9/16/2014	-0.007142888	0.00718136	-0.003674223	0.00874062
9/17/2014	0.014235116	0.01948689	0.010982417	0.009448889
9/18/2014	0.003527341	0.00873368	0.008459265	0.002348338
9/19/2014	0	0.02405614	0.017889565	-0.007061622
9/22/2014	0.003514942	-0.02579679	-0.009501259	0.007061622
9/23/2014	-0.014134511	0.00694447	-0.022934017	-0.014966802
9/24/2014	0.003552402	-0.00694447	0.006086446	-0.005571045
9/25/2014	-0.017889565	0.00521287	0.003634165	-0.000798403
9/26/2014	0.003603608	-0.00173461	-0.025720953	0.015848192
9/29/2014	0.003590668	0.01036279	-0.002484473	0.006269613
9/30/2014	0.003577821	0.00171674	-0.010000083	-0.006269613
10/1/2014	-0.003577821	-0.01730147	-0.002515725	0
10/2/2014	-0.021739987	-0.03733767	-0.029395088	-0.004728141
10/3/2014	-0.007352974	0.01081092	-0.010430342	-0.028035477
10/6/2014	0	0.01952147	0.047353696	-0.000812678
10/7/2014	0.014652277	0.00525856	0.022250609	-0.003257332
10/8/2014	-0.022059718	-0.02120221	-0.051421986	-0.002449981
10/9/2014	0.007407441	0	-0.005161302	0.004079973
10/10/2014	0.011009286	-0.00896867	-0.009096879	0.003252035
10/13/2014	-0.00732604	0	-0.050881122	-0.009788006
10/14/2014	0.021819047	0	-0.011049836	0.013838235
10/15/2014	0.007168489	0.0284211	-0.045462374	0.005642901
10/16/2014	-0.025317808	-0.0176683	-0.001454546	-0.005642901
10/17/2014	0.021739987	0	0.004357305	0.032607263
10/20/2014	-0.010810916	0.01415953	0.011527505	-0.024555689
10/21/2014	-0.014598799	0.00175593	-0.011527505	0.014331455
10/22/2014	-0.003683245	0.00350263	0.012959145	0.012568901
10/23/2014	-0.003696862	0.00696867	0.025425098	-0.026098753
10/24/2014	-0.01492565	-0.00347826	-0.015460603	-0.019418086
10/27/2014	-0.026668247	-0.02290849	-0.04046795	-0.018137348
10/28/2014	-0.011650617	-0.04372281	0.00588237	-0.005840651
10/29/2014	0.026976588	0.01295115	0.036001008	0.040185809

Date	INDF	TLKM	UNTR	UNVR
10/31/2014	0.037317763	0.01096903	0.038839833	-0.022765211
11/3/2014	0.003656311	0.00362977	-0.001361471	0.001643386
11/4/2014	-0.018416727	-0.00727276	-0.026226486	-0.002466092
11/5/2014	-0.014981554	0	0.039758492	-0.001647447
11/6/2014	-0.019048195	-0.01100929	0.025216996	-0.007447283
11/10/2014	-0.011605546	-0.02996479	-0.006574646	-0.00583092
11/17/2014	0.038172574	0.04461707	-0.015957785	0.036904557
11/19/2014	-0.00375235	0.00904984	0.032962773	0.001609011
11/27/2014	0.011215071	0.01253374	-0.043744549	0.028528084
11/28/2014	-0.003724399	0.00532388	-0.006798123	-0.006269613
12/1/2014	-0.011257155	0.01928193	-0.022069861	-0.013454892
12/2/2014	0.007518832	-0.00173762	0.001393728	-0.003192341
12/3/2014	-0.011299555	-0.00873368	-0.031119909	0
12/4/2014	0.003780723	-0.00175593	0.028330507	0.009546612
12/5/2014	0.007518832	-0.00175902	-0.012649501	0.003162058
12/8/2014	-0.007518832	-0.01240051	-0.007097262	-0.016713481
12/9/2014	0.003766483	-0.00357143	0.002844952	-0.004020914
12/10/2014	-0.007547206	0.01420983	-0.011428696	0.002414488
12/11/2014	-0.011428696	0	-0.010108389	-0.006451635
12/12/2014	0.003824096	-0.00353357	-0.007283353	0.002424244
12/15/2014	0.003809528	-0.01426049	-0.014727807	0.008038628
12/16/2014	-0.007633625	-0.0144668	-0.014947961	-0.000800961
12/17/2014	-0.019342963	-0.00731265	0.038409448	-0.01615544
12/18/2014	0.00778214	0.02715099	0.002894358	0.032054026
12/19/2014	0.015384919	0.00534284	-0.010167117	0.009419222
12/22/2014	0	0.0035461	0.007272759	-0.015748357
12/23/2014	0.011385322	0	0	0
12/24/2014	-0.003780723	0.0070547	-0.00581397	0.000793336
12/29/2014	0.003780723	0.00175593	0.00291121	0.013391299
12/30/2014	0.018692133	0.00524936	0.008683123	0.010895049
1/2/2015	0.098671528	-0.00174673	-0.002886005	0.006941794
1/5/2015	0.003350087	-0.00877969	-0.024873265	-0.001538462
1/6/2015	-0.013468217	-0.00707968	0.004434597	0
1/7/2015	-0.013652089	-0.00177778	0.004415018	0.019817722
1/8/2015	-0.003442344	0.00885745	-0.00736923	0.007518832
1/9/2015	0.020478531	0.00877969	0.011764842	-0.004504512
1/12/2015	0.003372684	-0.00877969	-0.001463058	-0.034446574
1/13/2015	0	0.00176211	0.023155883	0.027651531
1/14/2015	0	-0.00529569	-0.001431639	-0.010662706
1/15/2015	0.003361348	0.00176835	-0.001433692	0.002294456

Date	INDF	TLKM	UNTR	UNVR
1/16/2015	-0.020339684	0.00528636	-0.010093813	0.023406127
1/19/2015	0.003418807	0.00350878	-0.01166194	0.014815086
1/20/2015	0.006802747	0.01563889	0.00438918	0.005865119
1/21/2015	0.006756782	0.00515908	0.001458789	0.04990344
1/22/2015	0.026579638	-0.01207953	0.027320175	-0.004181191
1/23/2015	0	0.00346621	0.01408474	0.011111225
1/26/2015	-0.019868203	-0.02451962	0.009742596	-0.019526422
1/27/2015	0	0.00353983	0.008275909	0.000703978
1/28/2015	-0.010084119	0.00528636	0	-0.000703978
1/29/2015	-0.003384098	0.00525856	0	-0.003527341
1/30/2015	0.023451661	-0.01054491	-0.016620881	0.012640618
2/2/2015	0.006600684	-0.00887317	-0.016901811	0.009722299
2/3/2015	-0.019934215	0.00710483	0.016901811	0.005513453
2/4/2015	0.006688988	0.0070547	0.00695897	0.000687049
2/5/2015	-0.027028672	-0.01060081	-0.001387925	-0.032103245
2/6/2015	0.027028672	0.00531445	0.027398974	0.038947899
2/9/2015	-0.003338901	0.01054491	-0.020478531	-0.014428282
2/10/2015	-0.016863806	-0.00525856	0.01777217	-0.01745245
2/11/2015	0	0.00525856	0.00675222	0.004917467
2/12/2015	0	0.01216349	0.00134499	0
2/13/2015	0.006779687	0.02893819	0.018642351	0.018056046
2/16/2015	-0.010186845	-0.0306668	-0.010610179	-0.034305079
2/17/2015	0.010186845	0.00172861	0.013245227	0.022536165
2/18/2015	0.003372684	0	0.01436994	-0.011204599
2/20/2015	-0.010152371	-0.00172861	-0.006506204	-0.004941768
2/23/2015	0	0.00689658	0.0039088	0.020315935
2/24/2015	0	-0.00171969	0.02440712	-0.000693722
2/25/2015	0.010152371	0.02212856	0.020101179	0.008981062
2/26/2015	0	0.00168209	-0.004987542	0.004118057
2/27/2015	-0.003372684	-0.01353659	0.036813973	-0.013793322
3/2/2015	0.003372684	0.00509772	0.041303806	0.011049836
3/3/2015	0	-0.00169635	0.027367729	-0.00896867
3/4/2015	0.003361348	-0.01195574	-0.026212327	0.000692761
3/5/2015	0	0	0.005757068	0.004146516
3/6/2015	0.003350087	0.02544667	-0.001148765	0.041869721
3/9/2015	-0.013468217	-0.01349093	-0.053109825	-0.00796817
3/10/2015	0.013468217	0	0.034547807	0.00796817
3/11/2015	-0.016863806	-0.00169924	-0.020107123	0.024821653
3/12/2015	-0.003407158	-0.0051151	-0.00839837	0.0273641
3/13/2015	0	0.01020417	0.001204094	0.001254705

Date	INDF	TLKM	UNTR	UNVR
3/16/2015	0.003407158	0.00674539	-0.006035021	-0.007551955
3/17/2015	-0.003407158	-0.00674539	-0.007290433	-0.01463596
3/18/2015	0.010186845	-0.00169348	0.047628049	-0.039220713
3/19/2015	0	0	-0.001163467	0.021108963
3/20/2015	0.003372684	-0.01022155	-0.003498546	0
3/23/2015	-0.003372684	0	-0.010569681	0.008449839
3/24/2015	0.010084119	0	0.018713996	0.007094515
3/25/2015	-0.006711435	-0.01379332	-0.019895331	-0.001929882
3/26/2015	-0.006756782	-0.02460581	-0.014285957	-0.008406128
3/27/2015	0.006756782	0	0.026036974	0.015464226
3/30/2015	0.006711435	0.01938387	0.006984895	0.013968481
3/31/2015	-0.003350087	0.00868815	0.011534153	0
4/1/2015	-0.01011813	-0.01921456	0.009132484	-0.015888482
4/2/2015	0	-0.00353357	-0.00113701	0.00064041
4/6/2015	0	0.00353357	0.002272728	0.006381643
4/7/2015	0.003384098	0.00702991	0.038958739	0.012642393
4/8/2015	-0.006779687	0.00174978	-0.017621601	-0.028027312
4/9/2015	0.003395589	-0.00701757	0.023065273	0.016656375
4/10/2015	0	-0.00529569	0	0.001269841
4/13/2015	-0.003395589	-0.01067626	0	0.009472758
4/14/2015	0	0	-0.009820046	-0.026107818
4/15/2015	0.006779687	0.00357143	0.010905233	-0.003231021
4/16/2015	0.006734032	0.00178094	-0.001085187	-0.013685453
4/17/2015	-0.013513719	-0.00178094	-0.001086366	0.000655953
4/20/2015	0.013513719	0.0106384	-0.024203602	0.007187225
4/21/2015	-0.003361348	0	0.019846296	0.040821995
4/22/2015	-0.003372684	-0.00176523	-0.003280484	0.008711941
4/23/2015	0	0.00879513	0.006550242	0.034108057
4/24/2015	-0.003384098	0.01736155	0.004343112	0.029500664
4/27/2015	-0.024014876	-0.03324891	-0.016384856	-0.021746376
4/28/2015	-0.0104713	-0.00714289	-0.008849615	0.056035449
4/29/2015	-0.0615022	-0.03278982	-0.022472856	-0.051884835
4/30/2015	0.007434978	-0.03198768	-0.027651531	0.008249899
5/4/2015	0.018349139	0.05577654	-0.004683849	0.009345862
5/5/2015	0	-0.00543972	0	0.026958903
5/6/2015	-0.010969031	0.00724641	-0.003527341	0.022384818
5/7/2015	-0.007380107	0.02142939	0.071580804	-0.040084395
5/8/2015	-0.01492565	0.01054491	0.048163401	0.013730193
5/11/2015	0	-0.00525856	-0.015798117	-0.007986352
5/12/2015	0.040521197	-0.01594365	0.01055976	-0.026699206

Date	INDF	TLKM	UNTR	UNVR
5/13/2015	0.038942974	0.01242252	-0.004210533	-0.00471699
5/15/2015	-0.003478264	0.00176211	-0.038714512	0.027973852
5/18/2015	-0.017575145	-0.00352734	-0.031182927	0.008013781
5/19/2015	0	0	0.019048195	0
5/20/2015	-0.017889565	0.00176523	0.014325314	-0.011468016
5/21/2015	-0.0108894	0.00527706	-0.006586193	-0.011601058
5/22/2015	0.003642991	0.00699304	0.025014899	0.021357233
5/25/2015	0	-0.01403532	-0.028324334	0.014176591
5/26/2015	0.021583572	0.01403532	0	0.029405725
5/27/2015	0.024605811	-0.01403532	-0.023477881	-0.027156005
5/28/2015	0.013793322	0.00879513	-0.046304568	0.010061572
5/29/2015	0	-0.00350878	-0.038652154	-0.037398126
6/1/2015	-0.027779564	0	0.011022769	-0.00231214
6/3/2015	-0.017762456	0.01048961	0.048732161	0.009216655
6/4/2015	0	-0.01754431	0.006936444	-0.022029876
6/5/2015	0.010695289	0.01056348	0.022780028	-0.011792589
6/8/2015	-0.010695289	0	-0.015891367	-0.014337163
6/9/2015	-0.055262679	-0.00879513	-0.063776035	-0.045546334
6/10/2015	0.026169718	0.01054491	0.024097552	0.040721234
6/11/2015	-0.018622512	0.0034904	-0.031441526	-0.017073585
6/12/2015	-0.007547206	-0.00699304	0.007343974	0.014046032
6/15/2015	-0.015267472	-0.01413451	-0.014742282	-0.022693399
6/16/2015	0.011472401	0.02112755	0	-0.007472015
6/17/2015	0	0.00174064	-0.009950331	0.022861669
6/18/2015	0.040974074	0.00173762	0.017348638	0.013952304
6/19/2015	0.014493007	0.00346621	-0.006161449	-0.001205546
6/22/2015	-0.007220248	-0.01921456	-0.00495664	0.00240964
6/23/2015	-0.007272759	0.00527706	0.009888832	-0.025595547
6/24/2015	0.007272759	0.0104713	-0.004932192	0.021978907
6/25/2015	-0.021978907	0.0086431	-0.069081168	-0.015211732
6/26/2015	-0.018692133	0.01027406	0.024854124	-0.019189694
6/29/2015	-0.022901764	-0.01027406	0.042990185	-0.009419222
6/30/2015	0.01532597	0.00856903	0.008626055	-0.00315956
7/1/2015	-0.011472401	-0.00341881	-0.017327166	0.012578782
7/2/2015	0	0.00341881	-0.017632699	0.00809217
7/3/2015	0.034029749	0	0.008855213	0.02570521
7/6/2015	-0.026366876	0	-0.043765028	-0.02137486
7/7/2015	0.003809528	-0.02069039	0	-0.00619197
7/8/2015	-0.003809528	0.01039871	-0.010582109	0.011118089
7/9/2015	0.007604599	-0.00865806	-0.010695289	-0.014851758

Date	INDF	TLKM	UNTR	UNVR
7/10/2015	-0.007604599	0	0.010695289	0.002490661
7/13/2015	-0.003824096	0.00520383	0.021053409	0.003724399
7/14/2015	-0.019342963	-0.00346621	0.005194817	-0.008711941
7/15/2015	-0.027724548	-0.01928193	-0.001296176	0.005609239
7/22/2015	-0.016194686	0.01405999	-0.047817874	-0.004984434
7/23/2015	0.012170536	-0.00700528	0.014855101	0.003118182
7/24/2015	-0.00809721	0.00350878	-0.009427679	-0.004368182
7/27/2015	-0.024692613	-0.01056348	-0.020506529	-0.005644418
7/28/2015	0.00415801	0.0070547	-0.008321823	0.006269613
7/29/2015	-0.042379223	0.00350878	0.038256031	-0.007528266
7/30/2015	0.021414095	0.00524019	0.029064133	-0.030692946
7/31/2015	0.03333642	0.02409755	0.050772325	0.038221213
8/3/2015	-0.016529302	-0.00682597	-0.014962873	-0.028528084
8/4/2015	0.020619287	-0.01553094	0.012484557	-0.007099094
8/5/2015	0.028170877	0.02235691	0.002478316	0.01542447
8/6/2015	-0.048790164	-0.00340716	-0.045577508	-0.019318051
8/7/2015	-0.004175371	0.00849623	0.045577508	0.006480904
8/10/2015	0.012474174	0.00337838	-0.009950331	-0.006480904
8/11/2015	-0.029352212	-0.00846745	-0.025317808	-0.031706751
8/12/2015	-0.012848142	-0.04879016	-0.01030937	-0.041101676
8/13/2015	0.062650965	0.00888895	-0.005194817	0.0370667
8/14/2015	-0.041328195	0.01754431	0.025708357	-0.008119124
8/18/2015	-0.017021688	0	-0.030930301	-0.004766778
8/19/2015	-0.008620743	0.00173762	-0.026526754	-0.019297635
8/20/2015	-0.013072082	-0.00347826	0.016000341	-0.004184107
8/21/2015	-0.049448275	-0.05001042	-0.016000341	-0.004903688
8/24/2015	-0.090620732	-0.02597549	-0.084083117	-0.045985113
8/25/2015	-0.057099058	0.01677579	0.010181906	0.087256445
8/26/2015	0	-0.00556072	-0.045899989	-0.023177588
8/27/2015	0.090832415	0.05073552	0.051672011	0.066691374
8/28/2015	0.019324273	0.01229164	0.025569575	-0.019544596
8/31/2015	0.014252023	0.00174368	0.070394413	0.044394553
9/1/2015	-0.019048195	-0.01403532	-0.027834799	-0.020343995
9/2/2015	0	-0.01962596	-0.018996501	-0.010978476
9/3/2015	0.023754086	0.00896867	0.087810145	-0.000649562
9/4/2015	-0.009434032	0.00356507	0	0.012270093
9/7/2015	-0.065613348	-0.03993271	-0.074204493	-0.020753015
9/8/2015	-0.008130126	0.01104984	0	-0.010540282
9/9/2015	0.013178092	0	-0.027398974	0.006600684
9/10/2015	-0.001007557	0.01273903	-0.035339366	-0.006600684

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9/11/2015	0.042433598	-0.00180996	0.024166066	0.02614528
9/14/2015	0.028573372	0.00901719	0.039922714	0.037979248
9/15/2015	-0.004705891	-0.02729924	-0.017699577	-0.031548358
9/16/2015	-0.009478744	0.00368325	0.03509132	-0.014853357
9/17/2015	0.018868484	-0.01481509	-0.009327183	0.017414178
9/18/2015	-0.023641763	0.0037244	-0.014835066	0
9/21/2015	0	0.01476042	0.016172859	-0.002560821
9/22/2015	0.014252023	-0.01104984	-0.022989518	-0.024660562
9/23/2015	-0.023867481	-0.01680712	0.008174432	-0.029335437
9/25/2015	-0.004842624	0	-0.050080005	-0.019126266
9/28/2015	-0.009756175	-0.02093321	-0.055732897	-0.004146516
9/29/2015	0.057158414	0.00192123	0.019418086	0.051293294
9/30/2015	0.018349139	0.01523839	0.033457666	0
10/1/2015	0.009049836	-0.00568722	-0.021692825	0.020834087
10/2/2015	-0.050819248	-0.00380953	-0.005865119	-0.026111144
10/5/2015	0.046304568	0.03745756	0.024692613	0.031252544
10/6/2015	0	0.02540972	0.021292501	0.011472401
10/7/2015	0.00900907	-0.01808368	0.054658413	-0.011472401
10/8/2015	0	-0.01100929	-0.017438403	0.012739026
10/9/2015	0.0395656	-0.00369686	0.064200169	-0.011457796
10/12/2015	0.008583744	-0.00185357	0.010101096	0.00892294
10/13/2015	-0.061693569	-0.02061929	-0.058193534	-0.02051354
10/15/2015	0.070204259	0.01690181	-0.022896623	-0.015666117
10/16/2015	0.049596941	-0.00186393	0.029532348	-0.011247224
10/19/2015	0.031748698	0.01481509	0.037642342	0.019763489
10/20/2015	-0.011787956	-0.00368325	0.017677228	0.010382962
10/21/2015	-0.015936592	0.00735297	0.033233828	-0.000645786
10/22/2015	-0.020284671	0.00365631	-0.017094433	-0.01169604
10/23/2015	0.020284671	0.00727276	0	0.004564729
10/26/2015	0	0.01617286	0	0.005838486
10/27/2015	-0.00402415	-0.00357143	-0.001232286	0
10/28/2015	-0.020367303	0	-0.022444832	-0.011711259
10/29/2015	-0.072526444	-0.0235305	-0.075952722	-0.026526754
10/30/2015	-0.022372298	-0.01848481	-0.015079107	-0.005390849
11/2/2015	0.052875752	0.02214113	0.016438726	-0.002706362
11/3/2015	0	0	-0.004084417	-0.002713706
11/4/2015	0.046129772	-0.00365631	0.036172731	0.006095515
11/5/2015	-0.016529302	-0.0091997	-0.015915455	-0.006775094
11/6/2015	-0.025317808	0.01102952	-0.042327137	0.006099646
11/9/2015	-0.052643733	-0.00182983	-0.001395674	-0.008141158

Date	INDF	TLKM	UNTR	UNVR
11/10/2015	-0.032039354	-0.0129034	-0.016901811	-0.036064935
11/11/2015	-0.023530497	-0.01119415	0.008486614	-0.006376217
11/12/2015	-0.014388737	0.0185879	-0.011331566	-0.016481921
11/13/2015	0	0.01462549	0.011331566	0.047964059
11/16/2015	-0.019512814	-0.01278556	-0.002820876	0
11/17/2015	0.038652154	0.03433038	-0.00851069	0.002063984
11/18/2015	0.023420274	0.01235673	-0.028903746	0.004115232
11/19/2015	0.045256592	-0.01235673	0.00875918	0.004779797
11/20/2015	0	0.03490756	-0.007293978	0.01487519
11/23/2015	-0.036039936	-0.0402504	-0.023704814	0.008021433
11/24/2015	-0.018519048	0.02469261	0.019302752	-0.01678455
11/25/2015	0	0.01039871	0.005865119	0.023420274
11/26/2015	0.023095715	0.01709443	-0.011764842	-0.020040751
11/27/2015	-0.013793322	0.0033841	-0.014903406	0.03838989
11/30/2015	-0.102278849	-0.01018685	-0.021245109	-0.046520016
12/1/2015	0.069334693	0.00340716	0	0.017532479
12/2/2015	-0.009615459	0.01015237	0.015220994	-0.016852438
12/3/2015	0	0.02164947	-0.02756683	-0.000680041
12/4/2015	-0.024451096	-0.01159914	-0.026752185	-0.015769953
12/7/2015	0.014742282	0.00995033	0.007942854	-0.011818003
12/8/2015	-0.009804	-0.00496279	-0.038714512	-0.018349139
12/9/2015	0	0	0	0
12/10/2015	-0.014888612	-0.00165975	-0.036855092	0.007804225
12/11/2015	-0.008032172	-0.02013491	-0.018949749	-0.01998639
12/14/2015	-0.014213437	-0.00680275	-0.026433257	0.013605652
12/15/2015	0	0.00340716	0.098551674	-0.000711491
12/16/2015	0.020243606	0.03344793	0.022400937	0.006385265
12/17/2015	0.026694615	0.02757677	0.001581028	0.04561952
12/18/2015	-0.014742282	-0.02101937	-0.030475494	-0.030877239
12/21/2015	-0.014962873	0.01620781	0.012945165	-0.007695036
12/22/2015	-0.002012073	0.00800645	-0.00483482	0.037896371
12/23/2015	-0.00201613	-0.00800645	-0.01137299	-0.00882858
12/28/2015	0.038599547	0.00321028	0.050966444	0.010179932
12/29/2015	-0.00486619	-0.0080451	0.021506205	0.006058585
12/30/2015	0.009708814	0.00322581	0.029942357	-0.006734032
1/4/2016	0.023867481	0.01120908	-0.051448562	-0.027398974
1/5/2016	0.032485455	0.01736429	0.015408625	-0.009068775
1/6/2016	0.057665642	0.01706791	0.022676709	0.047888767
1/7/2016	-0.026202372	-0.01238406	-0.030351343	-0.038819992
1/8/2016	0.004415018	-0.02045705	0.001539646	0.004849334

Date	INDF	TLKM	UNTR	UNVR
1/11/2016	-0.026787316	-0.02739897	-0.023347364	-0.023777344
1/12/2016	0.044255009	0.02739897	0.047664672	0.021701937
1/13/2016	0.012903405	0.01420703	0	0
1/14/2016	-0.025975486	-0.01739174	-0.009049836	-0.010442142
1/15/2016	0.004376375	-0.01607752	-0.013730193	0.007668215
1/18/2016	-0.008771986	0	-0.029620248	-0.009769792
1/19/2016	0.026088436	0.00807107	0.01725533	0.006988149
1/20/2016	-0.012959145	-0.00645164	-0.003115267	-0.008391658
1/21/2016	-0.01754431	0.00161682	-0.012559035	0.005602256
1/22/2016	0.026202372	0.02866438	0.031106707	-0.005602256
1/25/2016	-0.017391743	0.0062598	0.036094144	0.000702001
1/26/2016	-0.031182927	0.00622086	-0.025431438	0.009776614
1/27/2016	0.057158414	0.01385703	0.018018506	0.036169074
1/28/2016	0.021142437	-0.00306279	-0.001489204	-0.001341382
1/29/2016	0.036965194	0.02424361	0.036580523	-0.01487519
2/1/2016	0.012024193	-0.0029985	0.004301082	0.00272109
2/2/2016	-0.003992021	-0.02894338	-0.051368593	0.018176199
2/3/2016	-0.016129382	0.01228894	-0.007558615	0.030225691
2/4/2016	0.035932009	0.02264248	0.007558615	0.033728937
2/5/2016	0.030890487	0.04380262	0.041303806	0.016139394
2/9/2016	0.018832948	-0.03636764	-0.017493157	0.006138755
2/10/2016	0.01113184	0.00295858	-0.029852963	0
2/11/2016	-0.007407441	0.01320635	-0.001516301	0.0169907
2/12/2016	-0.034029749	-0.04319361	-0.029255358	-0.0108894
2/15/2016	0	0.01210302	0.00623055	0.011490904
2/16/2016	0.007662873	0.00300301	-0.015649772	-0.013926958
2/17/2016	-0.003824096	0	0.004720701	0.008500355
2/18/2016	0.044951388	-0.00601506	0.012480661	0.007829007
2/19/2016	-0.014760416	-0.03687054	-0.012480661	0.025467767
2/22/2016	0.014760416	-0.00470589	-0.012638399	0.014514043
2/23/2016	-0.007352974	0.01250016	-0.045536322	-0.021556326
2/24/2016	-0.018622512	0.00310078	-0.018472398	-0.010657294
2/25/2016	-0.022814678	0.02144033	0.023451661	0.017114611
2/26/2016	0.048790164	0.00302572	0.00824407	0.027130091
2/29/2016	0.032435276	-0.01829319	0.019512814	0.014136509
3/1/2016	0.01408474	0.01375117	-0.032736147	0.019461276
3/2/2016	0.017331456	0.01356464	0.006633523	0.051513534
3/3/2016	0.013652089	0.02658945	0.01476647	-0.029187532
3/4/2016	0.013468217	-0.00438277	-0.02473333	-0.02674102
3/7/2016	-0.010084119	-0.00587373	-0.006700193	-0.02350416

Date	INDF	TLKM	UNTR	UNVR
3/8/2016	-0.006779687	-0.00147384	0.031433523	-0.014831989
3/10/2016	0.010152371	-0.0223723	0.008110345	-0.017391743
3/16/2016	-0.027305451	0.03701385	-0.01137299	0.029956157
3/17/2016	-0.003466208	0.00435099	0.009756175	-0.003980671
3/18/2016	-0.046189382	0.00144613	0.014458083	0.01302028
3/21/2016	0.03220314	0.002886	0	-0.010175328
3/22/2016	-0.003527341	-0.01451404	-0.014458083	-0.010854148
3/23/2016	0.003527341	-0.03420408	-0.006493529	-0.01213537
3/24/2016	-0.017762456	0.0060332	-0.009820046	-0.011107977
3/28/2016	-0.014440684	-0.0060332	-0.013245227	-0.01242252
3/29/2016	0.007246409	-0.001514	0.016529302	0.022948933
3/30/2016	0.045863417	0.01354423	0.003273325	0
3/31/2016	-0.003454235	-0.00599702	0	-0.001164144
4/1/2016	0	0.00749067	0	0.005807217
4/4/2016	0	0.00891536	0	0.007499314
4/5/2016	-0.006944472	-0.00148039	0	-0.004031102
4/6/2016	-0.003490405	0.00884962	-0.003273325	0.004031102
4/7/2016	0.010434877	-0.00146951	0.022691411	-0.008078521
4/8/2016	0	0.01314847	0.003200003	-0.003482302
4/12/2016	-0.013937508	-0.01314847	-0.024253412	0.021852508
4/19/2016	0	0	0	0
4/20/2016	0.0104713	0.05298304	0.101096117	0.030254408
4/21/2016	0.006920443	0.01247417	0	0.02614528
4/22/2016	0.003442344	0.01503788	-0.010409016	0.010695289
4/25/2016	-0.006896579	0.02545348	-0.044315884	-0.048497654
4/26/2016	-0.028072019	-0.03636764	-0.031748698	-0.019735628
4/27/2016	-0.025226563	0.01497645	-0.058107631	0.005678607
4/28/2016	0.014493007	-0.02878883	0.013582552	-0.015406867
4/29/2016	0.024868067	-0.01259639	0.011735256	-0.020918834
5/2/2016	-0.014134511	-0.02857337	0	0.015730007
5/3/2016	0.024605811	-0.00290276	-0.033901552	0.012065645
5/4/2016	0	0.01443026	-0.020906685	0.030927402
5/9/2016	-0.035339366	0.03380604	-0.03220314	-0.014501091
5/10/2016	0.028370697	0.02462505	-0.016498999	-0.013005555
5/11/2016	0.003490405	0.00539085	0.039860349	0.008501043
5/12/2016	-0.017575145	0.01069529	-0.019731582	0
5/13/2016	0.010582109	-0.0187925	-0.052056362	0.002254792
5/16/2016	-0.014134511	0.00809721	0.003809528	-0.030877239
5/17/2016	0	0	-0.026976588	0.000580552
5/18/2016	0	0.00536194	0.017425417	-0.002906134

Date	INDF	TLKM	UNTR	UNVR
5/19/2016	-0.007142888	-0.02985296	0.037669237	-0.003498546
5/20/2016	-0.014440684	0.00275103	-0.024322995	-0.005858248
5/23/2016	0	0.01904819	0.028013036	0.009938696
5/24/2016	-0.003642991	0.00537636	-0.026120888	-0.011114475
5/25/2016	0.025226563	0.01331578	0.015009663	0.027844026
5/26/2016	-0.007142888	-0.00264901	0.001860466	-0.000572246
5/27/2016	0.014235116	-0.00265604	0.032909734	0.007413778
5/30/2016	-0.010657294	-0.01608614	0.030117422	-0.006269613
5/31/2016	-0.010772097	0	-0.008764298	-0.014397024
6/1/2016	0.007194276	0.00539085	-0.017762456	0.010386706
6/2/2016	0.021277398	0.01335133	0.023030247	-0.00691247
6/3/2016	0.006993035	0.00792607	0.010453057	-0.002314816
6/6/2016	0.020690393	0.02083409	-0.00521287	0.001158078
6/7/2016	0.003407158	0.00770222	-0.003490405	0.010362787
6/8/2016	-0.003407158	-0.03117135	0.013889112	0.003430535
6/9/2016	-0.017212129	-0.00529102	-0.024434025	-0.012636584
6/10/2016	0.013793322	-0.00531916	-0.008873173	-0.005797118
6/13/2016	-0.020761991	0.00266312	-0.012556219	0
6/14/2016	0	0.00265604	0.001803427	0.011560822
6/15/2016	0.003490405	0.01055419	0.012533736	0.006872879
6/16/2016	-0.017575145	0.01820596	-0.027053047	-0.005150226
6/17/2016	0	0.002574	0.023487981	0
6/20/2016	0	-0.01033601	-0.014388737	0.000573559
6/21/2016	-0.007117468	0.00518136	-0.031281299	0.004576667
6/22/2016	0.014184635	0	0.03489794	-0.009174376
6/23/2016	-0.014184635	-0.00258732	0.012556219	0
6/24/2016	0.007117468	-0.01041676	0.003558723	0.002301497
6/27/2016	-0.007117468	0.00522194	0.056961039	-0.009818156
6/28/2016	0.024692613	-0.00522194	-0.001679262	0.012114368
6/29/2016	0.006944472	0.03851567	0.016667052	0.031605339
6/30/2016	0.003454235	0.00251572	-0.021721823	0.001665279
7/1/2016	-0.031526254	-0.00251572	0	-0.028693952
7/11/2016	0.024605811	0.0248769	0.018410562	0.027028672
7/12/2016	0	0.00734397	0.027802281	-0.015113638
7/13/2016	0	0.03828219	0.041080026	0.014001909
7/14/2016	-0.013986242	-0.03584613	-0.034649135	-0.014566084
7/15/2016	0.003514942	0.0216615	-0.00643089	0.004504512
7/18/2016	0.017391743	-0.01438874	0.031748698	-0.013574869
7/19/2016	0.040546094	0.00481929	0.01242252	0.005678607
7/20/2016	-0.009983444	0.00718566	-0.01242252	0.007334307

Date	INDF	TLKM	UNTR	UNVR
7/21/2016	-0.006711435	-0.01684757	-0.006269613	-0.001687764
7/22/2016	-0.010152371	-0.00243013	-0.003149609	-0.008481815
7/25/2016	0.006779687	0.01688822	0.009419222	0.015215847
7/26/2016	0.033225648	0.01660774	-0.01892801	0.005577259
7/27/2016	0.044735894	0.02095537	-0.019293203	0.03604978
7/28/2016	0.0547249	0	0.014504686	0.025425098
7/29/2016	-0.014903406	-0.02567236	0.00796817	-0.059252655
8/1/2016	0.00896867	0.07292524	0.025079684	0.001109262
8/2/2016	-0.00896867	-0.04036422	0.006172859	0.006629859
8/3/2016	0.005988042	-0.02314918	0.003072199	0.001100716
8/4/2016	-0.015037877	0.01164158	0.076733794	0.008762378
8/5/2016	0.018018506	0.00692044	-0.017192401	-0.005467482
8/8/2016	0.011834458	0.0114287	0.007199455	-0.013245227
8/9/2016	-0.026827242	-0.00684153	-0.015907783	0.013245227
8/10/2016	-0.02137486	-0.01150761	0.042802539	-0.000548396
8/11/2016	-0.00619197	-0.00930239	0.008344972	0.008194528
8/12/2016	0.00619197	-0.01175102	-0.019581045	-0.012592556
8/15/2016	-0.025001302	-0.03365702	0.011236073	-0.013869848
8/16/2016	0	0.01215082	-0.008415197	0.013318732
8/18/2016	0.043350441	0.0262232	-0.014184635	0.004949144
8/19/2016	-0.024541109	-0.0262232	-0.040821995	-0.006604317
8/22/2016	-0.015649772	0.00481929	0.027881483	0.001103753
8/23/2016	-0.00315956	0.01432005	0.012940511	0.003853569
8/24/2016	0	0	0.015592095	-0.008830079
8/25/2016	0.006309169	0	0.012578782	0.017582871
8/26/2016	-0.003149609	-0.00237248	-0.016807118	0.010834342
8/29/2016	0	-0.01676686	-0.005665738	-0.020686639
8/30/2016	-0.00315956	0.00722025	0.060624622	-0.007730574
8/31/2016	0.00315956	0.00954661	0.002670229	0.012121361
9/1/2016	0.009419222	-0.01194757	0.002663117	-0.008800937
9/2/2016	0	0.00956945	0.015831465	0.008800937
9/5/2016	0.015504187	0	-0.030567164	-0.012675838
9/6/2016	0.030305349	0.00947874	0.03838989	0.004979263
9/7/2016	0.017751945	-0.00710062	-0.028987537	0.012068166
9/8/2016	-0.011799547	-0.01194757	-0.038151766	-0.002183407
9/9/2016	-0.027069322	-0.02679819	-0.028170877	-0.022659162
9/13/2016	-0.003053437	0	-0.002861232	0.000558815
9/14/2016	-0.021639175	-0.01995079	-0.036473773	-0.013498518
9/15/2016	0.057679112	0.04192969	0.039335005	0.006209447
9/16/2016	0	-0.01215082	0.019802627	-0.002817697

Date	INDF	TLKM	UNTR	UNVR
9/19/2016	-0.008888947	0.02653956	-0.001401542	0.001128032
9/20/2016	-0.005970167	-0.00956945	-0.008450755	0.00337648
9/21/2016	0.029500664	0.00956945	-0.00425231	0.010617591
9/22/2016	0.008683123	0.00711747	0.021083002	-0.00389864
9/23/2016	0.02279301	0	-0.002785517	0.016602484
9/26/2016	-0.014184635	0.00236128	-0.041287003	-0.015487035
9/27/2016	0.041964199	0.00938974	0.051002554	0.012739026
9/28/2016	-0.013793322	-0.00703403	0.008253142	0.000550206
9/29/2016	0.016529302	0.00936775	0.013605652	0.005485477
9/30/2016	-0.050430854	0.00465117	-0.044206093	-0.025486144
10/3/2016	0.050430854	0.01611082	0.036064935	0.014484933
10/4/2016	-0.024897552	-0.00457667	0.005434796	-0.003324103
10/5/2016	-0.002805051	-0.01385703	0.013459153	-0.005006965
10/6/2016	0	-0.02115238	0.031581572	0.007777817
10/7/2016	0	-0.00237812	0.007741974	-0.015054647
10/10/2016	-0.019858809	-0.00956945	-0.031334156	0.00224467
10/11/2016	0.02266386	0	0.031334156	0.014468811
10/12/2016	0	-0.00481929	-0.018158735	-0.00554018
10/13/2016	-0.025533302	0.00961546	0.015584731	-0.011173301
10/14/2016	0.014265577	0.0071514	-0.010362787	0.011173301
10/17/2016	-0.02292364	0.00710062	0.030771659	-0.00612986
10/18/2016	0.002894358	-0.00236128	0	-0.005605396
10/19/2016	-0.011628038	-0.00711747	0.015037877	-0.003378382
10/20/2016	0.00583092	0	-0.002490661	-0.000564175
10/21/2016	0.014430265	0.00237812	0.007453451	-0.00339175
10/24/2016	0	0.00237248	0.006169051	0.005646542
10/25/2016	-0.023189445	-0.0047506	0.020694591	0.000562905
10/26/2016	0	-0.00238379	0.019093659	0.001686815
10/27/2016	0.01166194	0.01186254	0.018735911	-0.001686815
10/28/2016	-0.01166194	-0.00236128	-0.021102776	0.002248455
10/31/2016	-0.00293686	-0.00236687	0.024577012	-0.001123596
11/1/2016	0	-0.0047506	0.029614921	-0.000562272
11/2/2016	-0.005899722	0	0	-0.000562588
11/3/2016	-0.030032287	-0.01197619	-0.019264052	-0.005643356
11/4/2016	-0.003053437	0	0	-0.004537728
11/7/2016	-0.00306279	0	0.019264052	0.000568343
11/8/2016	0.02723315	0.03084468	0.029852963	0.008486614
11/9/2016	-0.021116923	-0.03809985	-0.009852296	0
11/10/2016	0.012121361	0.01684757	0.023914183	-0.015328146
11/11/2016	-0.078287221	-0.05645671	-0.018428706	-0.063776035

Date	INDF	TLKM	UNTR	UNVR
11/14/2016	-0.009820046	-0.04387801	-0.047041148	0
11/15/2016	0	0.01310635	-0.05177627	-0.000609942
11/16/2016	0.013072082	0.04082199	0.10100321	0.003045997
11/17/2016	0.016103408	0	-0.044650274	-0.014706147
11/18/2016	-0.006410278	-0.00752827	-0.027779564	-0.00619197
11/21/2016	0.003210276	-0.01012667	-0.024956732	-0.00623055
11/22/2016	-0.012903405	0.00507615	0.030808124	-0.005012542
11/23/2016	0	-0.00253486	0.021928172	0.016199731
11/24/2016	-0.033006296	-0.03355153	-0.019597169	-0.008690309
11/25/2016	-0.003361348	0.00523561	0.019597169	0.002490661
11/28/2016	-0.01355953	0.00260756	-0.018433702	-0.002490661
11/29/2016	0.026937656	0	0.012709588	0.013007306
11/30/2016	0.006622541	-0.01574836	-0.036240085	-0.002464573
12/1/2016	0.016366977	0.02094317	0.057819571	0.03396324
12/2/2016	-0.033006296	0.01287019	0.03206466	0.011266055
12/5/2016	0.010016778	0.01270665	0.022593753	-0.0041359
12/6/2016	-0.00332779	-0.01270665	-0.010695289	-0.010116123
12/7/2016	0.048790164	-0.01546423	-0.00972455	-0.011428696
12/8/2016	0.028170877	0.02310758	-0.018630676	0.003020238
12/9/2016	-0.00619197	0.0050633	0.00881063	0
12/13/2016	0.009273637	0.00252207	-0.014356956	-0.017645727
12/14/2016	-0.01863408	-0.01267444	-0.006696454	-0.016713481
12/15/2016	0	-0.00255428	0.010027939	0.002493767
12/16/2016	-0.028618805	-0.02328695	-0.025829622	-0.004368182
12/19/2016	-0.006472515	-0.00524936	-0.040632403	-0.003131853
12/20/2016	-0.009788006	-0.01859283	-0.01913934	-0.005031457
12/21/2016	-0.03333642	0.01331578	-0.026929412	-0.029432707
12/22/2016	-0.017094433	-0.00796817	-0.031508593	-0.013730193
12/23/2016	0.003442344	-0.01612938	0.007653099	-0.002636785
12/27/2016	0.050261835	0.01078178	0.018880359	0.008544252
12/28/2016	-0.003273325	0.02645657	0.035521187	0.028389003
12/29/2016	0.029081209	0.02831592	0.008388306	0.017654935
12/30/2016	0.009508788	0.0101011	0.014218249	-0.030459207
1/2/2017	0	0	0	0
1/3/2017	-0.025560497	-0.00756624	-0.011834458	0.000644122
1/4/2017	0.009661911	0	0.018868484	0.034802627
1/5/2017	0.025317808	0	0.026514522	0.008668785
1/6/2017	0.003120127	0.01257878	-0.012593183	0.001232286
1/9/2017	-0.025237933	0.00498754	0.009174376	-0.011145626
1/10/2017	0.018987912	-0.00498754	0.002280503	-0.001246106

Date	INDF	TLKM	UNTR	UNVR
1/11/2017	-0.00313972	-0.01005034	-0.00685717	-0.003122076
1/12/2017	-0.009478744	0	-0.026730238	-0.000625587
1/13/2017	0	-0.00252845	0.032447806	-0.008799554
1/16/2017	-0.009569451	0	-0.017251722	0.000631114
1/17/2017	0	0.00505052	-0.006984895	0
1/18/2017	0.019048195	-0.00252207	0.013921339	0.031669831
1/19/2017	0.00938974	0.00252207	0.003450262	-0.012300278
1/20/2017	0.003110422	-0.03590129	0.010279931	0.002472189
1/23/2017	0.00619197	0.00260756	-0.00113701	0.017136282
1/24/2017	-0.01242252	0.01806501	0.036855092	0.019231362
1/25/2017	0	-0.00256082	-0.007705046	-0.002383791
1/26/2017	0	0.01020417	0.012081421	-0.002389487
1/27/2017	0	-0.01277157	-0.013187004	-0.002395211
1/30/2017	-0.025317808	-0.00774197	-0.010005642	-0.009033485
1/31/2017	0.015898586	0.00258732	-0.023743343	-0.003029387
2/1/2017	0	0.01792622	0.020385757	0.001818733
2/2/2017	0	0.00253486	0.013363228	0.006640531
2/3/2017	-0.006329135	0	0.01754431	0.010772097
2/6/2017	0.009478744	0.00252845	0.003255564	-0.007168489
2/7/2017	-0.003149609	-0.01015237	0.001082837	0.000599341
2/8/2017	0.003149609	-0.01283715	-0.004338402	0
2/9/2017	0	0	-0.010929071	0.002393777
2/10/2017	0.006269613	0.00515465	0.010929071	0.018360006
2/13/2017	0	0.0076825	0.014031531	-0.004116442
2/14/2017	-0.003129893	-0.01542447	-0.012945165	0
2/15/2017	0	0	0	0
2/16/2017	0.003129893	0.00258732	0.034154867	0.004116442
2/17/2017	0	0	0.002096437	0
2/20/2017	0.015504187	0	0.022775312	-0.011806513
2/21/2017	0.003072199	0.00258065	0.00204499	0.015321455
2/22/2017	-0.003072199	0	-0.004094172	0.00291971
2/23/2017	-0.006172859	-0.01036279	0.011218884	-0.014684552
2/24/2017	0.003091193	0	0.033901552	0
2/27/2017	-0.015552413	0.00778214	-0.022807136	0
2/28/2017	0.01863408	-0.00518136	-0.011094415	-0.001776725
3/1/2017	-0.015504187	0	-0.030898442	0
3/2/2017	0.003120127	-0.00520835	0.047992875	-0.001779888
3/3/2017	0.003110422	0.00520835	0.000996512	-0.002973538
3/6/2017	0.003100778	0.01801851	0.042891565	0.009484363
3/7/2017	-0.0062112	0.00762393	-0.007662873	0.002357102

Date	INDF	TLKM	UNTR	UNVR
3/8/2017	-0.00625002	-0.01788043	-0.015504187	-0.001177856
3/9/2017	0.003129893	0.02040887	0.011650617	0
3/10/2017	-0.009419222	-0.00252845	-0.005808342	-0.002950725
3/13/2017	0.003149609	0	-0.013685453	0.002361276
3/14/2017	-0.003149609	0.0250013	0.021422436	-0.004728141
3/15/2017	0.006289329	-0.00247219	-0.02339288	-0.000592593
3/16/2017	0.039943866	0.0244511	0.013712262	0.033229522
3/17/2017	0.003007521	-0.00727276	0.049345874	0.009132484
3/20/2017	-0.018182319	-0.00243605	-0.034859865	-0.001706
3/21/2017	-0.006134989	-0.002442	0.04407652	0
3/22/2017	-0.003081667	-0.00490197	0.0199825	-0.024777989
3/23/2017	-0.003091193	0.00490197	-0.007220248	-0.008201569
3/24/2017	-0.003100778	-0.00244798	0.006320563	0.015178342
3/27/2017	-0.012500163	0	-0.022759289	0.004624286
3/29/2017	0.006269613	0.01701135	0.02545592	0.006896579
3/30/2017	0	-0.00241255	0	0.00114482
3/31/2017	0	-0.00241838	-0.049688233	-0.008618266
4/3/2017	0	0.00963863	0.048790164	0.012614846
4/4/2017	0.009331327	0.01900295	0.046520016	0.009075502
4/5/2017	-0.01246122	0	-0.005159083	0.016242306
4/6/2017	0.003129893	-0.01900295	0	0
4/7/2017	-0.003129893	-0.00963863	-0.010398707	0.002219757
4/10/2017	0	-0.00729043	-0.003490405	0.004424786
4/11/2017	0	0.01212136	0.013889112	-0.008869238
4/12/2017	0	0	0	0.01272493
4/13/2017	0	-0.01456336	-0.029748475	-0.003303968
4/17/2017	0	-0.01975373	-0.033411686	-0.000551724
4/18/2017	-0.00313972	0.01485176	0.022697298	0
4/19/2017	0	0	0	0
4/20/2017	0	0.00978003	-0.016289953	0
4/21/2017	0.00938974	0.07271667	-0.01748779	0.004954593
4/25/2017	0.009302393	0	-0.012144007	-0.004954593
4/26/2017	0.003081667	-0.00453516	0.047715473	0.010977059
4/27/2017	0.039220713	-0.00684153	-0.023573168	-0.001092299
4/28/2017	-0.008915364	0	-0.012927235	-0.027702603
5/2/2017	0.005952399	0.00911168	-0.034029749	0.017817843
5/3/2017	0.005917177	-0.01600034	-0.003853569	-0.004424786
5/4/2017	0	0.00688866	-0.033369141	0.007180368
5/5/2017	0	-0.00688866	0	0.00110011
5/8/2017	-0.002954212	0	0.033369141	0.011478672

Date	INDF	TLKM	UNTR	UNVR
5/9/2017	0.002954212	0	-0.015564517	0.004338402
5/10/2017	-0.008888947	0.00688866	-0.017804625	0.003241494
5/12/2017	0.008888947	0.00684153	-0.027315811	0.009661911
5/15/2017	0	-0.00913248	0.007153837	0.025317808
5/16/2017	-0.011869576	-0.00459771	-0.029976405	-0.004175371
5/17/2017	0.011869576	0	-0.030902832	-0.001046573
5/18/2017	-0.002954212	-0.00693644	0.015037877	-0.003671654
5/19/2017	0.02339288	0.04978404	0.029413885	0.024397784
5/22/2017	0.005763705	-0.01333353	0.010298752	-0.027028672
5/23/2017	0.011428696	-0.01578387	0.008163311	0.024975284
5/24/2017	0	-0.00913248	-0.020534602	-0.019196439
5/26/2017	-0.005698021	0.02491635	0.019517826	-0.000523972
5/29/2017	0.011363759	-0.01805918	0.057327948	-0.007892701
5/30/2017	-0.00851069	-0.01376169	0.039553178	-0.028397301
5/31/2017	-0.002853069	0.0046083	0.025525543	0.00379713
6/1/2017	0	0	0	0
6/2/2017	0.008534902	0.00687288	-0.045106588	0.015579149
6/5/2017	0.005649733	-0.00917438	0	0.005846416
6/6/2017	0	-0.00693644	0.01495355	-0.007446843
6/7/2017	0.005617992	0.0023175	0.007393749	0.007976644
6/8/2017	-0.037094124	-0.00464038	0.001839927	0.007387896
6/9/2017	-0.01169604	0.00695252	-0.02607224	0
6/12/2017	-0.00294551	0	0.02146606	-0.007387896
6/13/2017	0	0.00690452	0.009191241	0.014721612
6/14/2017	0.00881063	0	0.013630379	0.012448294
6/15/2017	-0.005865119	0	-0.008155913	0.007190581
6/16/2017	-0.020803128	0.00229095	-0.036131767	-0.021728739
6/19/2017	0	0.00684153	-0.001888575	-0.004192878
6/20/2017	0.020803128	0.02024816	0.020580708	0.013563067
6/21/2017	0	0.00665929	0.007380107	0.01542447
6/22/2017	0.01169604	0	0.009149195	-0.004089985
6/23/2017	0	0	0	0
6/26/2017	0	0	0	0
6/27/2017	0	0	0	0
6/28/2017	0	0	0	0
6/29/2017	0	0	0	0
6/30/2017	0	0	0	0
7/3/2017	0.020144566	0.05801842	0.049743825	0.013231745
7/4/2017	-0.002853069	-0.04265039	-0.012205906	-0.014256861
7/5/2017	0	-0.00218103	-0.02396919	-0.0051414

Date	INDF	TLKM	UNTR	UNVR
7/6/2017	0	0.01516822	0.009834679	0.008213599
7/7/2017	0	-0.00431035	-0.032552603	-0.016495219
7/10/2017	-0.017291497	-0.01304366	0.015504187	-0.029002824
7/11/2017	0.008683123	0.0065431	0.012590094	0.016450358
7/12/2017	0.0028777	0.0043384	-0.001788909	0.01670185
7/13/2017	0.005730675	-0.0043384	0.002682165	0.004132237
7/14/2017	0.002853069	0	0	0.002059733
7/17/2017	0	0.01081092	-0.001787311	-0.005674506
7/18/2017	0	-0.00431035	0.000894055	-0.014066395
7/19/2017	-0.011461444	-0.00650056	0.020345682	-0.003152919
7/20/2017	0.011461444	0.00650056	0.010453057	0.016184117
7/21/2017	-0.023055776	-0.01523424	-0.000866927	-0.011458459
7/24/2017	0.017341475	0.0195446	-0.018381262	0.013010852
7/25/2017	0	0.01494158	0.02097979	-0.006224086
7/26/2017	-0.011527505	-0.00424629	-0.001731602	-0.006263068
7/27/2017	-0.00290276	-0.01069529	0.003460211	0.001046573
7/28/2017	0	0.01069529	0.013722342	0.011957512
7/31/2017	-0.026511126	-0.00212993	0.025232625	0.011816218
8/1/2017	-0.008995563	0.01691372	0.013201512	-0.009751168
8/2/2017	0	0.00626961	-0.003284075	0
8/3/2017	-0.006042314	-0.02105341	-0.040273899	-0.016116803
8/4/2017	-0.003034904	-0.00640344	0	-0.002623985
8/7/2017	-0.003044142	0	-0.017271587	-0.010565339
8/8/2017	0.024097552	0.00427351	0.017271587	0.007407441
8/9/2017	0	0.00425533	0.021178259	0.014132661
8/10/2017	0.005934736	0	0.019917671	-0.001560468
8/11/2017	-0.023953241	-0.0063898	-0.027490278	-0.010991998
8/14/2017	0	0.0063898	0.010084119	0.015666117
8/15/2017	0.009049836	0.00423729	0.009155287	0.001035733
8/16/2017	0.005988042	0.0084211	-0.006650066	0.021506205
8/17/2017	0	0	0	0
8/18/2017	0.002980628	0.00209424	-0.016821254	0.002529726
8/21/2017	-0.011976191	-0.00209424	-0.019700851	-0.023518466
8/22/2017	0.003007521	0.00418411	0.022242149	0.019467828
8/23/2017	0.002998503	0.00208551	-0.001693481	0.013105026
8/24/2017	0.005970167	-0.00417537	0.032516412	-0.00854921
8/25/2017	0.023530497	-0.00209424	-0.004110158	0.009049836
8/28/2017	0.00290276	-0.00420169	0.008203491	-0.003007521
8/29/2017	0.005780363	-0.00421942	0	0.013958352
8/30/2017	0	0.00211193	-0.009852296	0

Date	INDF	TLKM	UNTR	UNVR
8/31/2017	-0.035194248	-0.01060455	0	0.000989609
9/1/2017	0	0	0	0
9/4/2017	0	-0.00213447	-0.020000667	0.008372371
9/5/2017	0	-0.00643089	0.023295563	0.000490316
9/6/2017	0	0.01282069	-0.002470154	-0.007874056
9/7/2017	0.017751945	-0.0021254	0.052981893	0
9/8/2017	0.014556298	0.00424629	-0.011797227	0.003944778
9/11/2017	-0.005797118	-0.00212089	0.007880261	-0.005428091
9/12/2017	0.011560822	0.00212089	-0.007880261	0.001483313
9/13/2017	-0.014472033	-0.00637622	-0.039537219	0.011787956
9/14/2017	-0.00584797	-0.00427351	-0.01242252	-0.001955035
9/15/2017	-0.00293686	0.00427351	0.034401427	-0.003430535
9/18/2017	-0.00294551	0.00425533	-0.011336154	0.001471671
9/19/2017	0.01173034	0	0.012945165	0
9/20/2017	0.017341475	-0.00425533	0.027746528	0
9/21/2017	0	0	0	0
9/22/2017	-0.023189445	-0.01071822	-0.041506357	-0.019802627
9/25/2017	0.01166194	0.00215285	-0.013125701	-0.006018072
9/26/2017	-0.01166194	0.00856536	0.023664915	-0.007067167
9/27/2017	0.00292826	0.00212993	-0.018722566	0.01308524
9/28/2017	-0.017699577	0.0021254	0.031543254	-0.016129382
9/29/2017	0.00297177	-0.0063898	0.01892801	-0.00458366
10/2/2017	0.014727807	0	0.003120127	0.023708551
10/3/2017	0.00583092	0.00213447	0.027651531	0.013369845
10/4/2017	0	0	0.016529302	0.001474564
10/5/2017	-0.020558727	-0.00641713	-0.04184711	-0.015841915
10/6/2017	-0.00297177	0	0.010819271	-0.002498128
10/9/2017	0	-0.00862074	0.01827926	-0.003507896
10/10/2017	0.00297177	-0.01967277	0.03339828	-0.009583932
10/11/2017	-0.005952399	-0.0291174	0	-0.009165034
10/12/2017	0.002980628	0.00904984	0.013053122	0.00255428
10/13/2017	-0.00896867	-0.00225479	-0.013053122	0.00508907
10/16/2017	0	0.00450451	0.005822433	-0.001015744
10/17/2017	-0.009049836	-0.01129956	-0.012413449	0.016129382
10/18/2017	0.009049836	-0.02298952	0.025391281	-0.000500125
10/19/2017	-0.021245109	-0.02115238	-0.015884811	-0.006021092
10/20/2017	0.009160369	0.01415118	-0.040094457	-0.002519528
10/23/2017	0.015083242	-0.00469484	-0.026095111	-0.008105414
10/24/2017	0.005970167	-0.00471699	-0.003115267	0
10/25/2017	0.008888947	-0.03365702	0.086621285	0.007095823

Date	INDF	TLKM	UNTR	UNVR
10/26/2017	0	0.0169701	-0.048361072	0.000504923
10/27/2017	-0.026907453	-0.00240674	-0.018947137	-0.007600746
10/30/2017	-0.012195273	-0.01701135	0.042687125	0
10/31/2017	0.006116227	-0.01233061	0.016721582	0.009113987
11/1/2017	0	-0.0200508	0.044420415	0
11/2/2017	-0.012270093	0.0200508	-0.020906685	-0.010641094
11/3/2017	0.015314235	0.01477859	-0.005649733	0.016170135
11/6/2017	-0.003044142	0.02415576	0	-0.014134511
11/7/2017	-0.009188426	0	0.013366362	0.003552402
11/8/2017	-0.006172859	-0.02171376	-0.043562761	0.002024292
11/9/2017	-0.01560094	0.0145281	-0.00438918	-0.003037977
11/10/2017	0.00938974	-0.00966191	-0.041158072	-0.002538717
11/13/2017	-0.00938974	-0.00486619	0.004573179	0.00101626
11/14/2017	0	-0.00488999	0.019578939	-0.005091661
11/15/2017	-0.009478744	0.01218042	-0.024916351	0
11/16/2017	-0.016000341	0.01680712	0.015174798	0.005599404
11/17/2017	0.00643089	0	-0.003772166	0.008089023
11/20/2017	0	-0.01197619	-0.026811257	-0.004542021
11/21/2017	-0.009661911	0.01197619	-0.019600784	-0.000505945
11/22/2017	0	0	0.028874421	0.001011634
11/23/2017	0.009661911	0.01183446	-0.003853569	-0.002024292
11/24/2017	-0.012903405	0.01633642	-0.01792023	0.009077218
11/27/2017	0.016103408	-0.00464038	0	0.011976191
11/28/2017	-0.016103408	-0.01405175	0.018692133	0.011834458
11/29/2017	-0.013072082	-0.00947874	0.045256592	-0.015312722
11/30/2017	-0.036855092	-0.01197619	-0.011869576	-0.01858883
12/1/2017	0	0	0	0
12/4/2017	-0.003418807	0.01197619	-0.015037877	0
12/5/2017	0	0	-0.00836825	0.007074309
12/6/2017	0.003418807	0	-0.001529052	0
12/7/2017	0	0	0.009897302	0.013006687
12/8/2017	0.006802747	-0.01438874	-0.003034904	0.011857846
12/11/2017	0	0	-0.013772215	0.001962709
12/12/2017	-0.003395589	0.00722025	-0.01396454	0.001958864
12/13/2017	0.016863806	0.00716849	0.03379738	-0.001958864
12/14/2017	0.006666691	0.01183446	0.008273834	0
12/15/2017	-0.010016778	-0.00471699	-0.00978555	0.021819047
12/18/2017	0.006688988	0.00236128	0.001511716	0.016175424
12/19/2017	0.019802627	-0.01186254	0.009022618	0.021014082
12/20/2017	-0.013158085	-0.00718566	-0.01736548	-0.020542272

Date	INDF	TLKM	UNTR	UNVR
12/21/2017	0.006600684	0.02140391	0.027048982	0.010323883
12/22/2017	0.003284075	0.01169604	0.015447163	0.010680389
12/25/2017	0	0	0	0
12/26/2017	0	0	0	0
12/27/2017	0	0	0.009444313	0
12/28/2017	0.009788006	0.0207142	0.000722805	0.005067968
12/29/2017	-0.009788006	0.01132515	0.022858138	0.027200226
1/1/2018	0	0	0	0
1/2/2018	-0.009884759	-0.00677969	-0.035949234	-0.000447327
1/3/2018	0.013158085	-0.0416727	-0.031984876	-0.034133006
1/4/2018	0.009756175	-0.00236687	0.027582815	-0.011173301
1/5/2018	-0.006493529	0.01411788	0.041057261	0.011173301
1/8/2018	0.022545238	-0.00468385	0.007732903	0.007380107
1/9/2018	-0.003189795	-0.01418463	0.005586607	-0.0166825
1/10/2018	0	-0.00238379	0.027474256	0.012999255
1/11/2018	0.006369448	-0.0047847	-0.001355932	0.003223581
1/12/2018	-0.003179653	-0.00963863	0.004737742	-0.002301497
1/15/2018	-0.006389798	-0.00242424	0.004043132	0.00643089
1/16/2018	0.012739026	0.02160948	0.004026851	0.007299302
1/17/2018	0.006309169	-0.00237812	0.009996751	-0.011888572
1/18/2018	-0.006309169	-0.00716849	-0.013351333	0
1/19/2018	0.00315956	-0.00240096	0.005361943	0.001838236
1/22/2018	0.018750549	-0.00723767	0.029636677	-0.000918696
1/23/2018	0.006172859	-0.00973244	0.048141024	0.020018867
1/24/2018	-0.006172859	-0.02726315	-0.010568951	0.001800181
1/25/2018	-0.009331327	-0.00251572	-0.000625195	-0.010395574
1/26/2018	0.009331327	0.04434224	-0.008163311	-0.008669915
1/29/2018	0	-0.01946533	0.003775964	0.015461881
1/30/2018	-0.034649135	-0.0248769	-0.033208671	-0.009521722
1/31/2018	-0.00643089	0.00502514	0.010336009	-0.008693718
2/1/2018	-0.006472515	-0.00250941	-0.002574004	0
2/2/2018	0.009693129	0.00501254	0.0102565	0.011423474
2/5/2018	0.003210276	0.00249688	-0.016072349	-0.016491441
2/6/2018	-0.019418086	-0.01761052	-0.022944304	-0.004165708
2/7/2018	0.035316672	0.0101011	0.020998147	0.014276089
2/8/2018	-0.009508788	0.01000008	0.006472515	-0.005502077
2/9/2018	-0.012820688	-0.01756632	-0.003878479	0.018675104
2/12/2018	0.003220615	0.00252845	-0.024919322	-0.007246409
2/13/2018	-0.003220615	0.02000067	0	-0.001364567
2/14/2018	0.009630893	0	0.00199005	-0.007767917

Date	INDF	TLKM	UNTR	UNVR
2/15/2018	-0.003200003	-0.00745345	0.000662471	0.000917011
2/16/2018	0	0	0	0
2/19/2018	0.006389798	0.00992564	0.01185004	0.004572482
2/20/2018	-0.012820688	0.00492612	-0.022502604	-0.006407345
2/21/2018	-0.016260521	0	-0.009414999	0.000917852
2/22/2018	0.009788006	-0.01485176	-0.030877239	-0.009216655
2/23/2018	-0.009788006	0.00497513	0.030877239	0.008298803
2/26/2018	-0.009884759	0	-0.010869672	-0.008761873
2/27/2018	0.003305788	-0.00248447	0	0
2/28/2018	0	-0.00498754	-0.027702603	-0.001390498
3/1/2018	0.026060107	0.01488861	0.02565132	0.001390498
3/2/2018	-0.009693129	0.00246003	-0.022846269	-0.001390498
3/5/2018	-0.013072082	-0.0123611	-0.014815086	0.001390498
3/6/2018	-0.019934215	0	0.025264502	-0.02723173
3/7/2018	-0.023770219	-0.00498754	-0.033113275	-0.026526754
3/8/2018	0.006849342	0.03440143	0.030337424	0.00097704
3/9/2018	0.016920877	0.00241255	0.006925235	-0.012776587
3/12/2018	0.013333531	0.01197619	0.00619197	-0.001980199
3/13/2018	-0.006644543	-0.02653956	-0.034895376	0
3/14/2018	-0.023609866	-0.007362	-0.043548245	-0.006462861
3/15/2018	-0.020690393	-0.03254355	0	0
3/16/2018	-0.003490405	-0.028389	-0.033952714	-0.008514953
3/19/2018	0.006968669	0	-0.002305034	0.00401607
3/20/2018	-0.028170877	-0.04278728	-0.013942906	0.002002003
3/21/2018	0.024692613	0.00816331	0.010089337	0.025180299

Lampiran 2 Deskriptif, Uji Stasioner

1. Deskriptif

ICBP

Series: ICBP
Sample 5/05/2014 3/21/2018
Observations 945

Mean	0.000577
Median	0.000000
Maximum	0.089231
Minimum	-0.071459
Std. Dev.	0.017096
Skewness	0.436931
Kurtosis	5.456878
Jarque-Bera	267.7454
Probability	0.000000

UNVR

Series: UNVR
Sample 5/05/2014 3/21/2018
Observations 945

Mean	0.000596
Median	0.000000
Maximum	0.087256
Minimum	-0.063776
Std. Dev.	0.015593
Skewness	0.260380
Kurtosis	5.444340
Jarque-Bera	245.9358
Probability	0.000000

2. Uji Stasioner

- ICBP

Null Hypothesis: ICBP has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=21)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-21.21918	0.0000
Test critical values:	1% level	-3.437071	
	5% level	-2.864396	
	10% level	-2.568343	

- UNVR

Null Hypothesis: UNVR has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=21)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-36.09500	0.0000
Test critical values:	1% level	-3.437056	
	5% level	-2.864389	
	10% level	-2.568340	

Lampiran 3 Pemodelan ARIMA return ICBP

ARIMA(1,0,0) dengan Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 13:20
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 10 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000577	0.000539	1.070193	0.2848
AR(1)	-0.054414	0.026047	-2.089099	0.0370
SIGMASQ	0.000291	9.20E-06	31.65779	0.0000

R-squared	0.002967	Mean dependent var	0.000577
Adjusted R-squared	0.000850	S.D. dependent var	0.017096
S.E. of regression	0.017089	Akaike info criterion	-5.297630
Sum squared resid	0.275085	Schwarz criterion	-5.282230
Log likelihood	2506.130	Hannan-Quinn criter.	-5.291761
F-statistic	1.401655	Durbin-Watson stat	2.004633
Prob(F-statistic)	0.246702		

ARIMA(1,0,0) Tanpa Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 13:06
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 8 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.053221	0.026012	-2.046033	0.0410
SIGMASQ	0.000291	8.97E-06	32.48441	0.0000

R-squared	0.001703	Mean dependent var	0.000577
Adjusted R-squared	0.000644	S.D. dependent var	0.017096
S.E. of regression	0.017090	Akaike info criterion	-5.298480
Sum squared resid	0.275434	Schwarz criterion	-5.288213
Log likelihood	2505.532	Hannan-Quinn criter.	-5.294567
Durbin-Watson stat	2.004381		

ARIMA(1,0,1) dengan Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 16:36
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 31 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000591	0.000453	1.303168	0.1928
AR(1)	-0.436788	0.134392	-3.250104	0.0012
MA(1)	0.287121	0.141485	2.029333	0.0427
SIGMASQ	0.000236	7.82E-06	30.23975	0.0000

R-squared	0.026870	Mean dependent var	0.000596
Adjusted R-squared	0.023768	S.D. dependent var	0.015593
S.E. of regression	0.015406	Akaike info criterion	-5.503845
Sum squared resid	0.223346	Schwarz criterion	-5.483311
Log likelihood	2604.567	Hannan-Quinn criter.	-5.496019
F-statistic	8.661031	Durbin-Watson stat	2.008654
Prob(F-statistic)	0.000011		

ARIMA(1,0,1) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 16:37
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 28 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.445462	0.133563	-3.335227	0.0009
MA(1)	0.297524	0.140997	2.110143	0.0351
SIGMASQ	0.000237	7.79E-06	30.41053	0.0000

R-squared	0.025085	Mean dependent var	0.000596
Adjusted R-squared	0.023015	S.D. dependent var	0.015593
S.E. of regression	0.015412	Akaike info criterion	-5.504129
Sum squared resid	0.223756	Schwarz criterion	-5.488728
Log likelihood	2603.701	Hannan-Quinn criter.	-5.498259
Durbin-Watson stat	2.008188		

ARIMA(1,0,2) dengan Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 16:39
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 32 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000589	0.000439	1.342751	0.1797
AR(1)	-0.628688	0.366582	-1.715001	0.0867
MA(1)	0.466905	0.367539	1.270355	0.2043
MA(2)	-0.057086	0.074184	-0.769514	0.4418
SIGMASQ	0.000236	7.82E-06	30.19342	0.0000

R-squared	0.028009	Mean dependent var	0.000596
Adjusted R-squared	0.023873	S.D. dependent var	0.015593
S.E. of regression	0.015405	Akaike info criterion	-5.502899
Sum squared resid	0.223084	Schwarz criterion	-5.477231
Log likelihood	2605.120	Hannan-Quinn criter.	-5.493116
F-statistic	6.771841	Durbin-Watson stat	1.989579
Prob(F-statistic)	0.000023		

ARIMA(1,0,2) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 16:38
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 29 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.623569	0.362480	-1.720284	0.0857
MA(1)	0.464050	0.363441	1.276824	0.2020
MA(2)	-0.053613	0.072527	-0.739212	0.4600
SIGMASQ	0.000237	7.79E-06	30.35960	0.0000

R-squared	0.026107	Mean dependent var	0.000596
Adjusted R-squared	0.023002	S.D. dependent var	0.015593
S.E. of regression	0.015412	Akaike info criterion	-5.503060
Sum squared resid	0.223521	Schwarz criterion	-5.482526
Log likelihood	2604.196	Hannan-Quinn criter.	-5.495234
Durbin-Watson stat	1.989848		

ARIMA(2,0,0) dengan Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 13:20
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 11 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000578	0.000517	1.117649	0.2640
AR(1)	-0.056671	0.026439	-2.143502	0.0323
AR(2)	-0.041583	0.026450	-1.572103	0.1163
SIGMASQ	0.000291	9.17E-06	31.70607	0.0000

R-squared	0.004693	Mean dependent var	0.000577
Adjusted R-squared	0.001520	S.D. dependent var	0.017096
S.E. of regression	0.017083	Akaike info criterion	-5.297243
Sum squared resid	0.274609	Schwarz criterion	-5.276709
Log likelihood	2506.947	Hannan-Quinn criter.	-5.289417
F-statistic	1.478978	Durbin-Watson stat	2.011544
Prob(F-statistic)	0.218725		

ARIMA(2,0,0) Tanpa Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 13:17
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 12 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.055353	0.026389	-2.097559	0.0362
AR(2)	-0.040198	0.026425	-1.521232	0.1285
SIGMASQ	0.000291	8.95E-06	32.52595	0.0000

R-squared	0.003318	Mean dependent var	0.000577
Adjusted R-squared	0.001202	S.D. dependent var	0.017096
S.E. of regression	0.017086	Akaike info criterion	-5.297979
Sum squared resid	0.274988	Schwarz criterion	-5.282578
Log likelihood	2506.295	Hannan-Quinn criter.	-5.292110
Durbin-Watson stat	2.011026		

ARIMA(2,0,1) dengan Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 19:09
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 31 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000585	0.000347	1.685597	0.0922
AR(1)	0.716520	0.077253	9.274971	0.0000
AR(2)	-0.050949	0.036671	-1.389352	0.1651
MA(1)	-0.793999	0.079049	-10.04440	0.0000
SIGMASQ	0.000284	9.00E-06	31.61922	0.0000

R-squared	0.025585	Mean dependent var	0.000577
Adjusted R-squared	0.021439	S.D. dependent var	0.017096
S.E. of regression	0.016912	Akaike info criterion	-5.316256
Sum squared resid	0.268845	Schwarz criterion	-5.290588
Log likelihood	2516.931	Hannan-Quinn criter.	-5.306474
F-statistic	6.170443	Durbin-Watson stat	2.006920
Prob(F-statistic)	0.000067		

ARIMA(2,0,1) Tanpa Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 19:12
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 34 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	0.706983	0.082890	8.529139	0.0000
AR(2)	-0.050850	0.037013	-1.373850	0.1698
MA(1)	-0.781412	0.085804	-9.106960	0.0000
SIGMASQ	0.000285	8.80E-06	32.41214	0.0000

R-squared	0.022595	Mean dependent var	0.000577
Adjusted R-squared	0.019479	S.D. dependent var	0.017096
S.E. of regression	0.016929	Akaike info criterion	-5.315318
Sum squared resid	0.269670	Schwarz criterion	-5.294784
Log likelihood	2515.488	Hannan-Quinn criter.	-5.307493
Durbin-Watson stat	2.006969		

ARIMA(2,0,2) dengan Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 19:10
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 33 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000584	0.000362	1.610285	0.1077
AR(1)	1.238036	0.339775	3.643694	0.0003
AR(2)	-0.467158	0.244478	-1.910842	0.0563
MA(1)	-1.308951	0.352924	-3.708872	0.0002
MA(2)	0.455531	0.295265	1.542790	0.1232
SIGMASQ	0.000284	9.08E-06	31.23093	0.0000

R-squared	0.028399	Mean dependent var	0.000577
Adjusted R-squared	0.023225	S.D. dependent var	0.017096
S.E. of regression	0.016896	Akaike info criterion	-5.317016
Sum squared resid	0.268068	Schwarz criterion	-5.286215
Log likelihood	2518.290	Hannan-Quinn criter.	-5.305278
F-statistic	5.489222	Durbin-Watson stat	2.021259
Prob(F-statistic)	0.000055		

ARIMA(2,0,2) Tanpa Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 19:11
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 32 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.166074	0.167007	-0.994412	0.3203
AR(2)	0.657342	0.113574	5.787813	0.0000
MA(1)	0.047990	0.171131	0.280430	0.7792
MA(2)	-0.723347	0.128875	-5.612789	0.0000
SIGMASQ	0.000285	9.05E-06	31.52744	0.0000

R-squared	0.023107	Mean dependent var	0.000577
Adjusted R-squared	0.018950	S.D. dependent var	0.017096
S.E. of regression	0.016933	Akaike info criterion	-5.313730
Sum squared resid	0.269529	Schwarz criterion	-5.288062
Log likelihood	2515.737	Hannan-Quinn criter.	-5.303948
Durbin-Watson stat	1.904195		

ARIMA(0,0,1) dengan Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 13:20
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 18 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000577	0.000533	1.081240	0.2799
MA(1)	-0.060781	0.025384	-2.394505	0.0168
SIGMASQ	0.000291	9.19E-06	31.66943	0.0000

R-squared	0.003284	Mean dependent var	0.000577
Adjusted R-squared	0.001168	S.D. dependent var	0.017096
S.E. of regression	0.017086	Akaike info criterion	-5.297947
Sum squared resid	0.274998	Schwarz criterion	-5.282547
Log likelihood	2506.280	Hannan-Quinn criter.	-5.292078
F-statistic	1.551835	Durbin-Watson stat	1.993424
Prob(F-statistic)	0.212400		

ARIMA(0,0,1) Tanpa Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 13:17
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 19 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(1)	-0.059214	0.025376	-2.333448	0.0198
SIGMASQ	0.000291	8.97E-06	32.49677	0.0000

R-squared	0.001995	Mean dependent var	0.000577
Adjusted R-squared	0.000937	S.D. dependent var	0.017096
S.E. of regression	0.017088	Akaike info criterion	-5.298772
Sum squared resid	0.275353	Schwarz criterion	-5.288505
Log likelihood	2505.670	Hannan-Quinn criter.	-5.294859
Durbin-Watson stat	1.993811		

Inverted MA Roots	.06

ARIMA(0,0,2) dengan Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 13:20
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 28 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000579	0.000486	1.190982	0.2340
MA(1)	-0.076994	0.026087	-2.951390	0.0032
MA(2)	-0.065895	0.026904	-2.449306	0.0145
SIGMASQ	0.000290	9.13E-06	31.75225	0.0000

R-squared	0.006914	Mean dependent var	0.000577
Adjusted R-squared	0.003748	S.D. dependent var	0.017096
S.E. of regression	0.017064	Akaike info criterion	-5.299467
Sum squared resid	0.273996	Schwarz criterion	-5.278933
Log likelihood	2507.998	Hannan-Quinn criter.	-5.291641
F-statistic	2.183778	Durbin-Watson stat	1.980843
Prob(F-statistic)	0.088405		

ARIMA(0,0,2) Tanpa Konstanta

Dependent Variable: ICBP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 13:17
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 25 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(1)	-0.074507	0.026063	-2.858774	0.0043
MA(2)	-0.063166	0.026836	-2.353753	0.0188
SIGMASQ	0.000290	8.92E-06	32.56004	0.0000

R-squared	0.005362	Mean dependent var	0.000577
Adjusted R-squared	0.003251	S.D. dependent var	0.017096
S.E. of regression	0.017068	Akaike info criterion	-5.300024
Sum squared resid	0.274424	Schwarz criterion	-5.284623
Log likelihood	2507.261	Hannan-Quinn criter.	-5.294154
Durbin-Watson stat	1.981932		

Lampiran 4 Pemodelan ARIMA return UNVR

ARIMA(1,0,0) dengan Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:42
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 8 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000590	0.000434	1.357518	0.1749
AR(1)	-0.161455	0.025479	-6.336847	0.0000
SIGMASQ	0.000237	7.77E-06	30.44835	0.0000

R-squared	0.026020	Mean dependent var	0.000596
Adjusted R-squared	0.023952	S.D. dependent var	0.015593
S.E. of regression	0.015405	Akaike info criterion	-5.505092
Sum squared resid	0.223541	Schwarz criterion	-5.489691
Log likelihood	2604.156	Hannan-Quinn criter.	-5.499223
F-statistic	12.58292	Durbin-Watson stat	1.992404
Prob(F-statistic)	0.000004		

ARIMA(1,0,0) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:42
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 8 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.159898	0.025555	-6.256954	0.0000
SIGMASQ	0.000237	7.72E-06	30.70636	0.0000

R-squared	0.024091	Mean dependent var	0.000596
Adjusted R-squared	0.023057	S.D. dependent var	0.015593
S.E. of regression	0.015412	Akaike info criterion	-5.505231
Sum squared resid	0.223983	Schwarz criterion	-5.494964
Log likelihood	2603.221	Hannan-Quinn criter.	-5.501318
Durbin-Watson stat	1.991580		

ARIMA(1,0,1) dengan Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:40
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 31 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000591	0.000453	1.303168	0.1928
AR(1)	-0.436788	0.134392	-3.250104	0.0012
MA(1)	0.287121	0.141485	2.029333	0.0427
SIGMASQ	0.000236	7.82E-06	30.23975	0.0000

R-squared	0.026870	Mean dependent var	0.000596
Adjusted R-squared	0.023768	S.D. dependent var	0.015593
S.E. of regression	0.015406	Akaike info criterion	-5.503845
Sum squared resid	0.223346	Schwarz criterion	-5.483311
Log likelihood	2604.567	Hannan-Quinn criter.	-5.496019
F-statistic	8.661031	Durbin-Watson stat	2.008654
Prob(F-statistic)	0.000011		

ARIMA(1,0,1) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:40
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 28 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.445462	0.133563	-3.335227	0.0009
MA(1)	0.297524	0.140997	2.110143	0.0351
SIGMASQ	0.000237	7.79E-06	30.41053	0.0000

R-squared	0.025085	Mean dependent var	0.000596
Adjusted R-squared	0.023015	S.D. dependent var	0.015593
S.E. of regression	0.015412	Akaike info criterion	-5.504129
Sum squared resid	0.223756	Schwarz criterion	-5.488728
Log likelihood	2603.701	Hannan-Quinn criter.	-5.498259
Durbin-Watson stat	2.008188		

ARIMA(1,0,2) dengan Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:41
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 32 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000589	0.000439	1.342751	0.1797
AR(1)	-0.628688	0.366582	-1.715001	0.0867
MA(1)	0.466905	0.367539	1.270355	0.2043
MA(2)	-0.057086	0.074184	-0.769514	0.4418
SIGMASQ	0.000236	7.82E-06	30.19342	0.0000

R-squared	0.028009	Mean dependent var	0.000596
Adjusted R-squared	0.023873	S.D. dependent var	0.015593
S.E. of regression	0.015405	Akaike info criterion	-5.502899
Sum squared resid	0.223084	Schwarz criterion	-5.477231
Log likelihood	2605.120	Hannan-Quinn criter.	-5.493116
F-statistic	6.771841	Durbin-Watson stat	1.989579
Prob(F-statistic)	0.000023		

ARIMA(1,0,2) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:41
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 29 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.623569	0.362480	-1.720284	0.0857
MA(1)	0.464050	0.363441	1.276824	0.2020
MA(2)	-0.053613	0.072527	-0.739212	0.4600
SIGMASQ	0.000237	7.79E-06	30.35960	0.0000

R-squared	0.026107	Mean dependent var	0.000596
Adjusted R-squared	0.023002	S.D. dependent var	0.015593
S.E. of regression	0.015412	Akaike info criterion	-5.503060
Sum squared resid	0.223521	Schwarz criterion	-5.482526
Log likelihood	2604.196	Hannan-Quinn criter.	-5.495234
Durbin-Watson stat	1.989848		

ARIMA(2,0,0) dengan Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 19:07
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 14 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000590	0.000443	1.333063	0.1828
AR(1)	-0.159710	0.025524	-6.257323	0.0000
AR(2)	0.010836	0.025008	0.433285	0.6649
SIGMASQ	0.000237	7.81E-06	30.28365	0.0000

R-squared	0.026135	Mean dependent var	0.000596
Adjusted R-squared	0.023030	S.D. dependent var	0.015593
S.E. of regression	0.015412	Akaike info criterion	-5.503093
Sum squared resid	0.223515	Schwarz criterion	-5.482559
Log likelihood	2604.211	Hannan-Quinn criter.	-5.495267
F-statistic	8.417515	Durbin-Watson stat	1.993804
Prob(F-statistic)	0.000016		

ARIMA(2,0,0) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 19:08
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 12 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.157873	0.025604	-6.165970	0.0000
AR(2)	0.012698	0.024676	0.514595	0.6070
SIGMASQ	0.000237	7.78E-06	30.45047	0.0000

R-squared	0.024249	Mean dependent var	0.000596
Adjusted R-squared	0.022177	S.D. dependent var	0.015593
S.E. of regression	0.015419	Akaike info criterion	-5.503275
Sum squared resid	0.223947	Schwarz criterion	-5.487874
Log likelihood	2603.297	Hannan-Quinn criter.	-5.497406
Durbin-Watson stat	1.993231		

ARIMA(2,0,1) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:33
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 21 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000590	0.000446	1.321749	0.1866
AR(1)	-0.672164	0.569172	-1.180952	0.2379
AR(2)	-0.049579	0.105524	-0.469838	0.6386
MA(1)	0.516904	0.566853	0.911884	0.3621
SIGMASQ	0.000236	7.83E-06	30.18091	0.0000

R-squared	0.027532	Mean dependent var	0.000596
Adjusted R-squared	0.023394	S.D. dependent var	0.015593
S.E. of regression	0.015409	Akaike info criterion	-5.502408
Sum squared resid	0.223194	Schwarz criterion	-5.476741
Log likelihood	2604.888	Hannan-Quinn criter.	-5.492626
F-statistic	6.653133	Durbin-Watson stat	2.000235
Prob(F-statistic)	0.000028		

ARIMA(2,0,1) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/05/18 Time: 16:42
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 22 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.665184	0.558488	-1.191046	0.2339
AR(2)	-0.046882	0.102715	-0.456427	0.6482
MA(1)	0.511629	0.556254	0.919776	0.3579
SIGMASQ	0.000237	7.80E-06	30.34020	0.0000

R-squared	0.025689	Mean dependent var	0.000596
Adjusted R-squared	0.022583	S.D. dependent var	0.015593
S.E. of regression	0.015415	Akaike info criterion	-5.502632
Sum squared resid	0.223617	Schwarz criterion	-5.482098
Log likelihood	2603.994	Hannan-Quinn criter.	-5.494806
Durbin-Watson stat	1.999626		

ARIMA(2,0,2) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:34
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 28 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000582	0.000353	1.651226	0.0990
AR(1)	0.126266	0.285448	0.442345	0.6583
AR(2)	0.429029	0.124486	3.446399	0.0006
MA(1)	-0.298124	0.285863	-1.042893	0.2973
MA(2)	-0.393162	0.158677	-2.477744	0.0134
SIGMASQ	0.000234	7.84E-06	29.88885	0.0000

R-squared	0.034853	Mean dependent var	0.000596
Adjusted R-squared	0.029714	S.D. dependent var	0.015593
S.E. of regression	0.015359	Akaike info criterion	-5.507822
Sum squared resid	0.221513	Schwarz criterion	-5.477020
Log likelihood	2608.446	Hannan-Quinn criter.	-5.496083
F-statistic	6.781843	Durbin-Watson stat	1.980180
Prob(F-statistic)	0.000003		

ARIMA(2,0,2) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:38
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 31 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	0.104411	0.309185	0.337698	0.7357
AR(2)	0.417874	0.125459	3.330758	0.0009
MA(1)	-0.273703	0.308679	-0.886690	0.3755
MA(2)	-0.383786	0.156295	-2.455530	0.0142
SIGMASQ	0.000235	7.79E-06	30.18826	0.0000

R-squared	0.032052	Mean dependent var	0.000596
Adjusted R-squared	0.027933	S.D. dependent var	0.015593
S.E. of regression	0.015373	Akaike info criterion	-5.507046
Sum squared resid	0.222156	Schwarz criterion	-5.481378
Log likelihood	2607.079	Hannan-Quinn criter.	-5.497263
Durbin-Watson stat	1.979557		

ARIMA(0,0,1) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:43
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 15 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000589	0.000423	1.393624	0.1638
MA(1)	-0.161872	0.024207	-6.686902	0.0000
SIGMASQ	0.000237	7.69E-06	30.76365	0.0000

R-squared	0.025648	Mean dependent var	0.000596
Adjusted R-squared	0.023579	S.D. dependent var	0.015593
S.E. of regression	0.015408	Akaike info criterion	-5.504710
Sum squared resid	0.223626	Schwarz criterion	-5.489309
Log likelihood	2603.975	Hannan-Quinn criter.	-5.498840
F-statistic	12.39818	Durbin-Watson stat	1.996946
Prob(F-statistic)	0.000005		

ARIMA(0,0,1) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:43
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 14 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(1)	-0.159546	0.024285	-6.569660	0.0000
SIGMASQ	0.000237	7.62E-06	31.11912	0.0000

R-squared	0.023621	Mean dependent var	0.000596
Adjusted R-squared	0.022586	S.D. dependent var	0.015593
S.E. of regression	0.015415	Akaike info criterion	-5.504749
Sum squared resid	0.224091	Schwarz criterion	-5.494482
Log likelihood	2602.994	Hannan-Quinn criter.	-5.500836

ARIMA(0,0,2) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:39
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 27 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000589	0.000429	1.371744	0.1705
MA(1)	-0.161691	0.025537	-6.331590	0.0000
MA(2)	0.003278	0.026124	0.125467	0.9002
SIGMASQ	0.000237	7.77E-06	30.44806	0.0000

R-squared	0.025658	Mean dependent var	0.000596
Adjusted R-squared	0.022552	S.D. dependent var	0.015593
S.E. of regression	0.015416	Akaike info criterion	-5.502604
Sum squared resid	0.223624	Schwarz criterion	-5.482070
Log likelihood	2603.980	Hannan-Quinn criter.	-5.494778
F-statistic	8.259979	Durbin-Watson stat	1.996609
Prob(F-statistic)	0.000020		

ARIMA(0,0,2) Tanpa Konstanta

Dependent Variable: UNVR
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 08/03/18 Time: 14:38
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 26 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(1)	-0.159244	0.025634	-6.212191	0.0000
MA(2)	0.005743	0.025726	0.223219	0.8234
SIGMASQ	0.000237	7.74E-06	30.64081	0.0000

R-squared	0.023652	Mean dependent var	0.000596
Adjusted R-squared	0.021579	S.D. dependent var	0.015593
S.E. of regression	0.015423	Akaike info criterion	-5.502665
Sum squared resid	0.224084	Schwarz criterion	-5.487264
Log likelihood	2603.009	Hannan-Quinn criter.	-5.496796
Durbin-Watson stat	1.996844		

Lampiran 5 Uji efek ARCH dari model ARIMA return ICBP yang Signifikan

1. ARIMA(1,0,0) Tanpa Konstanta

Heteroskedasticity Test: ARCH

F-statistic	16.98703	Prob. F(1,942)	0.0000
Obs*R-squared	16.72156	Prob. Chi-Square(1)	0.0000

2. ARIMA(1,0,1) Tanpa Konstanta

Heteroskedasticity Test: ARCH

F-statistic	16.58114	Prob. F(1,942)	0.0001
Obs*R-squared	16.32892	Prob. Chi-Square(1)	0.0001

3. ARIMA(0,0,1) Tanpa Konstanta

Heteroskedasticity Test: ARCH

F-statistic	17.31542	Prob. F(1,942)	0.0000
Obs*R-squared	17.03898	Prob. Chi-Square(1)	0.0000

4. ARIMA(0,0,2) Tanpa Konstanta

Heteroskedasticity Test: ARCH

F-statistic	18.48791	Prob. F(1,942)	0.0000
Obs*R-squared	18.17055	Prob. Chi-Square(1)	0.0000

Lampiran 6 Uji efek ARCH dari model ARIMA return UNVR yang Signifikan

1. ARIMA(1,0,0) tanpa Konstanta

Heteroskedasticity Test: ARCH

F-statistic	27.46145	Prob. F(1,942)	0.0000
Obs*R-squared	26.74021	Prob. Chi-Square(1)	0.0000

2. ARIMA(1,0,1) tanpa Konstanta

Heteroskedasticity Test: ARCH

F-statistic	27.02914	Prob. F(1,942)	0.0000
Obs*R-squared	26.33101	Prob. Chi-Square(1)	0.0000

3. ARIMA(0,0,1) tanpa Konstanta

Heteroskedasticity Test: ARCH

F-statistic	28.24936	Prob. F(1,942)	0.0000
Obs*R-squared	27.48509	Prob. Chi-Square(1)	0.0000

Lampiran 7 Model GARCH pada return ICBP

1. GARCH(1,0)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 12:57
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 40 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.570976	0.085905	6.646637	0.0000
MA(1)	-0.724212	0.068298	-10.60368	0.0000
Variance Equation				
C	0.000210	9.46E-06	22.23540	0.0000
RESID(-1)^2	0.304402	0.043597	6.982198	0.0000

R-squared	0.015380	Mean dependent var	0.000577
Adjusted R-squared	0.014336	S.D. dependent var	0.017096
S.E. of regression	0.016973	Akaike info criterion	-5.362469
Sum squared resid	0.271660	Schwarz criterion	-5.341935
Log likelihood	2537.767	Hannan-Quinn criter.	-5.354643

2. GARCH(1,1)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 12:58
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 33 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.645401	0.091597	7.046078	0.0000
MA(1)	-0.773497	0.078994	-9.791793	0.0000
Variance Equation				
C	2.63E-05	5.85E-06	4.493854	0.0000
RESID(-1)^2	0.151581	0.024916	6.083733	0.0000
GARCH(-1)	0.763950	0.037242	20.51324	0.0000

R-squared	0.019233	Mean dependent var	0.000577
Adjusted R-squared	0.018193	S.D. dependent var	0.017096
S.E. of regression	0.016940	Akaike info criterion	-5.422525
Sum squared resid	0.270597	Schwarz criterion	-5.396858

3. GARCH(1,2)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 12:58
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 43 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1) + C(6)*GARCH(-2)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.606804	0.102890	5.897577	0.0000
MA(1)	-0.745010	0.087371	-8.526981	0.0000
Variance Equation				
C	3.19E-05	7.00E-06	4.556045	0.0000
RESID(-1)^2	0.230051	0.035388	6.500758	0.0000
GARCH(-1)	0.118770	0.059041	2.011645	0.0443
GARCH(-2)	0.556936	0.063325	8.794879	0.0000

R-squared	0.017724	Mean dependent var	0.000577
Adjusted R-squared	0.016682	S.D. dependent var	0.017096
S.E. of regression	0.016953	Akaike info criterion	-5.424721
Sum squared resid	0.271014	Schwarz criterion	-5.393920

4. GARCH(2,0)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 12:58
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 32 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-2)^2

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.599369	0.086200	6.953271	0.0000
MA(1)	-0.734586	0.070638	-10.39931	0.0000
Variance Equation				
C	0.000186	8.87E-06	21.00345	0.0000
RESID(-1)^2	0.220632	0.043386	5.085333	0.0000
RESID(-2)^2	0.153005	0.038314	3.993407	0.0001

R-squared	0.017639	Mean dependent var	0.000577
Adjusted R-squared	0.016597	S.D. dependent var	0.017096
S.E. of regression	0.016953	Akaike info criterion	-5.381819
Sum squared resid	0.271037	Schwarz criterion	-5.356152

5. GARCH(2,1)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 12:59
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 33 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-2)^2 + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.640867	0.091155	7.030545	0.0000
MA(1)	-0.771778	0.078046	-9.888789	0.0000
Variance Equation				
C	2.21E-05	5.87E-06	3.758200	0.0002
RESID(-1)^2	0.177844	0.037200	4.780802	0.0000
RESID(-2)^2	-0.042759	0.040300	-1.061015	0.2887
GARCH(-1)	0.794782	0.041097	19.33921	0.0000

R-squared	0.019001	Mean dependent var	0.000577
Adjusted R-squared	0.017961	S.D. dependent var	0.017096
S.E. of regression	0.016942	Akaike info criterion	-5.420885

6. GARCH(2,2)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 13:06
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 31 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-2)^2 + C(6)*GARCH(-1)
+ C(7)*GARCH(-2)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.630939	0.093831	6.724225	0.0000
MA(1)	-0.763242	0.079924	-9.549584	0.0000
Variance Equation				
C	7.94E-06	5.18E-06	1.534442	0.1249
RESID(-1)^2	0.182626	0.033209	5.499338	0.0000
RESID(-2)^2	-0.135672	0.038230	-3.548867	0.0004
GARCH(-1)	1.386011	0.242533	5.714722	0.0000
GARCH(-2)	-0.458255	0.195185	-2.347803	0.0189

R-squared	0.018709	Mean dependent var	0.000577
Adjusted R-squared	0.017668	S.D. dependent var	0.017096
S.E. of regression	0.016944	Akaike info criterion	-5.420583

7. GARCH(0,1)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 12:59
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence not achieved after 500 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	-0.055104	0.026693	-2.064368	0.0390
MA(1)	-14732.56	479.0311	-30.75492	0.0000
Variance Equation				
C	3.17E-14	6.80E-15	4.665975	0.0000
GARCH(-1)	0.977281	0.004866	200.8571	0.0000

R-squared	1.000000	Mean dependent var	0.000577
Adjusted R-squared	1.000000	S.D. dependent var	0.017096
S.E. of regression	1.16E-06	Akaike info criterion	-24.50352
Sum squared resid	1.27E-09	Schwarz criterion	-24.48299

8. GARCH(0,2)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 12:59
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 67 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*GARCH(-1) + C(5)*GARCH(-2)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.710622	0.075681	9.389651	0.0000
MA(1)	-0.818218	0.063174	-12.95172	0.0000
Variance Equation				
C	5.70E-06	1.50E-05	0.379855	0.7041
GARCH(-1)	1.240798	2.137383	0.580522	0.5616
GARCH(-2)	-0.260033	2.087054	-0.124593	0.9008

R-squared	0.020482	Mean dependent var	0.000577
Adjusted R-squared	0.019443	S.D. dependent var	0.017096
S.E. of regression	0.016929	Akaike info criterion	-5.326127
Sum squared resid	0.270253	Schwarz criterion	-5.300459

Lampiran 8 Model GARCH return UNVR

1. GARCH(1,0)

Dependent Variable: ICBP
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/04/18 Time: 12:57
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 40 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.570976	0.085905	6.646637	0.0000
MA(1)	-0.724212	0.068298	-10.60368	0.0000
Variance Equation				
C	0.000210	9.46E-06	22.23540	0.0000
RESID(-1)^2	0.304402	0.043597	6.982198	0.0000

R-squared	0.015380	Mean dependent var	0.000577
Adjusted R-squared	0.014336	S.D. dependent var	0.017096
S.E. of regression	0.016973	Akaike info criterion	-5.362469
Sum squared resid	0.271660	Schwarz criterion	-5.341935
Log likelihood	2537.767	Hannan-Quinn criter.	-5.354643
Durbin-Watson stat	1.842079		

2. GARCH(1,1)

Dependent Variable: UNVR
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/03/18 Time: 15:40
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 138 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.578129	0.107280	5.388992	0.0000
MA(1)	-0.729026	0.085956	-8.481365	0.0000
Variance Equation				
C	3.80E-05	6.60E-06	5.767662	0.0000
RESID(-1)^2	0.186158	0.030006	6.204026	0.0000
GARCH(-1)	0.656771	0.045986	14.28208	0.0000

R-squared	0.020430	Mean dependent var	0.000596
Adjusted R-squared	0.019391	S.D. dependent var	0.015593
S.E. of regression	0.015441	Akaike info criterion	-5.607932
Sum squared resid	0.224824	Schwarz criterion	-5.582265
Log likelihood	2654.748	Hannan-Quinn criter.	-5.598150

3. GARCH(1,2)

Dependent Variable: UNVR
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 08/04/18 Time: 00:20
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 40 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1) + C(6)*GARCH(-2)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.567322	0.114268	4.964826	0.0000
MA(1)	-0.714314	0.093745	-7.619726	0.0000
Variance Equation				
C	3.03E-05	5.01E-06	6.054088	0.0000
RESID(-1)^2	0.207099	0.029855	6.936839	0.0000
GARCH(-1)	0.148153	0.094097	1.574469	0.1154
GARCH(-2)	0.521034	0.091229	5.711274	0.0000

R-squared	0.021248	Mean dependent var	0.000596
Adjusted R-squared	0.020210	S.D. dependent var	0.015593
S.E. of regression	0.015434	Akaike info criterion	-5.614307
Sum squared resid	0.224636	Schwarz criterion	-5.583506

4. GARCH(2,0)

Dependent Variable: UNVR
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 08/04/18 Time: 00:06
Sample: 5/05/2014 3/21/2018
Included observations: 945
Failure to improve likelihood (non-zero gradients) after 16 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-2)^2

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.005000	72.10705	6.93E-05	0.9999
MA(1)	-49858.66	2204048.	-0.022621	0.9820
Variance Equation				
C	2.57E-10	2.09E-11	12.30857	0.0000
RESID(-1)^2	0.150001	92.43874	0.001623	0.9987
RESID(-2)^2	0.050000	84.96922	0.000588	0.9995

R-squared	1.000000	Mean dependent var	0.000596
Adjusted R-squared	1.000000	S.D. dependent var	0.015593
S.E. of regression	3.13E-07	Akaike info criterion	-20.23173
Sum squared resid	9.26E-11	Schwarz criterion	-20.20607
Log likelihood	9564.494	Hannan-Quinn criter.	-20.22195

5. GARCH(2,1)

Dependent Variable: UNVR
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 08/04/18 Time: 00:19
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 50 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-2)^2 + C(6)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.546604	0.123774	4.416137	0.0000
MA(1)	-0.682251	0.102805	-6.636389	0.0000
Variance Equation				
C	1.09E-06	6.45E-07	1.696408	0.0898
RESID(-1)^2	0.225068	0.042411	5.306764	0.0000
RESID(-2)^2	-0.201305	0.040205	-5.007029	0.0000
GARCH(-1)	0.971581	0.006840	142.0394	0.0000

R-squared	0.022403	Mean dependent var	0.000596
Adjusted R-squared	0.021367	S.D. dependent var	0.015593
S.E. of regression	0.015425	Akaike info criterion	-5.625171
Sum squared resid	0.224371	Schwarz criterion	-5.594370
Log likelihood	2663.894	Hannan-Quinn criter.	-5.613433

6. GARCH(2,2)

Dependent Variable: UNVR
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 08/04/18 Time: 00:19
Sample: 5/05/2014 3/21/2018
Included observations: 945
Failure to improve likelihood (singular hessian) after 85 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*RESID(-2)^2 + C(6)*GARCH(-1) + C(7)*GARCH(-2)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	0.544546	0.120567	4.516550	0.0000
MA(1)	-0.691942	0.098167	-7.048631	0.0000
Variance Equation				
C	5.00E-07	3.75E-07	1.333487	0.1824
RESID(-1)^2	0.206587	0.041750	4.948159	0.0000
RESID(-2)^2	-0.196397	0.039103	-5.022627	0.0000
GARCH(-1)	1.347271	0.123588	10.90134	0.0000
GARCH(-2)	-0.359752	0.118963	-3.024062	0.0025

R-squared	0.021833	Mean dependent var	0.000596
Adjusted R-squared	0.020796	S.D. dependent var	0.015593
S.E. of regression	0.015430	Akaike info criterion	-5.629434

7. GARCH(0,1)

Dependent Variable: UNVR
Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps)
Date: 08/03/18 Time: 15:38
Sample: 5/05/2014 3/21/2018
Included observations: 945
Convergence achieved after 29 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	-0.445640	0.133500	-3.338121	0.0008
MA(1)	0.297621	0.140918	2.112011	0.0347
Variance Equation				
C	8.83E-05	0.002300	0.038386	0.9694
GARCH(-1)	0.627059	9.715306	0.064543	0.9485

R-squared	0.025085	Mean dependent var	0.000596
Adjusted R-squared	0.024051	S.D. dependent var	0.015593
S.E. of regression	0.015404	Akaike info criterion	-5.502058
Sum squared resid	0.223756	Schwarz criterion	-5.481524
Log likelihood	2603.722	Hannan-Quinn criter.	-5.494232
Durbin-Watson stat	2.008026		

8. GARCH(0,2)

Dependent Variable: UNVR
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)
Date: 08/04/18 Time: 00:20
Sample: 5/05/2014 3/21/2018
Included observations: 945
Failure to improve likelihood (non-zero gradients) after 123 iterations
Coefficient covariance computed using outer product of gradients
Presample variance: backcast (parameter = 0.7)
GARCH = C(3) + C(4)*GARCH(-1) + C(5)*GARCH(-2)

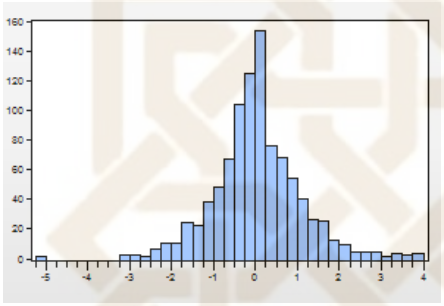
Variable	Coefficient	Std. Error	z-Statistic	Prob.
AR(1)	-0.449505	0.136048	-3.304026	0.0010
MA(1)	0.306330	0.144763	2.116087	0.0343
Variance Equation				
C	6.00E-06	1.17E-07	51.38650	0.0000
GARCH(-1)	1.980515	0.000155	12786.69	0.0000
GARCH(-2)	-1.005196	0.000212	-4747.254	0.0000

R-squared	0.025061	Mean dependent var	0.000596
Adjusted R-squared	0.024027	S.D. dependent var	0.015593
S.E. of regression	0.015404	Akaike info criterion	-5.508867
Sum squared resid	0.223761	Schwarz criterion	-5.483200
Log likelihood	2607.940	Hannan-Quinn criter.	-5.499085

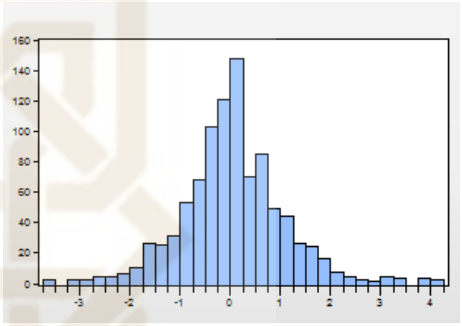
Lampiran 9 Uji asumsi model GARCH

1. Normalitas

Return ICBP



Return UNVR



2. ARCH-LM

Return ICBP

Heteroskedasticity Test: ARCH

F-statistic	0.625907	Prob. F(1,942)	0.4291
Obs*R-squared	0.626820	Prob. Chi-Square(1)	0.4285

Return UNVR

Heteroskedasticity Test: ARCH

F-statistic	0.802986	Prob. F(1,942)	0.3704
Obs*R-squared	0.804005	Prob. Chi-Square(1)	0.3699

Lampiran 10 Residual GARCH dan Tranformasi

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
5/5/2014	0	0	0.017523	0.018
5/6/2014	0	0	-0.009502	0
5/7/2014	0.00259	0.003	0.028376	0.028
5/8/2014	-0.00228	0	0.009851	0.01
5/9/2014	-0.00008	0	0.015254	0.015
5/12/2014	-0.00247	0	-0.001218	0
5/13/2014	0.00466	0.005	-0.009925	0
5/14/2014	0.02991	0.03	0.019571	0.02
5/16/2014	0.00638	0.006	0.002891	0.003
5/19/2014	-0.0063	0	-0.00768	0
5/20/2014	-0.02335	0	-0.029891	0
5/21/2014	0.00551	0.006	0.008948	0.009
5/22/2014	-0.00823	0	-0.000404	0
5/23/2014	0.02094	0.021	-0.000776	0
5/26/2014	-0.00082	0	0.002759	0.003
5/28/2014	0.0108	0.011	0.002576	0.003
5/30/2014	-0.00519	0	-0.035805	0
6/2/2014	-0.01178	0	0.016084	0.016
6/3/2014	-0.00109	0	0.009484	0.009
6/4/2014	0.01159	0.012	0.008573	0.009
6/5/2014	-0.00891	0	0.007701	0.008
6/6/2014	-0.00053	0	0.003103	0.003
6/9/2014	-0.00797	0	-0.014755	0
6/10/2014	0.01612	0.016	0.006285	0.006
6/11/2014	0.00123	0.001	0.009323	0.009
6/12/2014	0.00095	0.001	-0.014153	0
6/13/2014	0.00309	0.003	-0.007925	0
6/16/2014	-0.02128	0	-0.006957	0
6/17/2014	-0.00216	0	-0.007226	0
6/18/2014	-0.00167	0	-0.005731	0
6/19/2014	0.00866	0.009	0.002874	0.003
6/20/2014	0.00027	0	0.010091	0.01
6/23/2014	-0.01234	0	-0.001481	0
6/24/2014	0.00116	0.001	-0.002988	0
6/25/2014	-0.00339	0	-0.000235	0
6/26/2014	0.00166	0.002	0.00319	0.003
6/27/2014	-0.01044	0	-0.010583	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
6/30/2014	0.00846	0.008	-0.008184	0
7/1/2014	0.00743	0.007	0.014065	0.014
7/2/2014	0.01577	0.016	0.020092	0.02
7/3/2014	-0.00461	0	-0.00055	0
7/4/2014	-0.00639	0	0.005293	0.005
7/7/2014	0.01469	0.015	0.021556	0.022
7/8/2014	0.00182	0.002	0.014841	0.015
7/9/2014	0.00141	0.001	0.004771	0.005
7/10/2014	0.01334	0.013	0.009067	0.009
7/11/2014	-0.02462	0	-0.028986	0
7/14/2014	-0.00657	0	-0.00242	0
7/15/2014	-0.00687	0	0.029804	0.03
7/16/2014	0.0493	0.049	-0.000515	0
7/17/2014	0.00497	0.005	-0.009331	0
7/18/2014	0.00136	0.001	0.000518	0.001
7/21/2014	0.00513	0.005	0.005553	0.006
7/22/2014	-0.0024	0	0.003996	0.004
7/23/2014	0.00828	0.008	0.001858	0.002
7/24/2014	-0.00291	0	-0.001513	0
7/25/2014	-0.00147	0	-0.012637	0
8/4/2014	0.01459	0.015	0.021563	0.022
8/5/2014	-0.00264	0	-0.01619	0
8/6/2014	-0.01813	0	-0.00601	0
8/7/2014	0.01024	0.01	-0.000755	0
8/8/2014	-0.01168	0	-0.009997	0
8/11/2014	0.00097	0.001	0.022194	0.022
8/12/2014	-0.00074	0	0.005331	0.005
8/13/2014	0.0115	0.011	0.022561	0.023
8/14/2014	-0.00367	0	0.003802	0.004
8/15/2014	0.00253	0.003	0.000875	0.001
8/18/2014	-0.00181	0	-0.010623	0
8/19/2014	-0.02179	0	-0.002038	0
8/20/2014	0.00214	0.002	0.01364	0.014
8/21/2014	-0.00383	0	0.00173	0.002
8/22/2014	-0.0162	0	-0.008187	0
8/25/2014	0.01659	0.017	-0.003676	0
8/26/2014	-0.00235	0	0.004693	0.005
8/27/2014	0.02157	0.022	0.008863	0.009
8/28/2014	0.0074	0.007	0.006147	0.006

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
8/29/2014	-0.0021	0	-0.032289	0
9/1/2014	0.03883	0.039	0.027096	0.027
9/2/2014	0.00591	0.006	0.001865	0.002
9/3/2014	0.00915	0.009	0.001359	0.001
9/4/2014	-0.00046	0	-0.009217	0
9/5/2014	0.0026	0.003	0.003907	0.004
9/8/2014	0.00878	0.009	0.000902	0.001
9/9/2014	-0.00894	0	-0.017216	0
9/10/2014	-0.00661	0	-0.007284	0
9/11/2014	-0.01215	0	-0.001731	0
9/12/2014	0.05501	0.055	0.002276	0.002
9/15/2014	0.00367	0.004	0.000144	0
9/16/2014	-0.02062	0	0.008384	0.008
9/17/2014	0.02046	0.02	0.010508	0.011
9/18/2014	0.00481	0.005	0.004546	0.005
9/19/2014	0.00909	0.009	-0.005105	0
9/22/2014	-0.00621	0	0.007423	0.007
9/23/2014	-0.03322	0	-0.013638	0
9/24/2014	0.01247	0.012	-0.006861	0
9/25/2014	0.01278	0.013	-0.002579	0
9/26/2014	0.01451	0.015	0.014429	0.014
9/29/2014	0.00701	0.007	0.007627	0.008
9/30/2014	0.00258	0.003	-0.004334	0
10/1/2014	-0.01131	0	0.000465	0
10/2/2014	-0.04117	0	-0.004389	0
10/3/2014	0.01305	0.013	-0.028502	0
10/6/2014	-0.00418	0	-0.005383	0
10/7/2014	-0.00849	0	-0.006712	0
10/8/2014	-0.02549	0	-0.00546	0
10/9/2014	0.03907	0.039	0.001516	0.002
10/10/2014	0.00433	0.004	0.001998	0.002
10/13/2014	-0.00503	0	-0.010211	0
10/14/2014	0.00054	0.001	0.012053	0.012
10/15/2014	0.03396	0.034	0.006429	0.006
10/16/2014	-0.00207	0	-0.004218	0
10/17/2014	0.00941	0.009	0.032795	0.033
10/20/2014	-0.03276	0	-0.019499	0
10/21/2014	0.02674	0.027	0.014313	0.014
10/22/2014	-0.01139	0	0.014718	0.015

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
10/23/2014	0.01754	0.018	-0.022636	0
10/24/2014	0.0044	0.004	-0.020832	0
10/27/2014	-0.02474	0	-0.022098	0
10/28/2014	-0.02011	0	-0.011465	0
10/29/2014	0.00985	0.01	0.035204	0.035
10/31/2014	-0.00574	0	-0.020333	0
11/3/2014	-0.00151	0	-0.000019	0
11/4/2014	-0.0103	0	-0.00343	0
11/5/2014	-0.00667	0	-0.002722	0
11/6/2014	-0.00681	0	-0.008479	0
11/10/2014	0.0206	0.021	-0.007707	0
11/17/2014	-0.00119	0	0.034657	0.035
11/19/2014	0.01196	0.012	0.005539	0.006
11/27/2014	0.02181	0.022	0.031636	0.032
11/28/2014	-0.00693	0	0.000301	0
12/1/2014	0.01496	0.015	-0.009611	0
12/2/2014	0.00302	0.003	-0.00242	0
12/3/2014	0.00234	0.002	0.000081	0
12/4/2014	0.0192	0.019	0.009606	0.01
12/5/2014	0.01647	0.016	0.004646	0.005
12/8/2014	-0.0084	0	-0.015155	0
12/9/2014	0.02312	0.023	-0.005407	0
12/10/2014	-0.00011	0	0.000798	0.001
12/11/2014	-0.02311	0	-0.007266	0
12/12/2014	0.01599	0.016	0.000857	0.001
12/15/2014	0.00975	0.01	0.007262	0.007
12/16/2014	-0.0237	0	-0.000154	0
12/17/2014	0.02183	0.022	-0.015805	0
12/18/2014	0.0207	0.021	0.029872	0.03
12/19/2014	0.03039	0.03	0.012665	0.013
12/22/2014	0.00224	0.002	-0.011961	0
12/23/2014	0.00436	0.004	0.000385	0
12/24/2014	0.01358	0.014	0.001074	0.001
12/29/2014	0.01195	0.012	0.013716	0.014
12/30/2014	0.05094	0.051	0.013152	0.013
1/2/2015	0.01295	0.013	0.010231	0.01
1/5/2015	0.00756	0.008	0.001907	0.002
1/6/2015	-0.01723	0	0.00228	0.002
1/7/2015	0.01317	0.013	0.02148	0.021

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
1/8/2015	0.0027	0.003	0.011721	0.012
1/9/2015	-0.00177	0	-0.000307	0
1/12/2015	-0.03425	0	-0.032066	0
1/13/2015	0.0141	0.014	0.024189	0.024
1/14/2015	-0.00245	0	-0.009014	0
1/15/2015	0.00717	0.007	0.001887	0.002
1/16/2015	-0.00547	0	0.023455	0.023
1/19/2015	0.02675	0.027	0.018383	0.018
1/20/2015	0.0278	0.028	0.010702	0.011
1/21/2015	0.0845	0.085	0.054314	0.054
1/22/2015	0.02637	0.026	0.006565	0.007
1/23/2015	0.02125	0.021	0.018314	0.018
1/26/2015	-0.03753	0	-0.012598	0
1/27/2015	0.04893	0.049	0.002808	0.003
1/28/2015	0.00269	0.003	0.000936	0.001
1/29/2015	0.00532	0.005	-0.002438	0
1/30/2015	-0.00958	0	0.012903	0.013
2/2/2015	-0.01246	0	0.011821	0.012
2/3/2015	-0.00067	0	0.00851	0.009
2/4/2015	-0.01461	0	0.003704	0.004
2/5/2015	-0.00405	0	-0.0298	0
2/6/2015	0.02096	0.021	0.035783	0.036
2/9/2015	0.01	0.01	-0.010859	0
2/10/2015	-0.02219	0	-0.017027	0
2/11/2015	-0.0085	0	0.002594	0.003
2/12/2015	0.0086	0.009	-0.000952	0
2/13/2015	-0.00019	0	0.017362	0.017
2/16/2015	0.01034	0.01	-0.032086	0
2/17/2015	-0.01095	0	0.018977	0.019
2/18/2015	0.00641	0.006	-0.010399	0
2/20/2015	-0.00659	0	-0.006045	0
2/23/2015	-0.01119	0	0.018766	0.019
2/24/2015	-0.00365	0	0.001242	0.001
2/25/2015	0.00022	0	0.010288	0.01
2/26/2015	0.01129	0.011	0.006426	0.006
2/27/2015	0.00611	0.006	-0.01149	0
3/2/2015	0.00297	0.003	0.010648	0.011
3/3/2015	0.02875	0.029	-0.007594	0
3/4/2015	-0.00742	0	0.000341	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
3/5/2015	-0.01024	0	0.003995	0.004
3/6/2015	0.01032	0.01	0.042385	0.042
3/9/2015	-0.01959	0	-0.001275	0
3/10/2015	0.01753	0.018	0.011646	0.012
3/11/2015	-0.01273	0	0.028705	0.029
3/12/2015	0.01988	0.02	0.033941	0.034
3/13/2015	0.00362	0.004	0.010178	0.01
3/16/2015	0.02713	0.027	-0.000857	0
3/17/2015	-0.00209	0	-0.010895	0
3/18/2015	0.0027	0.003	-0.038702	0
3/19/2015	-0.00127	0	0.015569	0.016
3/20/2015	0.01788	0.018	-0.000854	0
3/23/2015	-0.01701	0	0.007828	0.008
3/24/2015	-0.00699	0	0.007916	0.008
3/25/2015	-0.02513	0	-0.000261	0
3/26/2015	-0.01622	0	-0.00748	0
3/27/2015	-0.00982	0	0.014871	0.015
3/30/2015	0.00285	0.003	0.015869	0.016
3/31/2015	0.03048	0.03	0.003494	0.003
4/1/2015	-0.01647	0	-0.013342	0
4/2/2015	-0.00586	0	0.0001	0
4/6/2015	-0.00112	0	0.006084	0.006
4/7/2015	0.00095	0.001	0.013388	0.013
4/8/2015	0.00996	0.01	-0.025576	0
4/9/2015	-0.0008	0	0.014214	0.014
4/10/2015	-0.01506	0	0.002003	0.002
4/13/2015	-0.0051	0	0.010199	0.01
4/14/2015	-0.0052	0	-0.024149	0
4/15/2015	-0.00005	0	-0.005743	0
4/16/2015	0.01469	0.015	-0.016004	0
4/17/2015	-0.00233	0	-0.003099	0
4/20/2015	-0.01006	0	0.004548	0.005
4/21/2015	0.00601	0.006	0.039983	0.04
4/22/2015	-0.00338	0	0.01426	0.014
4/23/2015	-0.01094	0	0.039467	0.039
4/24/2015	-0.00163	0	0.038555	0.039
4/27/2015	-0.02277	0	-0.010694	0
4/28/2015	-0.05579	0	0.060811	0.061
4/29/2015	-0.04451	0	-0.039948	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
4/30/2015	0.03069	0.031	0.009123	0.009
5/4/2015	0.02613	0.026	0.011227	0.011
5/5/2015	0.01002	0.01	0.029741	0.03
5/6/2015	-0.00176	0	0.028481	0.028
5/7/2015	0.01739	0.017	-0.032262	0
5/8/2015	-0.00624	0	0.013384	0.013
5/11/2015	-0.00258	0	-0.006167	0
5/12/2015	-0.0033	0	-0.026578	0
5/13/2015	-0.00386	0	-0.008657	0
5/15/2015	-0.00239	0	0.024389	0.024
5/18/2015	0.01026	0.01	0.009622	0.01
5/19/2015	-0.00278	0	0.002382	0.002
5/20/2015	0.02186	0.022	-0.009732	0
5/21/2015	-0.01146	0	-0.012066	0
5/22/2015	0.00937	0.009	0.019268	0.019
5/25/2015	0.00506	0.005	0.015876	0.016
5/26/2015	0.01227	0.012	0.032784	0.033
5/27/2015	0.00797	0.008	-0.020256	0
5/28/2015	-0.00083	0	0.010994	0.011
5/29/2015	-0.0019	0	-0.0352	0
6/1/2015	0.00081	0.001	-0.006353	0
6/3/2015	-0.02451	0	0.005922	0.006
6/4/2015	-0.00828	0	-0.023041	0
6/5/2015	-0.01934	0	-0.015854	0
6/8/2015	-0.04033	0	-0.019077	0
6/9/2015	-0.01366	0	-0.051166	0
6/10/2015	0.01414	0.014	0.029752	0.03
6/11/2015	0.01438	0.014	-0.018926	0
6/12/2015	-0.00359	0	0.010119	0.01
6/15/2015	-0.05028	0	-0.023437	0
6/16/2015	-0.00668	0	-0.011438	0
6/17/2015	0.01046	0.01	0.018843	0.019
6/18/2015	0.0172	0.017	0.014472	0.014
6/19/2015	-0.01441	0	0.001279	0.001
6/22/2015	0.0006	0.001	0.004039	0.004
6/23/2015	-0.00645	0	-0.024044	0
6/24/2015	-0.00518	0	0.019248	0.019
6/25/2015	-0.0054	0	-0.013886	0
6/26/2015	-0.01741	0	-0.020519	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
6/29/2015	-0.04793	0	-0.013284	0
6/30/2015	0.02631	0.026	-0.007398	0
7/1/2015	-0.01196	0	0.009012	0.009
7/2/2015	-0.0028	0	0.00739	0.007
7/3/2015	0.01581	0.016	0.026414	0.026
7/6/2015	-0.02352	0	-0.016979	0
7/7/2015	-0.01689	0	-0.006213	0
7/8/2015	0.00028	0	0.010169	0.01
7/9/2015	-0.02745	0	-0.013866	0
7/10/2015	0.01776	0.018	0.000968	0.001
7/13/2015	0.02953	0.03	0.00299	0.003
7/14/2015	0.00313	0.003	-0.008685	0
7/15/2015	0.00641	0.006	0.004314	0.004
7/22/2015	0.04145	0.041	-0.005082	0
7/23/2015	-0.03829	0	0.002295	0.002
7/24/2015	-0.0045	0	-0.004498	0
7/27/2015	-0.01908	0	-0.006398	0
7/28/2015	-0.01539	0	0.004868	0.005
7/29/2015	-0.00608	0	-0.007604	0
7/30/2015	-0.00531	0	-0.031884	0
7/31/2015	0.02188	0.022	0.032721	0.033
8/3/2015	0.02904	0.029	-0.02677	0
8/4/2015	0.0004	0	-0.010122	0
8/5/2015	0.00872	0.009	0.012149	0.012
8/6/2015	0.0069	0.007	-0.019378	0
8/7/2015	0.0028	0.003	0.003522	0.004
8/10/2015	0.0042	0.004	-0.00766	0
8/11/2015	-0.01197	0	-0.033544	0
8/12/2015	-0.02232	0	-0.047226	0
8/13/2015	-0.00712	0	0.0264	0.026
8/14/2015	0.01733	0.017	-0.010302	0
8/18/2015	0.00036	0	-0.007583	0
8/19/2015	0.01411	0.014	-0.02207	0
8/20/2015	-0.01392	0	-0.009117	0
8/21/2015	-0.00243	0	-0.009132	0
8/24/2015	0.0153	0.015	-0.049807	0
8/25/2015	-0.01841	0	0.077531	0.078
8/26/2015	-0.00346	0	-0.017101	0
8/27/2015	0.02264	0.023	0.067624	0.068

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
8/28/2015	-0.0279	0	-0.008801	0
8/31/2015	0.03368	0.034	0.049278	0.049
9/1/2015	-0.02901	0	-0.010085	0
9/2/2015	-0.00804	0	-0.006569	0
9/3/2015	-0.00828	0	0.000908	0.001
9/4/2015	-0.00661	0	0.013308	0.013
9/7/2015	-0.00461	0	-0.018145	0
9/8/2015	-0.00218	0	-0.011771	0
9/9/2015	-0.00169	0	0.004113	0.004
9/10/2015	0.00084	0.001	-0.007418	0
9/11/2015	-0.00486	0	0.024553	0.025
9/14/2015	-0.0011	0	0.040764	0.041
9/15/2015	0.00935	0.009	-0.023787	0
9/16/2015	0.0209	0.021	-0.013956	0
9/17/2015	0.04824	0.048	0.015827	0.016
9/18/2015	0.00048	0	0.001471	0.001
9/21/2015	-0.02811	0	-0.001489	0
9/22/2015	-0.02228	0	-0.024265	0
9/23/2015	-0.04463	0	-0.032768	0
9/25/2015	-0.0184	0	-0.026056	0
9/28/2015	-0.03998	0	-0.012084	0
9/29/2015	0.07941	0.079	0.044881	0.045
9/30/2015	0.01193	0.012	0.003065	0.003
10/1/2015	0.01794	0.018	0.023069	0.023
10/2/2015	-0.03768	0	-0.021338	0
10/5/2015	0.01674	0.017	0.030792	0.031
10/6/2015	0.05653	0.057	0.015853	0.016
10/7/2015	-0.02339	0	-0.006548	0
10/8/2015	-0.01586	0	0.014598	0.015
10/9/2015	0.05631	0.056	-0.00818	0
10/12/2015	0.0106	0.011	0.009583	0.01
10/13/2015	-0.02317	0	-0.018686	0
10/15/2015	0.03542	0.035	-0.017429	0
10/16/2015	0.00501	0.005	-0.014896	0
10/19/2015	0.01323	0.013	0.015406	0.015
10/20/2015	0.0042	0.004	0.010188	0.01
10/21/2015	-0.01371	0	0.000779	0.001
10/22/2015	0.01549	0.015	-0.010755	0
10/23/2015	0.02259	0.023	0.003486	0.003

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
10/26/2015	0.01356	0.014	0.005741	0.006
10/27/2015	0.00452	0.005	0.00081	0.001
10/28/2015	-0.02238	0	-0.011121	0
10/29/2015	-0.00256	0	-0.027863	0
10/30/2015	-0.01007	0	-0.010368	0
11/2/2015	-0.00753	0	-0.007148	0
11/3/2015	-0.0021	0	-0.00636	0
11/4/2015	0.00974	0.01	0.003027	0.003
11/5/2015	-0.01498	0	-0.008092	0
11/6/2015	-0.00747	0	0.004117	0.004
11/9/2015	-0.00983	0	-0.008666	0
11/10/2015	-0.0322	0	-0.037676	0
11/11/2015	-0.00582	0	-0.012993	0
11/12/2015	-0.00642	0	-0.022268	0
11/13/2015	-0.01176	0	0.041259	0.041
11/16/2015	-0.00795	0	0.002349	0.002
11/17/2015	0.0165	0.016	0.003777	0.004
11/18/2015	0.01166	0.012	0.005675	0.006
11/19/2015	-0.00855	0	0.006538	0.007
11/20/2015	0.02142	0.021	0.016878	0.017
11/23/2015	-0.00517	0	0.011726	0.012
11/24/2015	-0.01076	0	-0.012873	0
11/25/2015	-0.00468	0	0.023739	0.024
11/26/2015	-0.00313	0	-0.016274	0
11/27/2015	-0.00109	0	0.038112	0.038
11/30/2015	0.00313	0.003	-0.04093	0
12/1/2015	0.02921	0.029	0.014588	0.015
12/2/2015	0.00165	0.002	-0.016353	0
12/3/2015	-0.02083	0	-0.002859	0
12/4/2015	-0.01484	0	-0.017461	0
12/7/2015	-0.00656	0	-0.015431	0
12/8/2015	-0.02491	0	-0.022766	0
12/9/2015	-0.0048	0	-0.005989	0
12/10/2015	-0.02228	0	0.003438	0.003
12/11/2015	-0.03929	0	-0.021992	0
12/14/2015	0.00653	0.007	0.009128	0.009
12/15/2015	0.03109	0.031	-0.001923	0
12/16/2015	0.02941	0.029	0.005395	0.005
12/17/2015	0.0203	0.02	0.045861	0.046

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
12/18/2015	-0.01845	0	-0.023817	0
12/21/2015	0.03087	0.031	-0.007208	0
12/22/2015	0.02024	0.02	0.037091	0.037
12/23/2015	0.01147	0.011	-0.003698	0
12/28/2015	0.00126	0.001	0.012588	0.013
12/29/2015	0.01493	0.015	0.009351	0.009
12/30/2015	0.02848	0.028	-0.00342	0
1/4/2016	-0.01422	0	-0.025999	0
1/5/2016	-0.01301	0	-0.012183	0
1/6/2016	0.06486	0.065	0.04425	0.044
1/7/2016	0.00817	0.008	-0.034246	0
1/8/2016	0.02063	0.021	0.002326	0.002
1/11/2016	-0.00213	0	-0.024885	0
1/12/2016	0.01121	0.011	0.017306	0.017
1/13/2016	-0.00136	0	0.00007	0
1/14/2016	-0.00286	0	-0.010391	0
1/15/2016	0.01365	0.014	0.00613	0.006
1/18/2016	0.00253	0.003	-0.009734	0
1/19/2016	0.01789	0.018	0.00554	0.006
1/20/2016	0.01219	0.012	-0.008393	0
1/21/2016	0.0142	0.014	0.004335	0.004
1/22/2016	0.00951	0.01	-0.005681	0
1/25/2016	-0.02018	0	-0.000201	0
1/26/2016	0.02758	0.028	0.009225	0.009
1/27/2016	0.01704	0.017	0.037242	0.037
1/28/2016	0.0011	0.001	0.004898	0.005
1/29/2016	-0.02429	0	-0.010529	0
2/1/2016	0.0005	0	0.003645	0.004
2/2/2016	-0.00581	0	0.019261	0.019
2/3/2016	0.05616	0.056	0.033759	0.034
2/4/2016	0.01946	0.019	0.040866	0.041
2/5/2016	0.07843	0.078	0.026432	0.026
2/9/2016	-0.0319	0	0.016078	0.016
2/10/2016	-0.02689	0	0.008172	0.008
2/11/2016	-0.01985	0	0.022948	0.023
2/12/2016	-0.02451	0	-0.003982	0
2/15/2016	0.02699	0.027	0.014883	0.015
2/16/2016	0.01172	0.012	-0.00972	0
2/17/2016	0.01143	0.011	0.009466	0.009

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
2/18/2016	-0.01523	0	0.009816	0.01
2/19/2016	-0.01017	0	0.028097	0.028
2/22/2016	0.01818	0.018	0.020274	0.02
2/23/2016	-0.00685	0	-0.015167	0
2/24/2016	-0.02479	0	-0.009252	0
2/25/2016	-0.00991	0	0.016531	0.017
2/26/2016	0.01834	0.018	0.029287	0.029
2/29/2016	0.04077	0.041	0.019803	0.02
3/1/2016	-0.00101	0	0.025725	0.026
3/2/2016	0.01603	0.016	0.059017	0.059
3/3/2016	0.01199	0.012	-0.015944	0
3/4/2016	0.00111	0.001	-0.021491	0
3/7/2016	-0.0241	0	-0.023712	0
3/8/2016	-0.00123	0	-0.01853	0
3/10/2016	-0.01564	0	-0.022326	0
3/16/2016	0.0056	0.006	0.023735	0.024
3/17/2016	0.01347	0.013	-0.003996	0
3/18/2016	0.01065	0.011	0.012408	0.012
3/21/2016	0.00055	0.001	-0.008657	0
3/22/2016	-0.01951	0	-0.011282	0
3/23/2016	-0.00966	0	-0.014085	0
3/24/2016	-0.00724	0	-0.014361	0
3/28/2016	-0.01057	0	-0.01647	0
3/29/2016	-0.00794	0	0.018124	0.018
3/30/2016	0.00375	0.004	-0.000055	0
3/31/2016	0.00363	0.004	-0.001204	0
4/1/2016	0.0077	0.008	0.005602	0.006
4/4/2016	0.0089	0.009	0.008226	0.008
4/5/2016	-0.01143	0	-0.00237	0
4/6/2016	-0.00372	0	0.004634	0.005
4/7/2016	-0.00577	0	-0.007031	0
4/8/2016	-0.00123	0	-0.003937	0
4/12/2016	-0.00918	0	0.020995	0.021
4/19/2016	-0.00179	0	0.002673	0.003
4/20/2016	-0.00138	0	0.032203	0.032
4/21/2016	0.00053	0.001	0.032131	0.032
4/22/2016	0.00111	0.001	0.019004	0.019
4/25/2016	0.00464	0.005	-0.040826	0
4/26/2016	-0.01114	0	-0.021461	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
4/27/2016	-0.00289	0	0.001443	0.001
4/28/2016	0.00556	0.006	-0.017638	0
4/29/2016	0.0165	0.016	-0.02487	0
5/2/2016	0.00381	0.004	0.009693	0.01
5/3/2016	0.00185	0.002	0.010038	0.01
5/4/2016	0.00469	0.005	0.03127	0.031
5/9/2016	0.00478	0.005	-0.009585	0
5/10/2016	0.0016	0.002	-0.01161	0
5/11/2016	0.00771	0.008	0.007556	0.008
5/12/2016	0.005	0.005	0.000594	0.001
5/13/2016	0.005	0.005	0.002688	0.003
5/16/2016	-0.00631	0	-0.030221	0
5/17/2016	0.02751	0.028	-0.003601	0
5/18/2016	0.03471	0.035	-0.005867	0
5/19/2016	-0.02259	0	-0.006095	0
5/20/2016	0.00467	0.005	-0.008279	0
5/23/2016	0.00159	0.002	0.00729	0.007
5/24/2016	-0.00505	0	-0.011546	0
5/25/2016	0.00178	0.002	0.025852	0.026
5/26/2016	0.00032	0	0.002177	0.002
5/27/2016	0.0251	0.025	0.009332	0.009
5/30/2016	-0.01996	0	-0.003753	0
5/31/2016	0.01681	0.017	-0.013508	0
6/1/2016	-0.00279	0	0.008862	0.009
6/2/2016	-0.01475	0	-0.006456	0
6/3/2016	0.0112	0.011	-0.003025	0
6/6/2016	0.01454	0.015	0.000291	0
6/7/2016	0.02947	0.029	0.009905	0.01
6/8/2016	0.00223	0.002	0.004661	0.005
6/9/2016	-0.01447	0	-0.011222	0
6/10/2016	-0.00414	0	-0.006673	0
6/13/2016	-0.01092	0	-0.001513	0
6/14/2016	0.03196	0.032	0.010458	0.01
6/15/2016	-0.00447	0	0.007813	0.008
6/16/2016	0.00901	0.009	-0.003428	0
6/17/2016	0.01988	0.02	0.000479	0
6/20/2016	0.01407	0.014	0.000923	0.001
6/21/2016	-0.00293	0	0.004918	0.005
6/22/2016	0.02697	0.027	-0.008235	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
6/23/2016	-0.01371	0	-0.0007	0
6/24/2016	-0.00437	0	0.001791	0.002
6/27/2016	0.01205	0.012	-0.009843	0
6/28/2016	0.00469	0.005	0.010615	0.011
6/29/2016	-0.01573	0	0.03234	0.032
6/30/2016	0.01221	0.012	0.00697	0.007
7/1/2016	-0.01504	0	-0.024575	0
7/11/2016	0.0263	0.026	0.025701	0.026
7/12/2016	0.00116	0.001	-0.012003	0
7/13/2016	-0.00109	0	0.013989	0.014
7/14/2016	-0.01936	0	-0.012462	0
7/15/2016	-0.00183	0	0.00384	0.004
7/18/2016	-0.00589	0	-0.013379	0
7/19/2016	0.01008	0.01	0.003773	0.004
7/20/2016	0.01907	0.019	0.006802	0.007
7/21/2016	-0.01185	0	-0.000969	0
7/22/2016	0.01021	0.01	-0.008213	0
7/25/2016	0.01148	0.011	0.014132	0.014
7/26/2016	0.02212	0.022	0.007083	0.007
7/27/2016	0.00994	0.01	0.037989	0.038
7/28/2016	-0.01271	0	0.032279	0.032
7/29/2016	-0.02764	0	-0.05042	0
8/1/2016	0.03421	0.034	-0.001392	0
8/2/2016	-0.01159	0	0.004974	0.005
8/3/2016	0.00014	0	0.000894	0.001
8/4/2016	0.00577	0.006	0.008778	0.009
8/5/2016	0.00925	0.009	-0.004134	0
8/8/2016	-0.00956	0	-0.013098	0
8/9/2016	-0.00866	0	0.011354	0.011
8/10/2016	-0.00119	0	0.000071	0
8/11/2016	-0.00378	0	0.008564	0.009
8/12/2016	-0.01551	0	-0.011087	0
8/15/2016	0.00312	0.003	-0.014672	0
8/16/2016	0.0073	0.007	0.010641	0.011
8/18/2016	0.05309	0.053	0.005007	0.005
8/19/2016	-0.01236	0	-0.005816	0
8/22/2016	0.02746	0.027	0.000682	0.001
8/23/2016	0.0161	0.016	0.003713	0.004
8/24/2016	0.00015	0	-0.008351	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
8/25/2016	0.03793	0.038	0.0166	0.017
8/26/2016	0.02263	0.023	0.012771	0.013
8/29/2016	-0.02101	0	-0.01764	0
8/30/2016	0.023	0.023	-0.008631	0
8/31/2016	0.0323	0.032	0.010298	0.01
9/1/2016	0.00944	0.009	-0.008301	0
9/2/2016	-0.02477	0	0.007837	0.008
9/5/2016	-0.02561	0	-0.01205	0
9/6/2016	-0.00032	0	0.003523	0.004
9/7/2016	0.02152	0.022	0.011758	0.012
9/8/2016	0.01175	0.012	-0.000589	0
9/9/2016	-0.03654	0	-0.021826	0
9/13/2016	-0.00309	0	-0.002253	0
9/14/2016	-0.04575	0	-0.015464	0
9/15/2016	0.03862	0.039	0.00274	0.003
9/16/2016	0.00281	0.003	-0.00441	0
9/19/2016	0.02394	0.024	-0.000458	0
9/20/2016	-0.00699	0	0.00239	0.002
9/21/2016	0.00128	0.001	0.010408	0.01
9/22/2016	-0.01212	0	-0.002449	0
9/23/2016	0.00172	0.002	0.017071	0.017
9/26/2016	-0.01628	0	-0.01264	0
9/27/2016	-0.00769	0	0.012477	0.012
9/28/2016	0.03186	0.032	0.002282	0.002
9/29/2016	0.01281	0.013	0.006831	0.007
9/30/2016	-0.0228	0	-0.023678	0
10/3/2016	0.02778	0.028	0.011958	0.012
10/4/2016	0.00302	0.003	-0.002981	0
10/5/2016	-0.00023	0	-0.005258	0
10/6/2016	0.00148	0.001	0.006839	0.007
10/7/2016	-0.0144	0	-0.014565	0
10/10/2016	0.0041	0.004	0.00033	0
10/11/2016	0.01783	0.018	0.013411	0.013
10/12/2016	0.00216	0.002	-0.004128	0
10/13/2016	-0.03205	0	-0.01098	0
10/14/2016	0.0307	0.031	0.009629	0.01
10/17/2016	-0.01864	0	-0.00557	0
10/18/2016	-0.00895	0	-0.006122	0
10/19/2016	-0.00977	0	-0.004601	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
10/20/2016	0.00019	0	-0.001965	0
10/21/2016	0.00894	0.009	-0.004498	0
10/24/2016	-0.00773	0	0.004328	0.004
10/25/2016	0.00957	0.01	0.000454	0
10/26/2016	-0.0072	0	0.001692	0.002
10/27/2016	0.00473	0.005	-0.001428	0
10/28/2016	-0.00496	0	0.002182	0.002
10/31/2016	-0.01366	0	-0.000833	0
11/1/2016	-0.02355	0	-0.00052	0
11/2/2016	-0.00979	0	-0.000616	0
11/3/2016	-0.04305	0	-0.005767	0
11/4/2016	0.02539	0.025	-0.00548	0
11/7/2016	0.01705	0.017	-0.000803	0
11/8/2016	0.03273	0.033	0.007573	0.008
11/9/2016	-0.00837	0	0.000614	0.001
11/10/2016	-0.00064	0	-0.01488	0
11/11/2016	-0.07025	0	-0.065763	0
11/14/2016	-0.03419	0	-0.011072	0
11/15/2016	0.00195	0.002	-0.008682	0
11/16/2016	0.01403	0.014	-0.00293	0
11/17/2016	0.02861	0.029	-0.018604	0
11/18/2016	0.00233	0.002	-0.011252	0
11/21/2016	-0.03457	0	-0.010854	0
11/22/2016	-0.00898	0	-0.009323	0
11/23/2016	0.00246	0.002	0.012301	0.012
11/24/2016	-0.02776	0	-0.009088	0
11/25/2016	-0.0374	0	0.000889	0.001
11/28/2016	0.00119	0.001	-0.003282	0
11/29/2016	0.00404	0.004	0.012054	0.012
11/30/2016	0.02371	0.024	-0.001197	0
12/1/2016	-0.00157	0	0.034516	0.035
12/2/2016	0.01505	0.015	0.016794	0.017
12/5/2016	0.01654	0.017	0.001594	0.002
12/6/2016	-0.01628	0	-0.006563	0
12/7/2016	-0.00262	0	-0.010365	0
12/8/2016	0.01981	0.02	0.002071	0.002
12/9/2016	0.00243	0.002	-0.000236	0
12/13/2016	0.01312	0.013	-0.017818	0
12/14/2016	0.0001	0	-0.019502	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
12/15/2016	-0.02365	0	-0.002061	0
12/16/2016	-0.01048	0	-0.007312	0
12/19/2016	-0.03792	0	-0.005937	0
12/20/2016	-0.02466	0	-0.007549	0
12/21/2016	-0.0384	0	-0.032028	0
12/22/2016	-0.02877	0	-0.020063	0
12/23/2016	-0.03928	0	-0.009326	0
12/27/2016	0.04019	0.04	0.00327	0.003
12/28/2016	0.04386	0.044	0.025833	0.026
12/29/2016	0.03958	0.04	0.020076	0.02
12/30/2016	0.00195	0.002	-0.02603	0
1/2/2017	0.00526	0.005	-0.001367	0
1/3/2017	0.00698	0.007	-0.000353	0
1/4/2017	0.00352	0.004	0.034173	0.034
1/5/2017	-0.00019	0	0.013461	0.013
1/6/2017	-0.00411	0	0.006034	0.006
1/9/2017	0.03234	0.032	-0.007459	0
1/10/2017	0.00168	0.002	-0.00024	0
1/11/2017	-0.01992	0	-0.002577	0
1/12/2017	-0.00345	0	-0.000699	0
1/13/2017	-0.00371	0	-0.008948	0
1/16/2017	-0.00982	0	-0.000805	0
1/17/2017	-0.00485	0	-0.000951	0
1/18/2017	0.01581	0.016	0.030976	0.031
1/19/2017	0.00375	0.004	-0.008027	0
1/20/2017	-0.01068	0	0.003731	0.004
1/23/2017	-0.00661	0	0.018427	0.018
1/24/2017	0.00165	0.002	0.022758	0.023
1/25/2017	0.01401	0.014	0.003089	0.003
1/26/2017	-0.00444	0	0.001241	0.001
1/27/2017	0.00033	0	-0.000109	0
1/30/2017	-0.00856	0	-0.007728	0
1/31/2017	-0.00982	0	-0.003441	0
2/1/2017	0.00111	0.001	0.001062	0.001
2/2/2017	0.0019	0.002	0.006363	0.006
2/3/2017	-0.00044	0	0.011572	0.012
2/6/2017	0.01434	0.014	-0.00496	0
2/7/2017	-0.01011	0	0.001128	0.001
2/8/2017	0.00269	0.003	0.000476	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
2/9/2017	0.00018	0	0.002741	0.003
2/10/2017	0.00601	0.006	0.018974	0.019
2/13/2017	-0.005	0	-0.000898	0
2/14/2017	-0.00599	0	0.001725	0.002
2/15/2017	-0.00082	0	0.001257	0.001
2/16/2017	-0.00657	0	0.005033	0.005
2/17/2017	-0.00423	0	0.001289	0.001
2/20/2017	-0.00135	0	-0.010866	0
2/21/2017	-0.01608	0	0.014225	0.014
2/22/2017	-0.00273	0	0.004432	0.004
2/23/2017	0.00393	0.004	-0.013141	0
2/24/2017	0.00215	0.002	-0.001091	0
2/27/2017	0.00272	0.003	-0.000795	0
2/28/2017	-0.00283	0	-0.002356	0
3/1/2017	-0.00628	0	-0.000691	0
3/2/2017	-0.00399	0	-0.002283	0
3/3/2017	-0.00417	0	-0.003609	0
3/6/2017	0.00781	0.008	0.008572	0.009
3/7/2017	-0.0089	0	0.003123	0.003
3/8/2017	-0.00407	0	-0.000264	0
3/9/2017	-0.0073	0	0.000489	0
3/10/2017	-0.0017	0	-0.002594	0
3/13/2017	0.01993	0.02	0.002176	0.002
3/14/2017	0.00769	0.008	-0.004507	0
3/15/2017	0.01396	0.014	-0.001145	0
3/16/2017	0.0436	0.044	0.032737	0.033
3/17/2017	-0.00666	0	0.013788	0.014
3/20/2017	0.00693	0.007	0.003066	0.003
3/21/2017	0.00351	0.004	0.003222	0.003
3/22/2017	0.01127	0.011	-0.022429	0
3/23/2017	0.00035	0	-0.010228	0
3/24/2017	-0.01804	0	0.012463	0.012
3/27/2017	-0.02151	0	0.004935	0.005
3/29/2017	-0.00932	0	0.007821	0.008
3/30/2017	-0.01841	0	0.002859	0.003
3/31/2017	-0.01673	0	-0.007196	0
4/3/2017	0.02812	0.028	0.012352	0.012
4/4/2017	-0.00264	0	0.010787	0.011
4/5/2017	-0.00909	0	0.01886	0.019

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
4/6/2017	-0.01333	0	0.004359	0.004
4/7/2017	-0.00861	0	0.005398	0.005
4/10/2017	-0.00272	0	0.007076	0.007
4/11/2017	-0.00824	0	-0.006268	0
4/12/2017	-0.0055	0	0.013283	0.013
4/13/2017	0.00082	0.001	-0.000977	0
4/17/2017	0.00172	0.002	0.000646	0.001
4/18/2017	0.00546	0.005	0.00079	0.001
4/19/2017	0.00028	0	0.000576	0.001
4/20/2017	-0.00284	0	0.00042	0
4/21/2017	0.02693	0.027	0.005261	0.005
4/25/2017	0.01514	0.015	-0.003984	0
4/26/2017	0.00701	0.007	0.010937	0.011
4/27/2017	0.02385	0.024	0.000535	0.001
4/28/2017	0.01391	0.014	-0.026681	0
5/2/2017	-0.02075	0	0.014382	0.014
5/3/2017	0.00654	0.007	-0.004241	0
5/4/2017	0.0013	0.001	0.006647	0.007
5/5/2017	0.00391	0.004	0.001795	0.002
5/8/2017	-0.00175	0	0.012151	0.012
5/9/2017	0.00342	0.003	0.006561	0.007
5/10/2017	0.00943	0.009	0.005516	0.006
5/12/2017	-0.00986	0	0.011809	0.012
5/15/2017	0.00274	0.003	0.028341	0.028
5/16/2017	-0.00557	0	0.001849	0.002
5/17/2017	0.01392	0.014	0.002715	0.003
5/18/2017	0.00143	0.001	-0.001087	0
5/19/2017	0.04605	0.046	0.025728	0.026
5/22/2017	-0.03261	0	-0.022377	0
5/23/2017	0.00862	0.009	0.024288	0.024
5/24/2017	0.00116	0.001	-0.015929	0
5/26/2017	-0.00194	0	-0.001039	0
5/29/2017	0.00317	0.003	-0.008347	0
5/30/2017	-0.01652	0	-0.029919	0
5/31/2017	0.00116	0.001	-0.001598	0
6/1/2017	-0.00096	0	-0.00336	0
6/2/2017	-0.00074	0	0.01313	0.013
6/5/2017	0.01086	0.011	0.006412	0.006
6/6/2017	-0.00468	0	-0.006153	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
6/7/2017	-0.0028	0	0.007796	0.008
6/8/2017	-0.02939	0	0.00846	0.008
6/9/2017	-0.01286	0	0.001897	0.002
6/12/2017	0.00468	0.005	-0.006005	0
6/13/2017	0.00083	0.001	0.014615	0.015
6/14/2017	0.02773	0.028	0.014592	0.015
6/15/2017	0.00274	0.003	0.010632	0.011
6/16/2017	0.00212	0.002	-0.018135	0
6/19/2017	-0.00697	0	-0.004852	0
6/20/2017	0.01163	0.012	0.01245	0.012
6/21/2017	0.00444	0.004	0.01666	0.017
6/22/2017	0.0016	0.002	-0.000862	0
6/23/2017	0.00124	0.001	0.001736	0.002
6/26/2017	0.00096	0.001	0.001266	0.001
6/27/2017	0.00074	0.001	0.000923	0.001
6/28/2017	0.00057	0.001	0.000673	0.001
6/29/2017	0.00044	0	0.00049	0
6/30/2017	0.00034	0	0.000358	0
7/3/2017	0.00026	0	0.013492	0.013
7/4/2017	0.0002	0	-0.01207	0
7/5/2017	-0.01415	0	-0.005699	0
7/6/2017	-0.01915	0	0.007032	0.007
7/7/2017	-0.00649	0	-0.016118	0
7/10/2017	-0.00313	0	-0.031217	0
7/11/2017	-0.00536	0	0.01046	0.01
7/12/2017	0.00363	0.004	0.014817	0.015
7/13/2017	0.00777	0.008	0.005278	0.005
7/14/2017	0.01192	0.012	0.003519	0.004
7/17/2017	-0.004	0	-0.0043	0
7/18/2017	-0.00227	0	-0.013921	0
7/19/2017	-0.01449	0	-0.005169	0
7/20/2017	-0.00178	0	0.014238	0.014
7/21/2017	-0.00433	0	-0.010435	0
7/24/2017	0.01899	0.019	0.012028	0.012
7/25/2017	0.00439	0.004	-0.004977	0
7/26/2017	-0.00425	0	-0.006293	0
7/27/2017	-0.00246	0	0.000079	0
7/28/2017	-0.01467	0	0.01141	0.011
7/31/2017	-0.01676	0	0.013222	0.013

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
8/1/2017	-0.00637	0	-0.006944	0
8/2/2017	-0.006	0	0.000575	0.001
8/3/2017	-0.0027	0	-0.015697	0
8/4/2017	-0.00209	0	-0.00475	0
8/7/2017	-0.00463	0	-0.012511	0
8/8/2017	0.00739	0.007	0.004395	0.004
8/9/2017	-0.00011	0	0.013054	0.013
8/10/2017	-0.00609	0	-0.000214	0
8/11/2017	0.00517	0.005	-0.010246	0
8/14/2017	0.00012	0	0.014551	0.015
8/15/2017	0.00607	0.006	0.002587	0.003
8/16/2017	0.03305	0.033	0.022793	0.023
8/17/2017	0.00478	0.005	0.004184	0.004
8/18/2017	0.00657	0.007	0.00558	0.006
8/21/2017	0.00035	0	-0.020913	0
8/22/2017	0.00787	0.008	0.017818	0.018
8/23/2017	0.00238	0.002	0.01484	0.015
8/24/2017	-0.01259	0	-0.005307	0
8/25/2017	0.02823	0.028	0.010124	0.01
8/28/2017	-0.00232	0	-0.000859	0
8/29/2017	-0.01245	0	0.015071	0.015
8/30/2017	-0.00328	0	0.002917	0.003
8/31/2017	0.00796	0.008	0.003116	0.003
9/1/2017	0.00058	0.001	0.0017	0.002
9/4/2017	-0.0053	0	0.009612	0.01
9/5/2017	-0.01198	0	0.002657	0.003
9/6/2017	0.02127	0.021	-0.00622	0
9/7/2017	-0.00414	0	0.000017	0
9/8/2017	0.00048	0	0.003957	0.004
9/11/2017	-0.00249	0	-0.004824	0
9/12/2017	0.00851	0.009	0.001105	0.001
9/13/2017	0.00104	0.001	0.011736	0.012
9/14/2017	-0.00491	0	-0.000214	0
9/15/2017	-0.00298	0	-0.002456	0
9/18/2017	0.00813	0.008	0.001664	0.002
9/19/2017	0.00643	0.006	0.000362	0
9/20/2017	0.00414	0.004	0.000264	0
9/21/2017	0.00137	0.001	0.000193	0
9/22/2017	0.00388	0.004	-0.019662	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
9/25/2017	0.004	0.004	-0.008904	0
9/26/2017	-0.01002	0	-0.010079	0
9/27/2017	0.00238	0.002	0.009823	0.01
9/28/2017	-0.01139	0	-0.016533	0
9/29/2017	-0.00145	0	-0.007312	0
10/2/2017	0.01592	0.016	0.021028	0.021
10/3/2017	-0.0186	0	0.014993	0.015
10/4/2017	0.00705	0.007	0.004675	0.005
10/5/2017	-0.01155	0	-0.013286	0
10/6/2017	-0.00442	0	-0.003025	0
10/9/2017	0.00421	0.004	-0.004269	0
10/10/2017	-0.00047	0	-0.010668	0
10/11/2017	0.00251	0.003	-0.011402	0
10/12/2017	-0.00278	0	-0.000459	0
10/13/2017	0.01397	0.014	0.003278	0.003
10/16/2017	-0.01267	0	-0.001568	0
10/17/2017	0.0165	0.017	0.015573	0.016
10/18/2017	0.00455	0.005	0.001528	0.002
10/19/2017	0.00732	0.007	-0.004618	0
10/20/2017	-0.02063	0	-0.002405	0
10/23/2017	0.0129	0.013	-0.008402	0
10/24/2017	-0.01343	0	-0.001439	0
10/25/2017	0.01584	0.016	0.006046	0.006
10/26/2017	0.00406	0.004	0.000811	0.001
10/27/2017	0.00133	0.001	-0.007302	0
10/30/2017	-0.00744	0	-0.000929	0
10/31/2017	-0.00313	0	0.008437	0.008
11/1/2017	0.00508	0.005	0.000882	0.001
11/2/2017	-0.02548	0	-0.009998	0
11/3/2017	0.02266	0.023	0.015033	0.015
11/6/2017	-0.01045	0	-0.012524	0
11/7/2017	-0.02096	0	0.002594	0.003
11/8/2017	-0.01195	0	0.001862	0.002
11/9/2017	-0.00358	0	-0.002851	0
11/10/2017	0.00017	0	-0.002861	0
11/13/2017	0.00116	0.001	0.000398	0
11/14/2017	-0.00099	0	-0.005389	0
11/15/2017	0.00215	0.002	-0.000985	0
11/16/2017	0.01998	0.02	0.004881	0.005

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
11/17/2017	0.02502	0.025	0.00841	0.008
11/20/2017	0.00197	0.002	-0.003087	0
11/21/2017	0.00052	0.001	-0.000131	0
11/22/2017	-0.00625	0	0.001209	0.001
11/23/2017	-0.01077	0	-0.001728	0
11/24/2017	-0.02123	0	0.008988	0.009
11/27/2017	0.01117	0.011	0.013281	0.013
11/28/2017	-0.00073	0	0.014593	0.015
11/29/2017	0.0109	0.011	-0.011516	0
11/30/2017	-0.03671	0	-0.018132	0
12/1/2017	-0.00404	0	-0.002472	0
12/4/2017	0.03176	0.032	-0.001802	0
12/5/2017	-0.00944	0	0.005761	0.006
12/6/2017	0.02297	0.023	0.00011	0
12/7/2017	-0.01695	0	0.013087	0.013
12/8/2017	0.01124	0.011	0.013879	0.014
12/11/2017	-0.00729	0	0.005225	0.005
12/12/2017	0.01133	0.011	0.004634	0.005
12/13/2017	-0.00146	0	0.000287	0
12/14/2017	0.00355	0.004	0.001341	0.001
12/15/2017	-0.00765	0	0.022797	0.023
12/18/2017	0.02227	0.022	0.020181	0.02
12/19/2017	-0.00302	0	0.026375	0.026
12/20/2017	0.00691	0.007	-0.013463	0
12/21/2017	0.01839	0.018	0.012385	0.012
12/22/2017	-0.00483	0	0.013741	0.014
12/25/2017	0.00162	0.002	0.003843	0.004
12/26/2017	0.00125	0.001	0.002801	0.003
12/27/2017	0.00097	0.001	0.002042	0.002
12/28/2017	-0.01042	0	0.006557	0.007
12/29/2017	-0.00085	0	0.02905	0.029
1/1/2018	-0.00066	0	0.005453	0.005
1/2/2018	0.02171	0.022	0.003528	0.004
1/3/2018	0.00245	0.002	-0.031302	0
1/4/2018	0.00464	0.005	-0.01426	0
1/5/2018	0.01812	0.018	0.007237	0.007
1/8/2018	-0.0266	0	0.006196	0.006
1/9/2018	-0.01514	0	-0.016432	0
1/10/2018	-0.01973	0	0.010665	0.011

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
1/11/2018	-0.00426	0	0.003483	0.003
1/12/2018	0.01093	0.011	-0.001626	0
1/15/2018	-0.00073	0	0.006576	0.007
1/16/2018	-0.00056	0	0.008376	0.008
1/17/2018	0.00239	0.002	-0.010002	0
1/18/2018	0.00003	0	-0.000419	0
1/19/2018	-0.0199	0	0.001533	0.002
1/22/2018	-0.00254	0	-0.000864	0
1/23/2018	0.01513	0.015	0.01992	0.02
1/24/2018	0.00067	0.001	0.004749	0.005
1/25/2018	-0.00231	0	-0.007974	0
1/26/2018	0.00004	0	-0.008473	0
1/29/2018	0.00568	0.006	0.014297	0.014
1/30/2018	-0.01917	0	-0.008038	0
1/31/2018	0.0009	0.001	-0.009049	0
2/1/2018	-0.00403	0	-0.001571	0
2/2/2018	0.01017	0.01	0.010278	0.01
2/5/2018	-0.00521	0	-0.015602	0
2/6/2018	-0.00035	0	-0.006006	0
2/7/2018	0.00826	0.008	0.012306	0.012
2/8/2018	0.01495	0.015	-0.004784	0
2/9/2018	-0.00031	0	0.018368	0.018
2/12/2018	-0.00124	0	-0.004652	0
2/13/2018	0.00085	0.001	-0.000567	0
2/14/2018	0.00626	0.006	-0.007392	0
2/15/2018	0.00402	0.004	0.000019	0
2/16/2018	0.00131	0.001	-0.000516	0
2/19/2018	0.01484	0.015	0.004196	0.004
2/20/2018	-0.02248	0	-0.005992	0
2/21/2018	-0.00688	0	0.000254	0
2/22/2018	0.00679	0.007	-0.009562	0
2/23/2018	0.00259	0.003	0.006656	0.007
2/26/2018	0.00019	0	-0.008707	0
2/27/2018	0.00852	0.009	-0.001282	0
2/28/2018	-0.00159	0	-0.002325	0
3/1/2018	0.00334	0.003	0.000499	0
3/2/2018	0.01184	0.012	-0.00183	0
3/5/2018	-0.00902	0	0.00086	0.001
3/6/2018	-0.00822	0	-0.027409	0

Date	Residual ICBP	Tranformasi ICBP	Residual UNVR	Tranformasi UNVR
3/7/2018	-0.02362	0	-0.030765	0
3/8/2018	0.00492	0.005	-0.006116	0
3/9/2018	0.02075	0.021	-0.0178	0
3/12/2018	0.0126	0.013	-0.00757	0
3/13/2018	-0.03947	0	-0.004374	0
3/14/2018	-0.00624	0	-0.009652	0
3/15/2018	-0.01163	0	-0.0033	0
3/16/2018	0.01098	0.011	-0.010921	0
3/19/2018	0.00774	0.008	0.000977	0.001
3/20/2018	-0.02826	0	0.000393	0
3/21/2018	-0.0004	0	0.024309	0.024

Lampiran 11 Program Untuk Membangkitkan Bilangan Residual

Estimasi Value at Risk Pada Portofolio Saham Menggunakan Metode Copula-GARCH

Oleh : Yayuk Tri Lestari

NIM :14610031

ESTIMASI PARAMETER COPULA ARCHAMEDIAN

1. COPULA CLAYTON

```
%Nama: Yayuk Tri Lestari
%NIM: 14610031


%mencari estimasi model copula menggunakan Kendall's Tau
disp('parameter Copula Clayton')
tau=0.207
theta_clayton=copulaparam('clayton',tau)
```

```
parameter Copula Clayton

tau =

    0.2070


theta_clayton =

    0.5221

>> corelasi
```

2. COPULA FRANK

```
%Nama: Yayuk Tri Lestari
%NIM: 14610031


%mencari estimasi model copula menggunakan Kendall's Tau
disp('parameter Copula Clayton')
tau=0.207
```

```
theta_clayton=copulaparam('clayton',tau)
```

```
tau =

    0.2070


theta_frank =

    1.9307
```

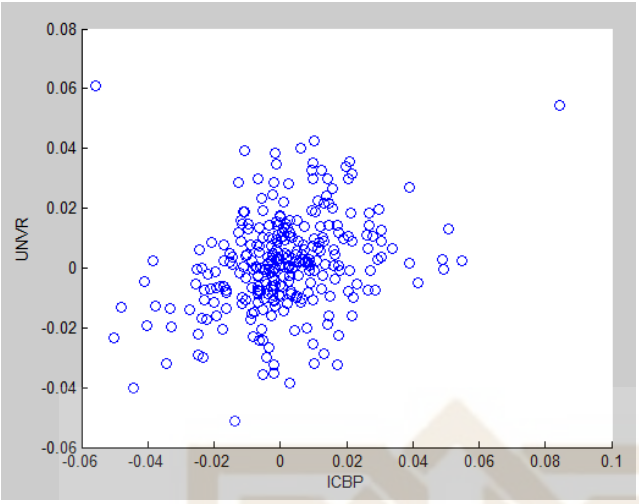
3. COPULA GUMBEL

```
%Nama: Yayuk Tri Lestari
%NIM: 14610031


%mencari estimasi model copula menggunakan Kendall's Tau
disp('parameter Copula Clayton')
tau=0.207
theta_clayton=copulaparam('clayton',tau)
```

```
tau =

    0.2070


theta_gumbel =

    1.2610
```

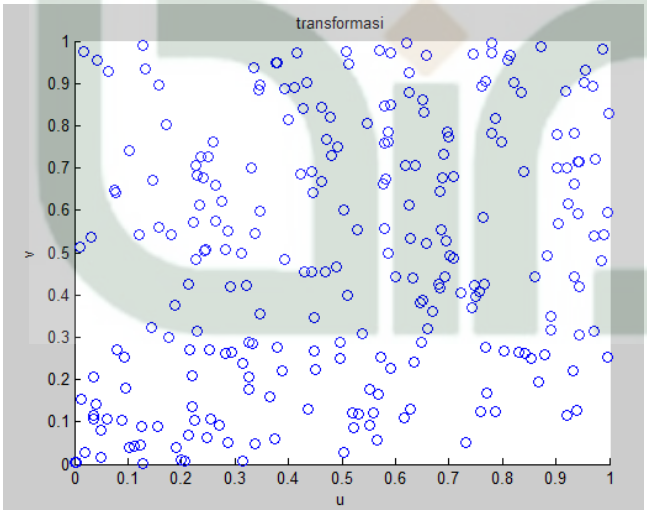
struktur dependensi residual *return* ICBP dan *return* UNVR yang belum di transformasi

```
%scatterplot residual model GARCH dari masing-masing return
X=residuals(:,1)
Y=residuals(:,2)
scatter(X,Y)
xlabel('ICBP')
ylabel('UNVR')
```



struktur dependensi residual *return* ICBP dan *return* UNVR yang telah di transformasi

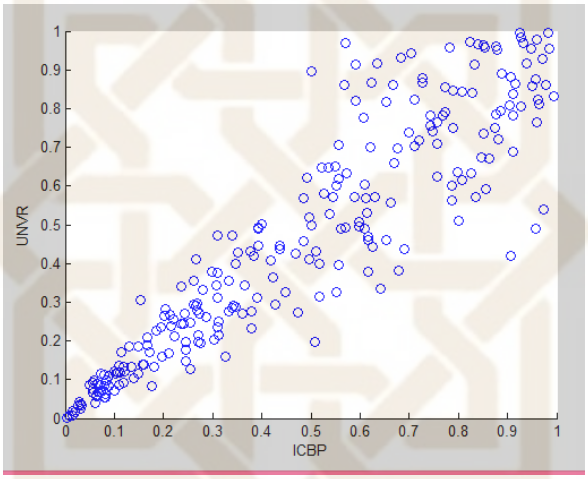
```
%scatterplot data residual setelah dilakukan transformasi
kedistribusi
%Unifprm(0,1)
u=revisitransAutosavedS1(:,1)
v=revisitransAutosavedS1(:,2)
scatter(revisitransAutosavedS1(:,1),revisitransAutosavedS1(:,2))
xlabel('u'), ylabel('v')
title('transformasi')
```



struktur dependensi residual *return* ICBP dan *return* UNVR yang telah di transformasi menggunakkan copula Archamedian

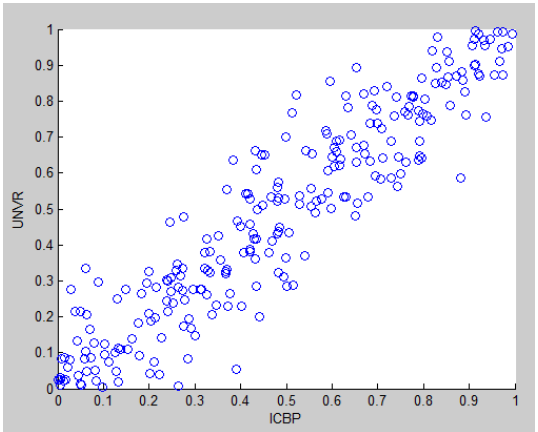
1. Copula Clayton

```
%scatterplot untuk struktur dependensi pada copul
Archamedian
revisitransAutosavedS1=copularnd('clayton',theta_clayton,250
);
figure
u=revisitransAutosavedS1(:,1)
v=revisitransAutosavedS1(:,2)
scatter(revisitransAutosavedS1(:,1),revisitransAutosavedS1(:
,2))
xlabel('ICBP'), ylabel('UNVR')
```



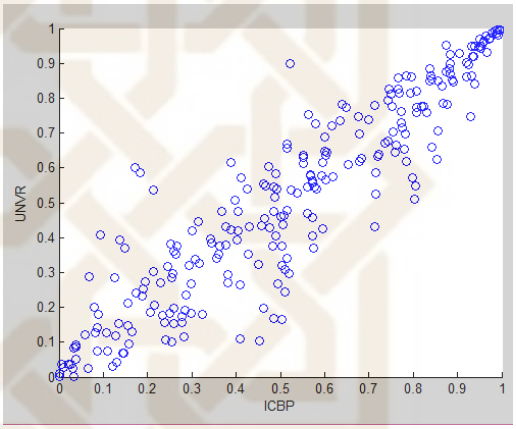
2. Copula Frank

```
%scatterplot untuk struktur dependensi pada copula
Archamedian
revisitransAutosavedS1=copularnd('frank',theta_frank,250);
figure
u=revisitransAutosavedS1(:,1)
v=revisitransAutosavedS1(:,2)
scatter(revisitransAutosavedS1(:,1),revisitransAutosavedS1(:
,2))
xlabel('ICBP'), ylabel('UNVR')
```



3. Copula Gumbel

```
%scatterplot untuk struktur dependensi pada copula
Archamedian
revisitransAutosavedS1=copularnd('gumbel',theta_gumbel,250);
figure
u=revisitransAutosavedS1(:,1)
v=revisitransAutosavedS1(:,2)
scatter(revisitransAutosavedS1(:,1),revisitransAutosavedS1(:
,2))
xlabel('ICBP'), ylabel('UNVR')
```



Perhitungan Value at Risk(VaR) dengan simulasi Monte Carlo Copula Archamedian

Perhitungan *Value at Risk* menggunakan simulasi *Monte Carlo* copula Frank, copula Clayton dan copula Gumbel memiliki enam tahapan, yaitu membangkitkan bilangan random sebanyal M kali berdasarkan masing-masing copula, melakukan simulasi *return* bivariate, melakukan simulasi *return* berdasarkan data *return*, variansi, residual, dan simulasi *return* bivariate, menghitung *return* portofolio baru kemudian menghitung *Value at Risk*

1. Copula Clayton

```
%membentuk simulasi return pasangan saham
s=RandStream. getGlobalStream();
reset(s)
M=10000;
t=1;

Rt=zeros(t,M,2);
 %simulasi bilangan random copula clayton
```

```
revisitransAutoSavedS1=copularnd('clayton',theta_clayton,t*M
);
%melakukan simulasi return bivariat menggunakan invers dari
fungsi
%distribusi marginal
for j=1:2

Rt(:,:,j)=reshape(icdf('unif',revisitransAutoSavedS1(:,j)),t
,M);
end

Y0=logreturn(end,:);
X0=residuals(end,:);
V0=volatilitasS1(end,:);

%simulasi return berdasarkan return, resiko dan residual
simulatedReturns=zeros(t,M,2);
for i=1:2
    simulatedReturns(:,:,i)=filter(Rt(:,:,i), ...
        'Y0',Y0(i), 'Z0',Z0(i),'V0',V0(i));
end
simulatedReturns=permute(simulatedReturns,[1 3 2]);
```

2. Copula Frank

```
%membentuk simulasi return pasangan saham
s=RandStream. getGlobalStream();
reset(s)
M=10000;
t=1;

Rt=zeros(t,M,2);

%simulasi bilangan random copula frank
revisitransAutoSavedS1=copularnd('frank',theta_frank,t*M);
%melakukan simulasi return bivariat menggunakan invers dari
fungsi
%distribusi marginal
for j=1:2

Rt(:,:,j)=reshape(icdf('unif',revisitransAutoSavedS1(:,j)),t
,M);
end

Y0=logreturn(end,:);
X0=residuals(end,:);
V0=volatilitasS1(end,:);

%simulasi return berdasarkan return, resiko dan residual
simulatedReturns=zeros(t,M,2);
for i=1:2
    simulatedReturns(:,:,i)=filter(Rt(:,:,i), ...
        'Y0',Y0(i), 'Z0',Z0(i),'V0',V0(i));
end
```

```
simulatedReturns=permute(simulatedReturns,[1 3 2]);
```

3. Copula Gumbel

```
%membentuk simulasi return pasangan saham
s=RandStream. getGlobalStream();
reset(s)
M=10000;
t=1;

Rt=zeros(t,M,2);

%simulasi bilangan random copula gumbel
revisitransAutoSavedS1=copularnd('gumbel',theta_gumbel,t*M);
%melakukan simulasi return bivariat menggunakan invers dari
fungsi
%distribusi marginal
for j=1:2

Rt(:,:,j)=reshape(icdf('unif',revisitransAutoSavedS1(:,j)),t
,M);
end

Y0=logreturn(end,:);
X0=residuals(end,:);
V0=volatilitasS1(end,:);

%simulasi return berdasarkan return, resiko dan residual
simulatedReturns=zeros(t,M,2);
for i=1:2
    simulatedReturns(:,:,i)=filter(Rt(:,:,i), ...
        'Y0',Y0(i), 'Z0',Z0(i),'V0',V0(i));
end
simulatedReturns=permute(simulatedReturns,[1 3 2]);
```

DAFTAR RIWAYAT HIDUP

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