

**ANALISIS RISIKO DENGAN VALUE AT RISK (VAR) -  
EXPONENTIAL GENERALIZED AUTOREGRESSIVE  
CONDITIONAL HETEROKESTASTICITY IN MEAN (EGARCH-M)**  
(Studi kasus: Indeks harga saham JII periode 1 Januari 2014 sampai 31  
Desember 2015)

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untuk memenuhi sebagian persyaratan  
mencapai derajat Sarjana S-1

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*Assalamu'alaikum wr. wb.*

Setelah membaca, meneliti, memberikan petunjuk dan mengoreksi serta mengadakan perbaikan seperlunya, maka kami selaku pembimbing berpendapat bahwa skripsi Saudara:

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Dengan ini kami mengharap agar skripsi/tugas akhir Saudara tersebut di atas dapat segera dimunaqsyahkan. Atas perhatiannya kami ucapan terima kasih.

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## **HALAMAN PERSEMBAHAN**

**Karya kecil ini kupersembahkan untuk**

**Orang tuaku Tercinta**

**Ibu Darti & Bapak Sudarman**

**Serta Kakak-kakakku**

**Bambang Supramto & Eko Hidayat**

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## MOTTO

“Hidup adalah suatu pilihan, dan setiap pilihan pasti memiliki risiko”

“Waktu itu bagaikan pedang, jika kamu tidak memanfaatkannya menggunakan untuk memotong, ia akan memotongmu (menggilasmu)”

(H.R. Muslim)

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$SE_{r_k}$	: standar <i>error</i> autokorelasi saat <i>lag</i> k.	$h_i$	: <i>return asset</i>
$r_j$	: autokorelasi pada saat <i>lag</i> j	$\gamma_i$	: parameter <i>leverage</i>
$k$	: <i>time lag</i>	$\delta$	: parameter <i>power</i>
$T$	: banyak observasi data <i>time series</i>	$\mu$	: nilai rata-rata
$Y_t$	: pengamatan runtun waktu ke-t	$\sigma$	: simpangan baku
$c$	: nilai konstanta	$\alpha_i$	: parameter dari ARCH
$\alpha_0$	: komponen konstanta	$K$	: banyaknya <i>lag</i> yang diuji
$\beta_j$	: parameter dari GARCH	n	: banyak data
$b_1, b_2, b_p$	: parameter <i>moving average</i>	$\alpha$	: Z-Score
$a_1, a_2, a_p$	: parameter <i>autoregresif</i>	$\alpha'$	: Z-Koreksi
$\varepsilon_t$	: nilai kesalahan (residual) pada saat t		
$\sigma_t^2$	: variansi dari residual pada waktu t		
$\varepsilon_{t-i}$	: kuadrat dari residual pada waktu t-i		
$\sigma_{t-j}^2$	: variansi dari residual pada saat t-j		
$\hat{\rho}_k$	: autokorelasi residual periode k		
M	: Jumlah parameter dari model		
$\sigma_\varepsilon^2$	: estimasi <i>maximum likelihood</i> dari $\sigma_\varepsilon^2$		

## **ABSTRAK**

### **ANALISIS RISIKO INVESTASI DENGAN VALUE AT RISK (VAR) - EXPONENTIAL GENERALIZED AUTOREGRESSIVE HETEROSKEDASTICITY IN MEAN (EGARCH-M)**

(Studi kasus: Indeks harga saham JII periode 1 Januari 2014 sampai 31 Desember 2015)

**Oleh:**

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Kegiatan dalam berinvestasi perlu memperhatikan besar risiko yang akan diperoleh pada waktu yang akan datang. Karena dengan mengetahui besar risikonya maka bisa untuk bahan pertimbangan dalam membeli suatu saham. Dalam menghitung risiko diperlukan nilai volatilitas suatu saham, dengan cara didekati dengan nilai standar deviasi. Dilain sisi setiap hari perubahan volatilitas saham tidak *konstan* serta data saham tidak simetris (asimetris). Oleh karena itu, diperlukan alat yang dapat memprediksi nilai volatilitas. Dalam ilmu statistik, alat untuk memprediksi nilai volatilitas yaitu dengan pemodelan peramalan. Salah satunya adalah dengan model EGARCH-M. Kemudian peramalan EGARCH-M tersebut dikombinasikan dengan model VaR untuk memprediksi besar risiko.

Penelitian ini menggunakan data indeks harga saham harian *Jakarta Islamic Index* (JII) periode 1 Januari 2014 sampai 31 Desember 2015. Model VAR-EGARCH-M yang dipilih berdasarkan nilai *Schwarz Criterion* (SC). Langkah-langkah dalam penelitian ini adalah pengujian kestasioneran data, mengidentifikasi model ARMA, mengestimasi model ARMA, menguji diagnostik model ARMA, uji efek ARCH, uji asimetris data, mengestimasi model EGARCH-M, menguji diagnostik model EGARCH-M, menghitung nilai VaR-EGARCH-M dan menguji validitas model VAR-EGARCH-M.

Hasil penelitian ini menunjukkan bahwa model EGARCH(0,2)-M Standar Deviasi, EGARCH(0,2)-M Variansi dan EGARCH(1,2)-M Log (Variansi) adalah model terbaik untuk memodelkan volatilitas. Perhitungan VaR-EGARCH-M dengan investasi awal sebesar Rp 10.000.000, didapat besar risiko terkecil untuk model EGARCH-M yaitu model EGARCH(0,2)-M Standar Deviasi Rp 18.400 periode 1 hari kedepan, Rp 41.000 periode 5 hari kedepan, Rp 81.900 periode 20 hari kedepan, dan Rp 141.900 periode 60 hari kedepan.

Kata Kunci : *Return, Heteroscedastic, Asimetris, EGARCH-M, Value at Risk (VaR)*

## **BAB I**

### **PENDAHULUAN**

#### **1.1 Latar Belakang Masalah**

Investasi adalah kegiatan mengalokasikan atau menanamkan sumber daya sekarang, dengan harapan mendapatkan manfaat di kemudian hari (masa datang). Dalam ajaran Islam, kegiatan investasi juga disarankan sebagaimana di jelaskan dalam Al-Qur'an sebagai berikut:

Allah berfirman dalam Al-Qur'an surat Yusuf ayat 46-49 :

يُوسُفُ أَيُّهَا الْصِّدِيقُ أَفْتَنَا فِي سَبْعِ بَقَرَاتٍ سِمَانٍ يَا كُلُّهُنَّ سَبْعُ عِجَافٍ  
وَسَبْعُ شُبَابٍ تِبْلِتٍ خُضْرٍ وَأُخْرَ يَابِسَاتٍ لَعَلَّنِي أَرْجِعُ إِلَى النَّاسِ لَعَلَّهُمْ  
يَعْلَمُونَ ﴿٤٦﴾

Artinya:

(Setelah pelayan itu berjumpa dengan Yusuf dia berseru): "Yusuf, hai orang yang amat dipercaya, terangkanlah kepada kami tentang tujuh ekor sapi betina yang gemuk-gemuk yang dimakan oleh tujuh ekor sapi betina yang kurus-kurus dan tujuh bulir (gandum) yang hijau dan (tujuh) lainnya yang kering agar aku kembali kepada orang-orang itu, agar mereka mengetahuinya."

قَالَ تَزَرَّعُونَ سَبْعَ سِنِينَ دَأْبًا فَمَا حَصَدْتُمْ فَذَرُوهُ فِي سُنْبَلِهِ إِلَّا قَلِيلًا  
٤٧  
 مِمَّا تَأْكُلُونَ

Artinya:

Yusuf berkata: "Supaya kamu bertanam tujuh tahun (lamanya) sebagaimana biasa; maka apa yang kamu tuai hendaklah kamu biarkan dibulirnya kecuali sedikit untuk kamu makan.

ثُمَّ يَأْتِي مِنْ بَعْدِ ذَلِكَ سَبْعُ شِدَادٍ يَأْكُلُنَّ  
٤٨  
 مَا قَدَّمْتُمْ لَهُنَّ إِلَّا قَلِيلًا مِمَّا تُحْصِنُونَ

Artinya:

Kemudian sesudah itu akan datang tujuh tahun yang amat sulit, yang menghabiskan apa yang kamu simpan untuk menghadapinya (tahun sulit), kecuali sedikit dari (bibit gandum) yang kamu simpan.

ثُمَّ يَأْتِي مِنْ بَعْدِ ذَلِكَ عَامٌ فِيهِ يُغَاثُ الْئَاسُ وَفِيهِ يَعْصِرُونَ

Artinya:

Kemudian setelah itu akan datang tahun yang padanya manusia diberi hujan (dengan cukup) dan dimasa itu mereka memeras anggur."

Dalam *tafsir Al-Misbah* di jelaskan bahwa Raja mesir bermimpi tentang tujuh ekor sapi betina yang gemuk-gemuk yang dimakan oleh tujuh ekor sapi betina yang kurus-kurus dan tujuh bulir (gandum) yang hijau dan (tujuh) lainnya yang kering, kemudian diterangkanlah mimpi itu oleh Nabi Yusuf as yakni “Mimpi memerintahkan kamu wahai masyarakat mesir melalui raja, agar kamu terus-menerus bercocok tanam selama tujuh tahun sebagaimana biasa kamu bercocok tanam, yakni dengan memperhatikan cuaca, jenis tanaman yang ditanam, pengairan, dan sebagainya selama tujuh tahun berturut-turut dengan sungguh-sungguh.Maka, apa yang kamu tuai dari hasil panen dari sepanjang masa itu gunakan secukupnya dan simpan sisanya. Kemudian sesudah masa tujuh tahun itu, akan datang tujuh tahun yang amat sulit akibat terjadinya paceklik diseluruh negeri yang menghabiskan apa yang kamu simpan untuk menghadapinya, yakni untuk menghadapi tahun sulit itu yang dilambangkan oleh tujuh bulir gandum yang kering.” Lebih jauh Nabi Yusuf as menjelaskan “Kemudian setelah paceklik itu akan datang tahun yang padanya manusia diberi hujan dengan cukup dan pada masa itu mereka akan hidup sejahtera yang ditandai antara lain bahwa ketika itu mereka terus-menerus bekerja.”

Surat Yusuf ayat 46 sampai ayat 49 menjelaskan kepada kita bahwa untuk tidak mengkonsumsi semua kekayaan yang kita miliki pada saat kita telah mendapatkannya, tetapi hendaknya sebagian kekayaan yang kita dapatkan itu juga kita tangguhkan pemanfaatannya untuk keperluan yang lebih penting. Dengan bahasa lain, ayat ini mengajarkan kepada kita untuk mengelolah dan

mengembangkan kekayaan (berinvestasi) demi untuk mempersiapkan masa depan.

Investasi sendiri secara umum dapat dibagi menjadi 2 (dua), yaitu investasi sektor *real* dan investasi sektor *financial*. Investasi sektor real adalah investasi pada *asset* atau faktor produksi untuk melakukan usaha, misalnya investasi perkebunan, perikanan dan jenis usaha lainnya. Investasi sektor *financial* adalah investasi bukan pada *asset* atau faktor produksi, tetapi pada *asset* keuangan, misalnya deposito, saham, obligasi, reksadana dan sebagainya (Fahmi dan Lavianti Hadi, 2011: 7).

Bentuk investasi sektor *financial* yang baru-baru ini *trend* adalah investasi saham di pasar modal. Di Indonesia, PT. Bursa Efek Jakarta (BEJ) telah menerbitkan daftar reksadana, saham, dan obligasi syariah dalam *Jakarta Islamic Index* (JII). *Jakarta Islamic Index* (JII) merupakan indek saham yang berisi 30 saham perusahaan yang memenuhi kriteria investasi berdasarkan investasi syariah. Sejak saat itu perkembangan pasar modal syariah cukup signifikan.

Saham syariah merupakan deretan observasi variabel random yang dapat dinyatakan sebagai data runtun waktu. Data runtun waktu mempunyai dua sifat penting yaitu adanya heterokedastisitas dan pengelompokan volatilitas. Heterokedastisitas adalah perubahan variansi dari eror yang terjadi setiap waktu (Hestiningtyas dan Sulandri, 2009).

Model runtun waktu (*time series*) adalah pendugaan masa depan yang dilakukan berdasarkan nilai masa lalu dari suatu variabel atau kesalahan masa lalu. Langkah penting dalam memilih suatu metode runtun waktu (*time series*) yang tepat adalah dengan mempertimbangkan jenis pola data, sehingga metode yang paling tepat dengan pola tersebut dapat diuji. Pola data dapat dibedakan menjadi empat jenis yaitu pola horisontal, pola musiman, pola siklis, dan pola trend (Makridakis,1999: 9-10).

Sebagian besar data runtun waktu ekonomi dan keuangan seperti pergerakan kurs valuta asing, harga saham, *Gross Domestic Product* (GDP), *Gross National Product* (GNP), inflasi dan sebagainya merupakan data runtun waktu yang tidak stasioner terhadap rata-rata dan ragam (heteroskedastisitas). Model umum runtun waktu *Autoregressive* (AR), *Moving Average* (MA) dan *Autoregressive Moving Average* (ARMA) sering digunakan untuk memodelkan data ekonomi dan keuangan dengan asumsi stasioneritas terhadap ragam (homoskedastisitas). Oleh karena itu, dibutuhkan suatu model runtun waktu lain yang dapat memodelkan sebagian dasar data ekonomi dan keuangan dengan tetap mempertahankan heteroskedastisitas data.

Dalam perkembangan data runtun waktu, muncul variasi dari model ARCH (*AutoRegressive Conditional Heteroscedasticity*), yang dikenal dengan nama GARCH (*Generalized AutoRegressive Conditional Heteroscedasticity*). Model ARCH dikembangkan oleh Robert Engle (1982) dan dimodifikasi oleh Mills (1999). GARCH dimaksudkan untuk memperbaiki ARCH dan

dikembangkan oleh Tim Bollerslev (1986 dan 1994) (Winarno,2007:8.1).

Model GARCH merupakan model yang lebih sederhana dengan banyaknya parameter yang lebih sedikit dibandingkan model ARCH berderajat tinggi. Selain model ARCH dan GARCH, terdapat juga model-model runtun waktu heterokedatis lain seperti GARCH-M, EGARCH, dan TGARCH yang merupakan pengembangan dari model GARCH. Model-model runtun waktu heterokedastisitas biasanya diterapkan di beberapa bidang ekonomi ataupun keuangan seperti inflasi, harga saham, suku bunga dan nilai tukar mata uang.

Runtun waktu di bidang ekonomi sudah berkembang pesat, terutama dalam pasar modal. Penjualan saham merupakan salah satu bagian dalam pasar modal. Jual beli yang dilakukan investor dalam pasar modal biasanya mempertimbangkan tingkat pembelian (*return*) dan risiko (*risk*) dalam berinvestasi. Dalam penerapannya pada teori finansial, tingkat pengembalian diasumsikan sebagai *mean* dan risiko diasumsikan sebagai volatitas dari harga saham.

Volatilitas didefinisikan sebagai ukuran ketidak pastian dari pergerakan suatu aset finansial pada waktu yang akan datang. Semakin besar tingkat volatitas *return* saham, maka semakin besar pula kecenderungan harga saham tersebut naik atau turun. Dengan kata lain harga saham tersebut cenderung sangat mudah berubah, sehingga dapat disimpulkan bahwa tingkat risiko saham tersebut juga semakin besar. Dalam teori finansial dinyatakan bahwa aset dengan risiko yang lebih akan memberikan *return* yang lebih tinggi juga pada

rata-ratanya. Ini menjelaskan bahwa hasil yang diharapkan (*return*) dari suatu aset finansial mungkin tergantung pada risiko (volatilitas). Dari gagasan inilah Engle, Lilien, dan Robins (1987) mengembangkan model GARCH *in mean* (GARCH-M) yang memasukkan volatilitas kedalam persamaan *mean*nya.

Beberapa model volatilitas diajukan secara spesifik untuk memperbaiki kelemahan model yang telah ada dalam ketidakmampuannya menjadi asumsi volatilitas. Sebagai contoh, model volatilitas yang telah disebutkan sebelumnya yaitu GARCH dan GARCH-M. Model GARCH dan GARCH-M berangkat dari asumsi bahwa terdapat gejolak yang bersifat simetris dalam volatilitas (*symmetric shocks to volatility*). Tetapi dalam beberapa kasus di sektor finansial, terdapat gejolak yang bersifat asimetri (*asymmetric shock*), dimana penurunan di pasar (efek negatif) tidak diikuti dengan kenaikan di pasar (efek positif) dalam ukuran yang sama di waktu yang lain. Kejadian ini biasanya disebut *leverage effect* dalam volatilitas. Untuk mengatasi keterbatasan dari model GARCH dan GARCH-M, Nelson (1991) memperkenalkan model *Exponential GARCH* (EGARCH) dan EGARCH *in mean*. Sama halnya seperti kelebihan model GARCH-M terhadap model GARCH, kelebihan model EGARCH-M terhadap model GARCH juga terletak pada risiko yang bergantung pada tingkat pengembaliannya.

Volatilitas dapat diukur dari simpangan baku (standar deviasi) rata-rata *return* saham per satuan waktu, namun hal ini hanya menginformasikan tentang besarnya perubahan harga, bukan tentang jumlah kerugian. Oleh karena itu,

sangat diperlukan alat yang digunakan untuk mengukur jumlah kerugian tersebut. Salah satu alat ukur yang cukup baik dan banyak digunakan yaitu *Value at Risk* (VaR). VaR merupakan estimasi kerugian maksimum yang mungkin dialami dalam rentang waktu/periode tertentu dengan tingkat kepercayaan tertentu (*a given level of confidence*), dimana perhitungan VaR, indikator yang digunakan adalah sama dengan indikator peramalan yaitu volatilitas ( $\sigma$ ) karena model volatilitas merupakan komponen pembentukan dalam perhitungan *Value at Risk*.

Dari latar belakang di atas maka peneliti mengambil judul tentang “**Analisis Risiko Investasi dengan Value at Risk (VaR) - Exponential Generalized Autoregressive Conditional Heteroskedasticity in Mean (EGARCH-M)**”

## 1.2 Batasan Masalah

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

1. Proses estimasi model Var-EGARCH-M menggunakan metode *Maximum Likelihood* (MLE).
2. Objek yang akan diteliti adalah indeks harga saham syariah *Jakarta Islamic Index* (JII) pada periode 1 Januari 2014 – 31 Desember 2015.
3. Menggunakan bantuan *software Ms. Excel*, E-Views 7.0

### **1.3 Rumusan Masalah**

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

1. Bagaimana langkah-langkah analisis risiko investasi dengan model VaR-EGARCH-M?
2. Bagaimana bentuk model VaR-EGARCH-M untuk mengukur besar risiko investasi pada indeks harga saham syariah JII?
3. Berapa besar risiko investasi pada indeks harga saham syariah JII dengan menggunakan VaR- EGARCH-M?

### **1.4 Tujuan Penelitian**

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

1. Mengetahui langkah-langkah analisis risiko investasi dengan menggunakan VaR-EGARCH-M.
2. Mengetahui bentuk model VaR-EGARCH-M untuk mengukur besar risiko investasi pada indeks harga saham syariah JII.
3. Mengetahui besar risiko investasi pada indeks harga saham syariah JII dengan menggunakan VaR-EGARCH-M.

## 1.5 Manfaat Penelitian

### 1. Bagi Penulis

Memperdalam dan menambah pengetahuan penulis mengenai pemodelan statistik matematika khususnya, serta dapat mengaplikasikan teori-teori untuk menyelesaikan masalah-masalah yang ada di lapangan.

### 2. Bagi Investor

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

## 1.6 Tinjauan Pustaka

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	Judul	Objek
1.	Jurnal Julianto, Entit, dan Fitriani (2012)	Penerapan Model EGARCH-M dalam Peramalan Nilai Harga Saham Dan Pengukuran <i>Value at Risk</i> (VaR)	Return Harga Saham PT.Gudang Garam Tbk.

2.	Nurhasanah (2014)	Penerapan Model <i>Exponential Generalized Autoregressive Conditional Heteroscedasticity</i> (EGARCH) pada Analisis Risiko dengan <i>Value at Risk</i> (VaR)	Indeks harga saham JII
3.	Dian Harry Hanggara (2013)	Analisis resiko investasi dengan <i>Value at Risk</i> (VaR) - <i>Generalized Autoregressiveconditional Heteroskedasticity</i> (GARCH)	Indeks harga saham syariah jakarta <i>islamic index</i> (JII) periode 1 Januari 2011 – 1 Juli 2013

Terdapat kesamaan dan perbedaan antara dua penelitian di atas dengan penelitian yang sekarang, baik dari segi objek yang diteliti maupun model yang digunakan. Pada penelitian yang dilakukan oleh Julianto, Entit, dan Fitriani , objek yang diteliti berbeda tetapi model yang digunakan adalah sama, yaitu EGARCH-M. Pada penelitian Nurhasanah, objek yang diteliti sama dan model yang digunakan berbeda yaitu EGARCH. Sedangkan untuk penelitian yang dilakukan oleh Dian Harry Hanggara, objek yang diteliti adalah dari

sumber yang sama yaitu indeks harga saham JII tetapi model yang digunakan adalah VaR-GARCH.

### **1.7 Sistematika Penulisan**

Untuk memberikan gambaran menyeluruh dan memudahkan dalam penelitian skripsi mengenai analisis risiko investasi dengan VaR-EGARCH-M, maka secara garis besar sistematika skripsi 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**

Berisi tentang teori penunjang yang digunakan dalam pembahasan yaitu analisis risiko investasi dengan VaR-EGARCH-M.

#### **BAB III : METODE PENELITIAN**

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

#### **BAB IV : Analisis Risiko Investasi dengan VaR-EGARCH-M**

Berisi tentang pembahasan mengenai analisis risiko investasi dengan VaR-EGARCH-M.

## **BAB V : STUDI KASUS**

Berisi tentang penerapan dan aplikasi analisis risiko investasi dengan VaR-EGARCH-M pada data indeks saham syariah JII dan memberikan interpretasi terhadap hasil yang diperoleh.

## **BAB VI : KESIMPULAN DAN SARAN**

Berisi tentang kesimpulan yang dapat diambil dari pembahasan permasalahan yang ada dan pemecahan masalah dan saran-saran yang berkaitan dengan penelitian sejenis untuk penelitian berikutnya.

## **BAB VI**

### **PENUTUP**

#### **6.1 Kesimpulan**

Berdasarkan pada pembahasan mengenai analisis risiko investasi dengan *Value at Risk (VaR) - Exponential Generalized Autoregressive Conditional Heteroskedasticity in Mean (EGARCH-M)* pada *return* indeks saham harian *Jakarta Islamic Index (JII)* dapat diambil kesimpulan sebagai berikut:

1. Langkah-langkah dalam melakukan analisis risiko investasi saham dengan VaR-EGARCH-M yaitu sebagai berikut:
  - a. Mengumpulkan data indeks saham JII
  - b. Menentukan nilai *return* indeks saham JII
  - c. Stastistik diskriptif
  - d. Menguji kestasioneran data
  - e. Menentukan *Box-Jenkis* (ARIMA) yang sesuai
  - f. Menguji efek ARCH
  - g. Uji asimetris
  - h. Menentukan model EGARCH-M yang sesuai
  - i. Menghitung VaR-EGARCH-M
  - j. Menguji validitas VaR-EGARCH-M

2. Berdasarkan pemeriksaan diagnosa model, diperoleh model terbaik yaitu EGARCH(0,2)-M Standar Deviasi, EGARCH(0,2)-M Variansi dan EGARCH(1,2)-M Log(Variansi) model tersebut dipilih berdasarkan nilai probabilitas dari parameter yang mendekati kurang dari 0,05 dan memenuhi asumsi klasik. Jadi persamaan model ARMA (1,1)-EGARCH-M sebagai berikut:

➤ Model ARMA(1,1)

$$Y_t = c + a_1 Y_{t-1} + a_2 Y_{t-2} + \dots + a_p Y_{t-p} + b_1 \varepsilon_{t-1} + b_2 \varepsilon_{t-2} + \dots + b_q \varepsilon_{t-q} + \varepsilon_t$$

Dengan ketentuan  $Y_t = \Delta X_t = X_t - X_{t-1}$ , maka diperoleh :

$$\begin{aligned} &= X_{t-1} + a_1(X_{t-1} - X_{t-2}) + \dots + a_p(X_{t-p} - X_{t-p-1}) + \varepsilon_t + b_1 \varepsilon_{t-1} \\ &\quad - b_2 \varepsilon_{t-2} - \dots - b_q \varepsilon_{t-q} \end{aligned}$$

$$X_t = X_{t-1} + \phi_1 \Delta X_{t-1} - \theta_1 \varepsilon_{t-1}$$

$$X_t = X_{t-1} + 0,821463 \Delta X_t - 0,884290 \varepsilon_{t-1}$$

➤ Model EGARCH(0,2)-M Standar Deviasi:

$$\ln \hat{\sigma}_t^2 = -0,114859 - 0,080222 \ln \sigma_{t-1}^2 + 0,79561 \left| \frac{\varepsilon_{t-1}}{\sigma_{t-1}^2} \right| + 0,191419 \left| \frac{\varepsilon_{t-2}}{\sigma_{t-2}^2} \right|$$

➤ Model EGARCH(0,2)-M Variansi:

$$\ln \hat{\sigma}_t^2 = -0,128627 - 0,096095 \ln \sigma_{t-1}^2 + 0,411862 \left| \frac{\varepsilon_{t-1}}{\sigma_{t-1}^2} \right| + 0,573562 \left| \frac{\varepsilon_{t-2}}{\sigma_{t-2}^2} \right|$$

➤ Model EGARCH(1,2)-M Log(Variansi):

$$\ln \hat{\sigma}_t^2 = -0,133429 - 0,101264 \ln \sigma_{t-1}^2 - 0,0865524 \left( \frac{\varepsilon_{t-1}}{\sigma_{t-1}^2} \right) + 0,874284 \left| \frac{\varepsilon_{t-1}}{\sigma_{t-1}^2} \right| + 0,103266 \left| \frac{\varepsilon_{t-2}}{\sigma_{t-2}^2} \right|$$

3. Pengukuran besar risiko investasi dengan menggunakan VaR-EGARCH-M, dengan nilai investasi awal diasumsikan sebesar Rp 10.000.000,- menghasilkan besar nilai risiko untuk indeks harga saham harian JII dengan tingkat kepercayaan 95% sebagai berikut:

3.1 VaR-EGARCH(0,2)-M Standar Deviasi

- a. Dalam periode waktu 1 hari kedepan sebesar Rp 18.400
- b. Dalam periode waktu 5 hari kedepan sebesar Rp 41.000
- c. Dalam periode waktu 20 hari kedepan sebesar Rp 81.900
- d. Dalam periode waktu 60 hari kedepan sebesar Rp 141.900

3.2 VaR-EGARCH(0,2)-M Variansi

- a. Dalam periode waktu 1 hari kedepan sebesar Rp 18.800
- b. Dalam periode waktu 5 hari kedepan sebesar Rp 42.000
- c. Dalam periode waktu 20 hari kedepan sebesar Rp 84.000
- d. Dalam periode waktu 60 hari kedepan sebesar Rp 145.500

3.3 VaR-EGARCH(1,2)-M Log(Variansi)

- a. Dalam periode waktu 1 hari kedepan sebesar Rp 25.100
- b. Dalam periode waktu 5 hari kedepan sebesar Rp 56.000
- c. Dalam periode waktu 20 hari kedepan sebesar Rp 112.000
- d. Dalam periode waktu 60 hari kedepan sebesar Rp 193.900

## 6.2 Saran

Adapun saran-saran yang dapat peneliti sampaikan antara lain adalah:

1. Berdasarkan hasil penelitian ini, disarankan bagi investasi yang akan berinvestasi untuk mengukur risiko harga saham dengan *Value at Risk* terlebih dahulu, sehingga dapat meminimalisir terjadi risiko.
2. Untuk peneliti selanjutnya dapat dilakukan dengan menggunakan model lain seperti GARCH-M, APARCH-M, TARCH-M.

Demikian saran dari peneliti semoga dapat menjadi masukan para peneliti selanjutnya khusunya bidang statistik.

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LAMPIRAN 1

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03/01/2014	585.64	-0.017787047	11/02/2014	604.7	0.002268157	18/03/2014	651.32	-0.019070211
06/01/2014	579.93	-0.00979786	12/02/2014	609.08	0.007217155	19/03/2014	655.45	0.00632095
07/01/2014	572.29	-0.013261551	13/02/2014	607.22	-0.003058458	20/03/2014	634.17	-0.033004965
08/01/2014	576.41	0.007173357	14/02/2014	608.97	0.002877842	21/03/2014	636.55	0.003745912
09/01/2014	574.28	-0.003702131	17/02/2014	615.61	0.010844641	24/03/2014	637.79	0.001946106
10/01/2014	582.38	0.014006073	18/02/2014	615.1	-0.00082879	25/03/2014	632.44	-0.008423721
13/01/2014	601.81	0.032818625	19/02/2014	621.73	0.010721059	26/03/2014	636.48	0.006367641
15/01/2014	609.9	0.013353228	20/02/2014	622.16	0.000691379	27/03/2014	635.02	-0.002296501
16/01/2014	606.82	-0.005062803	21/02/2014	626.97	0.007701398	28/03/2014	640.41	0.008452102
17/01/2014	603.06	-0.006215512	24/02/2014	621.94	-0.008055068	01/04/2014	657.09	0.025712399
20/01/2014	608.32	0.008684365	25/02/2014	614.48	-0.012067243	02/04/2014	655.27	-0.002773631
21/01/2014	609.11	0.001297816	26/02/2014	606.03	-0.013846892	03/04/2014	658.53	0.004962714
22/01/2014	614.41	0.008663582	27/02/2014	612.84	0.011174401	04/04/2014	653.27	-0.008019558
23/01/2014	614.97	0.000911028	28/02/2014	626.86	0.02261934	07/04/2014	667.22	0.021129307
24/01/2014	604.37	-0.017386893	03/03/2014	618.98	-0.012650268	08/04/2014	666.52	-0.00104968
27/01/2014	583.88	-0.034491111	04/03/2014	620.05	0.001727158	09/04/2014	666.52	0
28/01/2014	588.27	0.007490544	05/03/2014	628	0.012740047	10/04/2014	643.15	-0.035692168
29/01/2014	601.54	0.022307007	06/03/2014	631	0.004765696	11/04/2014	653.28	0.015627849
30/01/2014	602.87	0.002208551	07/03/2014	631.74	0.001172055	14/04/2014	659.71	0.009794517
03/02/2014	595.62	-0.012098705	10/03/2014	632.91	0.001850315	15/04/2014	659.78	0.000106102
04/02/2014	587.49	-0.013743655	11/03/2014	635.35	0.003847796	16/04/2014	657.86	-0.002914303
05/02/2014	594.5	0.011861492	12/03/2014	633.17	-0.00343708	17/04/2014	663.59	0.008672346
06/02/2014	601.06	0.010974047	13/03/2014	641.31	0.012774011	21/04/2014	663.52	-0.000105492
07/02/2014	606.22	0.008548193	14/03/2014	661.74	0.03135977	22/04/2014	664.13	0.000918917

<b>Date</b>	<b>Close</b>	<b>return</b>	<b>Date</b>	<b>Close</b>	<b>return</b>	<b>Date</b>	<b>Close</b>	<b>return</b>
23/04/2014	664.14	1.50572E-05	04/06/2014	661.62	-0.001495209	11/07/2014	679.85	-0.01894134
24/04/2014	663.18	-0.001446524	05/06/2014	663.03	0.002128865	14/07/2014	679.71	-0.000205949
25/04/2014	663.21	4.52356E-05	06/06/2014	666.4	0.005069853	15/07/2014	688.2	0.012413257
28/04/2014	650.32	-0.019627133	09/06/2014	658.99	-0.011181731	16/07/2014	694.49	0.00909827
29/04/2014	645.25	-0.007826711	10/06/2014	669.18	0.015344722	17/07/2014	685.93	-0.012402182
30/04/2014	647.67	0.003743469	11/06/2014	672.99	0.005677388	18/07/2014	689.79	0.005611622
02/05/2014	646.25	-0.002194882	12/06/2014	666.65	-0.0094653	21/07/2014	697.11	0.010556014
05/05/2014	648.25	0.003089999	13/06/2014	665.27	-0.002072197	22/07/2014	692.33	-0.006880497
06/05/2014	647.04	-0.001868308	16/06/2014	655.9	-0.014184635	23/07/2014	692.14	-0.000274473
07/05/2014	651.73	0.007222249	17/06/2014	661.51	0.008516762	24/07/2014	692.46	0.000462227
08/05/2014	652.8	0.001640438	18/06/2014	658.05	-0.005244184	25/07/2014	690.4	-0.002979335
09/05/2014	655.95	0.004813763	19/06/2014	654.36	-0.005623258	04/08/2014	701.23	0.015564796
12/05/2014	662.47	0.009890707	20/06/2014	652.97	-0.002126472	05/08/2014	697.15	-0.00583534
13/05/2014	661.05	-0.002145794	23/06/2014	653.44	0.000719529	06/08/2014	687.88	-0.013386192
14/05/2014	672.6	0.017321319	24/06/2014	654.65	0.001850026	07/08/2014	690.39	0.003642251
16/05/2014	680.63	0.011868041	25/06/2014	651.63	-0.004623825	05/09/2014	702.85	0.000882512
19/05/2014	678.08	-0.003753565	26/06/2014	656.69	0.007735149	08/09/2014	707.98	0.007272347
20/05/2014	660.08	-0.026904235	27/06/2014	651.89	-0.007336229	09/09/2014	698.21	-0.013895928
21/05/2014	664.78	0.007095119	30/06/2014	655	0.0047594	10/09/2014	688.65	-0.013786758
22/05/2014	672.51	0.011560822	01/07/2014	656.35	0.002058948	11/09/2014	683.32	-0.007769888
23/05/2014	672.11	-0.000594964	02/07/2014	663.86	0.011377101	12/09/2014	688.68	0.007813451
26/05/2014	671.82	-0.00043157	03/07/2014	661.79	-0.003122999	15/09/2014	691.6	0.004231032
28/05/2014	673.96	0.003180314	04/07/2014	663.63	0.00277648	16/09/2014	691	-0.00086793
30/05/2014	656.83	-0.025745529	07/07/2014	679.41	0.023500009	17/09/2014	699.09	0.011639666
02/06/2014	658.9	0.003146545	08/07/2014	683.29	0.005694592	18/09/2014	702.72	0.00517903
03/06/2014	662.61	0.005614804	10/07/2014	692.85	0.013894159	19/09/2014	704.71	0.002827851

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22/09/2014	702.42	-0.003254855	28/10/2014	652.62	-0.009273165	03/12/2014	681.74	-0.006112649
23/09/2014	696.19	-0.008908904	29/10/2014	667.8	0.022993697	04/12/2014	686.69	0.0072346
24/09/2014	692.53	-0.005271053	30/10/2014	666.81	-0.00148358	05/12/2014	688.28	0.002312779
25/09/2014	695	0.003560287	31/10/2014	670.44	0.005429065	08/12/2014	680.77	-0.010971221
26/09/2014	687.63	-0.010660943	03/11/2014	670.19	-0.000372959	09/12/2014	678.71	-0.003030573
29/09/2014	689.48	0.002686788	04/11/2014	664.45	-0.008601623	10/12/2014	682.72	0.005890882
30/09/2014	687.62	-0.002701331	05/11/2014	665.43	0.001473817	11/12/2014	679.66	-0.004492146
01/10/2014	682.39	-0.007635018	06/11/2014	662.14	-0.004956434	12/12/2014	680.39	0.00107349
02/10/2014	661.7	-0.030789061	07/11/2014	654.02	-0.012339082	15/12/2014	674.28	-0.009020708
03/10/2014	658.99	-0.004103921	10/11/2014	649.65	-0.006704176	16/12/2014	663.39	-0.016282402
06/10/2014	665.12	0.009259116	11/11/2014	661.68	0.018348299	17/12/2014	661.6	-0.002701909
07/10/2014	671.01	0.008816564	12/11/2014	663.92	0.003379605	18/12/2014	675.49	0.02077721
08/10/2014	659.35	-0.017529539	13/11/2014	665.7	0.002677458	19/12/2014	679.18	0.005447835
09/10/2014	662.82	0.005248959	14/11/2014	665.84	0.000210283	29/12/2014	685.84	0.009758176
10/10/2014	655.99	-0.010357915	17/11/2014	668.51	0.004001954	30/12/2014	691.04	0.007553345
13/10/2014	647.24	-0.013428376	18/11/2014	675.76	0.010786628	31/12/2014	691.04	0
14/10/2014	650.34	0.004778135	19/11/2014	678.64	0.004252812	02/01/2015	694.47	0.004951256
15/10/2014	652.77	0.003729544	20/11/2014	672.59	-0.008954864	05/01/2015	689.09	-0.007777078
16/10/2014	651.98	-0.00121096	21/11/2014	677.52	0.007303141	06/01/2015	681.07	-0.011706796
17/10/2014	663.57	0.017620463	24/11/2014	686.49	0.013152586	07/01/2015	687.51	0.009411284
20/10/2014	662.62	-0.001432676	25/11/2014	680.1	-0.009351812	08/01/2015	688.14	0.000915931
21/10/2014	661.88	-0.001117403	26/11/2014	681.6	0.002203129	09/01/2015	688.95	0.001176394
22/10/2014	668.13	0.009398495	27/11/2014	684.71	0.004552415	12/01/2015	683.78	-0.007532471
23/10/2014	671.07	0.004390688	28/11/2014	683.02	-0.002471249	13/01/2015	692.15	0.012166467
24/10/2014	666.41	-0.006968357	01/12/2014	685.4	0.003478468	14/01/2015	681.66	-0.015271695
27/10/2014	658.7	-0.011636901	02/12/2014	685.92	0.000758393	15/01/2015	687.57	0.008632643

Date	Close	return	Date	Close	return	Date	Close	return
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19/01/2015	681.64	-7.33498E-05	24/02/2015	720.43	0.002835659	01/04/2015	718.59	-0.013284777
20/01/2015	688.62	0.010187936	25/02/2015	727.44	0.009683265	02/04/2015	716.8	-0.002494097
21/01/2015	702.1	0.019386249	26/02/2015	727.37	-9.62325E-05	06/04/2015	720.87	0.005661954
22/01/2015	708.84	0.009553987	27/02/2015	722.1	-0.007271655	07/04/2015	727.56	0.009237654
23/01/2015	716.73	0.01106937	02/03/2015	728.61	0.008974976	08/04/2015	719.99	-0.010459147
26/01/2015	705.43	-0.015891655	03/03/2015	730.2	0.00217986	09/04/2015	723.85	0.005346866
27/01/2015	707.71	0.003226859	04/03/2015	723.39	-0.009369973	10/04/2015	722.08	-0.002448253
28/01/2015	706.09	-0.002291697	05/03/2015	722.09	-0.001798711	13/04/2015	717.43	-0.006460554
29/01/2015	703.1	-0.004243579	06/03/2015	734.85	0.017516612	14/04/2015	711.11	-0.008848252
30/01/2015	706.68	0.005078818	09/03/2015	724.65	-0.013977617	15/04/2015	711.09	-2.81254E-05
02/02/2015	701.5	-0.007357047	10/03/2015	725.85	0.001654602	16/04/2015	710.41	-0.000956736
03/02/2015	704.64	0.004466135	11/03/2015	720.53	-0.00735633	17/04/2015	709.33	-0.001521406
04/02/2015	708.72	0.005773492	12/03/2015	723.77	0.00448661	20/04/2015	704.25	-0.007187456
05/02/2015	700.4	-0.011808926	13/03/2015	723.68	-0.000124357	21/04/2015	717.98	0.019308307
06/02/2015	711.52	0.015751926	16/03/2015	725.35	0.002304991	22/04/2015	716.12	-0.002593963
09/02/2015	710.89	-0.000885821	17/03/2015	724.68	-0.000924119	23/04/2015	718.85	0.003804962
10/02/2015	707.01	-0.005472896	18/03/2015	718.32	-0.008815026	24/04/2015	723.29	0.006157535
11/02/2015	712.14	0.007229711	19/03/2015	724.86	0.009063381	27/04/2015	698.24	-0.035247365
12/02/2015	713.98	0.002580429	20/03/2015	721.67	-0.004410562	28/04/2015	701.08	0.00405912
13/02/2015	721.53	0.010519007	23/03/2015	721	-0.000928833	29/04/2015	674.87	-0.038101923
16/02/2015	709.6	-0.016672526	24/03/2015	721.5	0.000693241	30/04/2015	664.8	-0.015033836
17/02/2015	714.34	0.006657608	25/03/2015	711.03	-0.014617755	01/05/2015	664.8	0
18/02/2015	718.68	0.006057157	26/03/2015	703.48	-0.010675176	04/05/2015	679.16	0.021370497
19/02/2015	718.68	0	27/03/2015	709.98	0.009197354	05/05/2015	686.25	0.010385252
20/02/2015	715.36	-0.004630284	30/03/2015	720.5	0.014708615	06/05/2015	692.3	0.008777395

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08/05/2015	696.7	0.015521007	17/06/2015	660.82	0.011858418	29/07/2015	629.1	0.000747378
11/05/2015	696.16	-0.000775383	18/06/2015	665.06	0.006395774	30/07/2015	628.9	-0.000317965
12/05/2015	696.95	0.001134153	19/06/2015	666.82	0.002642882	31/07/2015	641.97	0.020569312
13/05/2015	706.03	0.012944057	22/06/2015	661.64	-0.007798543	03/08/2015	636.99	-0.007787617
15/05/2015	708.85	0.003986209	23/06/2015	657.11	-0.006870169	04/08/2015	634.22	-0.004358059
18/05/2015	708.51	-0.000479765	24/06/2015	666.37	0.01399364	05/08/2015	644.25	0.015690952
19/05/2015	711.75	0.004562553	25/06/2015	659.79	-0.009923469	06/08/2015	634.64	-0.015028941
20/05/2015	714.8	0.004276057	26/06/2015	658.85	-0.001425712	07/08/2015	631.77	-0.004532505
21/05/2015	712.28	-0.003531691	29/06/2015	652.82	-0.009194451	10/08/2015	628.83	-0.004664454
22/05/2015	711.77	-0.000716267	30/06/2015	656.99	0.006367357	11/08/2015	607.75	-0.034097337
25/05/2015	711.27	-0.000702721	01/07/2015	654.81	-0.00332368	12/08/2015	585.32	-0.037604907
26/05/2015	719.3	0.011226412	02/07/2015	662.42	0.011554679	13/08/2015	605.3	0.033565497
27/05/2015	707.77	-0.016159335	03/07/2015	670.93	0.012765014	14/08/2015	606.41	0.001832122
28/05/2015	707.16	-0.000862234	06/07/2015	661.37	-0.014351368	18/08/2015	597.19	-0.015321004
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03/06/2015	692.4	-0.011844652	09/07/2015	645.59	-0.011795277	21/08/2015	572.01	-0.027553467
04/06/2015	685.29	-0.010321717	10/07/2015	648.74	0.004867393	24/08/2015	544.39	-0.049490572
05/06/2015	684.75	-0.000788298	13/07/2015	654.82	0.009328369	25/08/2015	554.87	0.01906795
08/06/2015	672.87	-0.017501662	14/07/2015	655.9	0.00164795	26/08/2015	553.09	-0.003213115
09/06/2015	655.7	-0.025848779	15/07/2015	653.65	-0.003436298	27/08/2015	585.17	0.056381666
10/06/2015	664.75	0.013707663	22/07/2015	658.39	0.007225421	28/08/2015	586.09	0.001570958
11/06/2015	666.6	0.002779136	23/07/2015	656.34	-0.003118514	31/08/2015	598.28	0.02058551
12/06/2015	665.66	-0.001411136	24/07/2015	646.94	-0.014425393	01/09/2015	584.1	-0.023986671
15/06/2015	648.04	-0.026826607	27/07/2015	632.14	-0.023142666	02/09/2015	582.66	-0.002468375

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07/09/2015	565.33	-0.041254215	09/10/2015	615.43	0.023476723	12/11/2015	582.48	-0.004111848
08/09/2015	567.34	0.00354914	12/10/2015	619.08	0.005913295	13/11/2015	587.55	0.008666499
09/09/2015	574.99	0.013393878	13/10/2015	592.98	-0.043073833	16/11/2015	581.53	-0.010298787
10/09/2015	577.06	0.003593598	15/10/2015	599.48	0.010901941	17/11/2015	589.3	0.013272831
11/09/2015	584.9	0.013494645	16/10/2015	602.01	0.004211444	18/11/2015	593.79	0.00759033
14/09/2015	591.68	0.011525056	19/10/2015	612.11	0.016637948	19/11/2015	596.86	0.005156859
15/09/2015	580.28	-0.019455203	20/10/2015	612.84	0.001191886	20/11/2015	604.54	0.012785258
16/09/2015	577.07	-0.005547169	21/10/2015	616.93	0.006651675	23/11/2015	595.6	-0.014898537
17/09/2015	584.43	0.012673437	22/10/2015	611.34	-0.009102296	24/11/2015	594.88	-0.001209596
18/09/2015	584.84	0.000701292	23/10/2015	620.24	0.014453231	25/11/2015	599.28	0.00736923
21/09/2015	583.28	-0.00267096	26/10/2015	623.61	0.005418673	26/11/2015	601.79	0.004179613
22/09/2015	576.16	-0.012281946	27/10/2015	620.94	-0.004290714	27/11/2015	601.04	-0.001247059
23/09/2015	561.53	-0.025720199	28/10/2015	610.9	-0.016301179	30/11/2015	579.8	-0.035978272
25/09/2015	557.23	-0.00768712	29/10/2015	586.97	-0.039959568	01/12/2015	598.03	0.030957703
28/09/2015	542	-0.02771208	30/10/2015	586.1	-0.001483288	02/12/2015	596.9	-0.001891325
29/09/2015	554.43	0.022674558	02/11/2015	593.58	0.012681575	03/12/2015	596.57	-0.000553009
30/09/2015	556.09	0.002989593	03/11/2015	599.47	0.009873933	04/12/2015	592.9	-0.006170835
01/10/2015	563.06	0.012456043	04/11/2015	610.47	0.018183221	07/12/2015	595.72	0.004745007
02/10/2015	553.87	-0.016456192	05/11/2015	605.23	-0.008620601	08/12/2015	582.21	-0.022939551
05/10/2015	576.34	0.039767762	06/11/2015	603.79	-0.002382096	10/12/2015	578.3	-0.006738442
06/10/2015	596.68	0.034683192	09/11/2015	591.37	-0.020784576	11/12/2015	565.09	-0.023107755

<b>Date</b>	<b>Close</b>	<b>return</b>	<b>Date</b>	<b>Close</b>	<b>return</b>	<b>Date</b>	<b>Close</b>	<b>return</b>
14/12/2015	565.63	0.000955144	18/12/2015	588.22	-0.020694919	28/12/2015	597.28	0.00677012
15/12/2015	573.18	0.013259649	21/12/2015	591.69	0.005881822	29/12/2015	599.44	0.003609871
16/12/2015	583.17	0.017278936	22/12/2015	595.6	0.006586452	30/12/2015	603.35	0.006501573
17/12/2015	600.52	0.029317208	23/12/2015	593.25	-0.003953405			

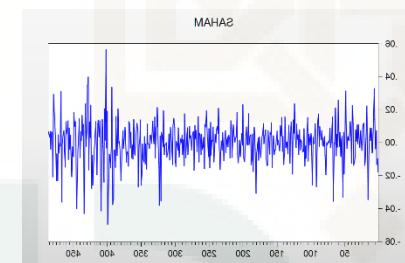
## LAMPIRAN 2: Diskriptif, Uji Normalitas dan Uji Stasioner

### 1. Diskriptif data return indeks saham JII

Data	Saham
Mean	0.0000247
Median	0.000820
Maximum	0.056382
Minimum	-0.049491
Std.Dev.	0.012493
Skewness	-0.360604
Kurtosis	5.226890
Jarque-Bera	110.9534
Obs	487

### 2. Uji Stasioner Data Saham JII

- Menggunakan Plot



- Menggunakan Uji Akar Unit

Null Hypothesis: SAHAM has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic - based on SIC, maxlag=17)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-21.76225	0.0000
Test critical values:		
1% level	-3.443607	
5% level	-2.867279	
10% level	-2.569889	

- Model Box-Jenks

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	1	1	0.012	0.012	0.0663 0.797
2	2	2	-0.052	-0.052	1.4094 0.494
3	3	3	-0.052	-0.052	1.4094 0.494
4	4	4	-0.003	-0.003	6.8780 0.142
5	5	5	-0.081	-0.093	10.109 0.072
6	6	6	-0.027	-0.023	10.472 0.105
7	7	7	-0.027	-0.023	10.472 0.105
8	8	8	-0.031	-0.055	11.127 0.195
9	9	9	-0.003	-0.014	11.130 0.267
10	10	10	0.047	0.029	12.214 0.271
11	11	11	0.047	0.029	12.214 0.271
12	12	12	-0.020	-0.024	13.902 0.307
13	13	13	-0.023	-0.018	14.166 0.362
14	14	14	-0.055	-0.052	15.662 0.334
15	15	15	-0.005	-0.009	16.482 0.421
16	16	16	0.032	0.019	16.979 0.456
17	17	17	0.032	0.026	17.630 0.480
18	18	18	0.030	0.026	17.670 0.485
19	19	19	-0.013	-0.008	18.064 0.564
20	20	20	-0.018	-0.025	17.918 0.654
21	21	21	-0.004	-0.001	17.924 0.710
22	22	22	-0.016	-0.011	18.253 0.755
23	23	23	-0.016	-0.011	18.253 0.755
24	24	24	-0.008	-0.008	18.791 0.791
25	25	25	0.070	0.082	20.746 0.707
26	26	26	0.044	0.052	21.963 0.691
27	27	27	0.017	0.026	22.118 0.731
28	28	28	0.017	0.026	22.118 0.731
29	29	29	0.019	0.031	22.386 0.804
30	30	30	0.057	0.080	24.098 0.768
31	31	31	0.034	0.058	24.683 0.782
32	32	32	0.041	0.068	24.769 0.786
33	33	33	-0.070	-0.040	28.912 0.671
34	34	34	-0.103	-0.09	34.465 0.446
35	35	35	0.112	0.107	41.103 0.221

### LAMPIRAN 3 : ESTIMASI MODEL ARMA

- MODEL ARMA (1,0) dengan konstanta

Dependent Variable: SAHAM  
Method: Least Squares  
Date: 09/07/16 Time: 20:57  
Sample (adjusted): 2 486  
Included observations: 485 after adjustments  
Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.20E-05	0.000574	0.108064	0.9140
AR(1)	0.011658	0.045415	0.256695	0.7975
R-squared	0.000136	Mean dependent var	6.14E-05	
Adjusted R-squared	-0.001934	S.D. dependent var	0.012479	
S.E. of regression	0.012491	Akaike info criterion	-5.923436	
Sum squared resid	0.075365	Schwarz criterion	-5.906182	
Log likelihood	1438.433	Hannan-Quinn criter.	-5.916657	
F-statistic	0.065892	Durbin-Watson stat	2.001563	
Prob(F-statistic)	0.797523			
Inverted AR Roots	.01			

- MODEL ARMA (1,0) tanpa konstanta

Dependent Variable: SAHAM  
Method: Least Squares  
Date: 09/07/16 Time: 14:27  
Sample (adjusted): 2 486  
Included observations: 485 after adjustments  
Convergence achieved after 2 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	0.011662	0.045369	0.257056	0.7972
R-squared	0.000112	Mean dependent var	6.14E-05	
Adjusted R-squared	0.000112	S.D. dependent var	0.012479	
S.E. of regression	0.012479	Akaike info criterion	-5.927536	
Sum squared resid	0.075367	Schwarz criterion	-5.918909	
Log likelihood	1438.427	Hannan-Quinn criter.	-5.924146	
Durbin-Watson stat	2.001524			
Inverted AR Roots	.01			

- MODEL ARMA (0,1) dengan konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 21:03 Sample: 1 486 Included observations: 486 Convergence achieved after 6 iterations MA Backcast: 0				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.44E-05	0.000575	0.042472	0.9661
MA(1)	0.013080	0.045463	0.287711	0.7737
R-squared	0.000153	Mean dependent var	2.47E-05	
Adjusted R-squared	-0.001913	S.D. dependent var	0.012493	
S.E. of regression	0.012505	Akaike info criterion	-5.921321	
Sum squared resid	0.075682	Schwarz criterion	-5.904093	
Log likelihood	1440.881	Hannan-Quinn criter.	-5.914552	
F-statistic	0.073874	Durbin-Watson stat	1.996776	
Prob(F-statistic)	0.785894			
Inverted MA Roots	- .01			

- MODEL ARMA (0,1) tanpa konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 15:04 Sample: 1 486 Included observations: 486 Convergence achieved after 6 iterations MA Backcast: 0				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(1)	0.013088	0.045416	0.288181	0.7733
R-squared	0.000149	Mean dependent var	2.47E-05	
Adjusted R-squared	0.000149	S.D. dependent var	0.012493	
S.E. of regression	0.012492	Akaike info criterion	-5.925432	
Sum squared resid	0.075682	Schwarz criterion	-5.916818	
Log likelihood	1440.880	Hannan-Quinn criter.	-5.922048	
Durbin-Watson stat	1.996783			
Inverted MA Roots	- .01			

- MODEL ARMA (1,1) dengan konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 14:28 Sample (adjusted): 2 486 Included observations: 485 after adjustments Convergence achieved after 14 iterations MA Backcast: 1				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.72E-05	0.000372	0.046269	0.9631
AR(1)	0.821089	0.095745	8.575774	0.0000
MA(1)	-0.883985	0.076705	-11.52451	0.0000
R-squared	0.011326	Mean dependent var	6.14E-05	
Adjusted R-squared	0.011224	S.D. dependent var	0.012479	
S.E. of regression	0.012492	Akaike info criterion	-5.930567	
Sum squared resid	0.074522	Schwarz criterion	-5.904686	
Log likelihood	1441.163	Hannan-Quinn criter.	-5.920398	
F-statistic	2.760891	Durbin-Watson stat	1.880938	
Prob(F-statistic)	0.064236			
Inverted AR Roots	.82			
Inverted MA Roots	.88			

- MODEL ARMA (1,1) tanpa konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 14:28 Sample (adjusted): 2 486 Included observations: 485 after adjustments Convergence achieved after 14 iterations MA Backcast: 1				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	0.821463	0.095282	8.621373	0.0000
MA(1)	-0.884290	0.076291	-11.59100	0.0000
R-squared	0.011322	Mean dependent var	6.14E-05	
Adjusted R-squared	0.009275	S.D. dependent var	0.012479	
S.E. of regression	0.012421	Akaike info criterion	-5.934687	
Sum squared resid	0.074522	Schwarz criterion	-5.917432	
Log likelihood	1441.161	Hannan-Quinn criter.	-5.927907	
Durbin-Watson stat	1.881057			
Inverted AR Roots	.82			
Inverted MA Roots	.88			

- MODEL ARMA (2,0) dengan konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 20:57 Sample (adjusted): 3 486 Included observations: 484 after adjustments Convergence achieved after 3 iterations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.82E-05	0.000545	0.143567	0.8859
AR(1)	0.009971	0.045517	0.219067	0.8267
AR(2)	-0.052496	0.045425	-1.155664	0.2484
R-squared	0.002857	Mean dependent var	8.18E-05	
Adjusted R-squared	-0.001290	S.D. dependent var	0.012484	
S.E. of regression	0.012492	Akaike info criterion	-5.921241	
Sum squared resid	0.075063	Schwarz criterion	-5.895319	
Log likelihood	1435.940	Hannan-Quinn criter.	-5.911055	
F-statistic	0.688984	Durbin-Watson stat	2.011432	
Prob(F-statistic)	0.502581			
Inverted AR Roots	.00-.23i	.00+.23i		

- MODEL ARMA (2,0) tanpa konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 20:52 Sample (adjusted): 3 486 Included observations: 484 after adjustments Convergence achieved after 3 iterations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	0.009996	0.045470	0.219845	0.8261
AR(2)	-0.052495	0.045379	-1.156802	0.2479
R-squared	0.002814	Mean dependent var	8.18E-05	
Adjusted R-squared	0.000745	S.D. dependent var	0.012484	
S.E. of regression	0.012480	Akaike info criterion	-5.925330	
Sum squared resid	0.075066	Schwarz criterion	-5.908049	
Log likelihood	1435.930	Hannan-Quinn criter.	-5.918539	
Durbin-Watson stat	2.011396			
Inverted AR Roots	.00+.23i	.00-.23i		

- MODEL ARMA (0,2) dengan konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 21:04 Sample: 1 486 Included observations: 486 Convergence achieved after 9 iterations MA Backcast: -1 0				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.68E-05	0.000536	0.050014	0.9601
MA(1)	-0.000403	0.045462	-0.008871	0.9929
MA(2)	-0.053814	0.045453	-1.183947	0.2370
R-squared	0.002807	Mean dependent var	2.47E-05	
Adjusted R-squared	-0.001322	S.D. dependent var	0.012493	
S.E. of regression	0.012501	Akaike info criterion	-5.919863	
Sum squared resid	0.075481	Schwarz criterion	-5.894023	
Log likelihood	1441.527	Hannan-Quinn criter.	-5.909711	
F-statistic	0.679743	Durbin-Watson stat	1.982312	
Prob(F-statistic)	0.507231			
Inverted MA Roots	.23	- .23		

- MODEL ARMA (0,2) tanpa konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 21:05 Sample: 1 486 Included observations: 486 Convergence achieved after 9 iterations MA Backcast: -1 0				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(1)	-0.000388	0.045415	-0.008540	0.9932
MA(2)	-0.053796	0.045406	-1.184774	0.2367
R-squared	0.002802	Mean dependent var	2.47E-05	
Adjusted R-squared	0.000741	S.D. dependent var	0.012493	
S.E. of regression	0.012488	Akaike info criterion	-5.923973	
Sum squared resid	0.075481	Schwarz criterion	-5.906746	
Log likelihood	1441.526	Hannan-Quinn criter.	-5.917205	
Durbin-Watson stat	1.982329			
Inverted MA Roots	.23	- .23		

- MODEL ARMA (2,2) dengan konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 20:59 Sample (adjusted): 3 486 Included observations: 484 after adjustments Convergence achieved after 16 iterations MA Backcast: 1 2				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.05E-05	0.000461	0.066183	0.9473
AR(1)	1.606330	0.104271	15.40528	0.0000
AR(2)	-0.786405	0.094120	-8.355358	0.0000
MA(1)	-1.646663	0.107766	-15.27996	0.0000
MA(2)	0.794011	0.099449	7.984117	0.0000
R-squared	0.028724	Mean dependent var	8.18E-05	
Adjusted R-squared	0.020614	S.D. dependent var	0.012484	
S.E. of regression	0.012355	Akaike info criterion	-5.939260	
Sum squared resid	0.073116	Schwarz criterion	-5.896057	
Log likelihood	1442.301	Hannan-Quinn criter.	-5.922284	
F-statistic	3.541472	Durbin-Watson stat	1.952171	
Prob(F-statistic)	0.007329			
Inverted AR Roots	.80-.38i	.80+.38i		
Inverted MA Roots	.82-.34i	.82+.34i		

- MODEL ARMA (2,2) tanpa konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 20:51 Sample (adjusted): 3 486 Included observations: 484 after adjustments Convergence achieved after 16 iterations MA Backcast: 1 2				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	1.606654	0.104071	15.43806	0.0000
AR(2)	-0.786441	0.093967	-8.369311	0.0000
MA(1)	-1.647054	0.107518	-15.31891	0.0000
MA(2)	0.794180	0.099261	8.000891	0.0000
R-squared	0.028716	Mean dependent var	8.18E-05	
Adjusted R-squared	0.022645	S.D. dependent var	0.012484	
S.E. of regression	0.012342	Akaike info criterion	-5.943384	
Sum squared resid	0.073116	Schwarz criterion	-5.908821	
Log likelihood	1442.299	Hannan-Quinn criter.	-5.929803	
Durbin-Watson stat	1.952029			
Inverted AR Roots	.80-.38i	.80+.38i		
Inverted MA Roots	.82+.34i	.82-.34i		

- MODEL ARMA (3,0) dengan konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 20:56 Sample (adjusted): 4 486 Included observations: 483 after adjustments Convergence achieved after 3 iterations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.54E-05	0.000489	0.195184	0.8453
AR(1)	0.002547	0.045390	0.056117	0.9553
AR(2)	-0.054623	0.045303	-1.205722	0.2285
AR(3)	-0.104881	0.045284	-2.316086	0.0210
R-squared	0.014225	Mean dependent var	0.000109	
Adjusted R-squared	0.008051	S.D. dependent var	0.012482	
S.E. of regression	0.012432	Akaike info criterion	-5.928845	
Sum squared resid	0.074031	Schwarz criterion	-5.894228	
Log likelihood	1435.816	Hannan-Quinn criter.	-5.915241	
F-statistic	2.303959	Durbin-Watson stat	1.998223	
Prob(F-statistic)	0.076171			
Inverted AR Roots	.22+.44i	.22-.44i	-43	

- MODEL ARMA (3,0) tanpa konstanta

Dependent Variable: SAHAM Method: Least Squares Date: 09/07/16 Time: 20:52 Sample (adjusted): 4 486 Included observations: 483 after adjustments Convergence achieved after 3 iterations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	0.002595	0.045344	0.057233	0.9544
AR(2)	-0.054595	0.045258	-1.206309	0.2283
AR(3)	-0.104886	0.045238	-2.318519	0.0208
R-squared	0.014146	Mean dependent var	0.000109	
Adjusted R-squared	0.010038	S.D. dependent var	0.012482	
S.E. of regression	0.012419	Akaike info criterion	-5.932906	
Sum squared resid	0.074037	Schwarz criterion	-5.906943	
Log likelihood	1435.797	Hannan-Quinn criter.	-5.922703	
Durbin-Watson stat	1.998161			
Inverted AR Roots	.22-.44i	.22+.44i	-43	

- MODEL ARMA (0,3) dengan konstanta

Dependent Variable: SAHAM				
Method: Least Squares				
Date: 09/07/16 Time: 21:04				
Sample: 1 486				
Included observations: 486				
Convergence achieved after 7 iterations				
MA Backcast: -2 0				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.41E-05	0.000446	0.076502	0.9391
MA(1)	0.000937	0.045177	0.020737	0.9835
MA(2)	-0.079167	0.045024	-1.758332	0.0793
MA(3)	-0.131572	0.045195	-2.911235	0.0038
R-squared	0.017954	Mean dependent var	2.47E-05	
Adjusted R-squared	0.011842	S.D. dependent var	0.012493	
S.E. of regression	0.012419	Akaike info criterion	-5.931055	
Sum squared resid	0.074334	Schwarz criterion	-5.896601	
Log likelihood	1445.246	Hannan-Quinn criter.	-5.917519	
F-statistic	2.937411	Durbin-Watson stat	1.990585	
Prob(F-statistic)	0.032930			
Inverted MA Roots	.56	- .28-.40i	- .28+.40i	

- MODEL ARMA (0,3) tanpa konstanta

Dependent Variable: SAHAM				
Method: Least Squares				
Date: 09/07/16 Time: 21:04				
Sample: 1 486				
Included observations: 486				
Convergence achieved after 7 iterations				
MA Backcast: -2 0				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(1)	0.000962	0.045130	0.021307	0.9830
MA(2)	-0.079132	0.044978	-1.759353	0.0792
MA(3)	-0.131538	0.045149	-2.913440	0.0037
R-squared	0.017942	Mean dependent var	2.47E-05	
Adjusted R-squared	0.013876	S.D. dependent var	0.012493	
S.E. of regression	0.012406	Akaike info criterion	-5.935158	
Sum squared resid	0.074335	Schwarz criterion	-5.909317	
Log likelihood	1445.243	Hannan-Quinn criter.	-5.925006	
Durbin-Watson stat	1.990613			
Inverted MA Roots	.56	- .28-.40i	- .28+.40i	

- MODEL ARMA (3,3) dengan konstanta

Dependent Variable: SAHAM				
Method: Least Squares				
Date: 09/07/16 Time: 20:55				
Sample (adjusted): 4 486				
Included observations: 483 after adjustments				
Convergence achieved after 15 iterations				
MA Backcast: 1 3				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.20E-05	0.000361	0.033086	0.9736
AR(1)	-0.257751	0.330412	-0.780090	0.4357
AR(2)	0.452317	0.224095	2.018418	0.0441
AR(3)	0.237271	0.303614	0.781490	0.4349
MA(1)	0.255127	0.318985	0.799807	0.4242
MA(2)	-0.522999	0.212931	-2.456196	0.0144
MA(3)	-0.373192	0.302480	-1.233772	0.2179
R-squared	0.024176	Mean dependent var	0.000109	
Adjusted R-squared	0.011876	S.D. dependent var	0.012482	
S.E. of regression	0.012408	Akaike info criterion	-5.926569	
Sum squared resid	0.073284	Schwarz criterion	-5.885989	
Log likelihood	1438.266	Hannan-Quinn criter.	-5.902763	
F-statistic	1.965509	Durbin-Watson stat	1.995602	
Prob(F-statistic)	0.069052			
Inverted AR Roots	.76	- .51-.24i	- .51+.24i	
Inverted MA Roots	.86	- .56+.35i	- .56-.35i	

- MODEL ARMA (3,3) tanpa konstanta

Dependent Variable: SAHAM				
Method: Least Squares				
Date: 09/07/16 Time: 20:54				
Sample (adjusted): 4 486				
Included observations: 483 after adjustments				
Convergence achieved after 15 iterations				
MA Backcast: 1				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.257738	0.330148	-0.780674	0.4354
AR(2)	0.452784	0.223706	2.024013	0.0435
AR(3)	0.237589	0.303372	0.782160	0.4339
MA(1)	0.255129	0.318726	0.800466	0.4238
MA(2)	-0.523407	0.212571	-2.462274	0.0142
MA(3)	-0.373450	0.302241	-1.235602	0.2172
R-squared	0.024174	Mean dependent var	0.000109	
Adjusted R-squared	0.013945	S.D. dependent var	0.012482	
S.E. of regression	0.012395	Akaike info criterion	-5.930708	
Sum squared resid	0.073284	Schwarz criterion	-5.878782	
Log likelihood	1438.266	Hannan-Quinn criter.	-5.910302	
Durbin-Watson stat	1.995632			
Inverted AR Roots	.76	-.51-.24i	-.51+.24i	
Inverted MA Roots	.86	-.56+.35i	-.56-.35i	

## LAMPIRAN 4 : Model ARIMA Terbaik, Uji Efek ARCH

### 1. MODEL ARMA TERBAIK DAN UJI EFEK ARCH

- MODEL ARMA (1,1) tanpa konstanta

Dependent Variable: SAHAM				
Method: Least Squares				
Date: 09/07/16 Time: 14:28				
Sample (adjusted): 2 486				
Included observations: 485 after adjustments				
Convergence achieved after 14 iterations				
MA Backcast: 1				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	0.821463	0.095282	8.621373	0.0000
MA(1)	-0.884290	0.076291	-11.59100	0.0000
R-squared	0.011322	Mean dependent var	6.14E-05	
Adjusted R-squared	0.009275	S.D. dependent var	0.012479	
S.E. of regression	0.012421	Akaike info criterion	-5.934687	
Sum squared resid	0.074522	Schwarz criterion	-5.917432	
Log likelihood	1441.161	Hannan-Quinn criter.	-5.927907	
Durbin-Watson stat	1.881057			
Inverted AR Roots	.82			
Inverted MA Roots	.88			

- Uji Heterokedastisitas pada Model ARMA (1,1)

#### Heteroskedasticity Test: ARCH

F-statistic	8.695086	Prob. F(1,482)	0.0033
Obs*R-squared	8.576449	Prob. Chi-Square(1)	0.0034

## LAMPIRAN 5 : Estimasi Model ARMA(1,1)-EGARCH-M

### 1. Model EGARCH-M Standar Deviasi

- Model EGARCH(0,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/13/16 Time: 09:23					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 55 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}(1)) = \text{C}(1) + \text{C}(5)/\text{RESID}(1)@\text{SQR}(\text{GARCH}(1)) + \text{C}(6)$					
"LOG(GARCH(1))"					
Variable Coefficient Std. Error z-Statistic Prob.					
@SQR(GARCH(1))	-0.009524	0.024534	-0.392259	0.9848	
AR(1)	0.950167	0.016763	56.8818	0.0000	
MA(1)	-0.974896	0.029163	-32.3077	0.0000	
Variance Equation					
C(4)	-0.105190	0.061271	-1.716793	0.0865	
C(5)	-0.063911	0.014805	-4.681687	0.0000	
C(6)	0.988141	0.065791	14.54977	0.0000	
R-squared	0.007195	Mean dependent var		6.14E-05	
Adjusted R-squared	0.003075	S.D. dependent var		0.012479	
S.E. of regression	0.012460	Akaike info criterion		-4.8789	
F-statistic	0.072453	Schwarz criterion		-6.002322	
Log likelihood	1474.338	Hannan-Quinn criter.		-6.034657	
Durbin-Watson stat	1.945779				
Inverted AR Roots	95				
Inverted MA Roots	97				

- Model EGARCH(1,0)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/13/16 Time: 10:01					
Sample (adjusted): 1 485					
Included observations: 485 after adjustments					
Convergence achieved after 18 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}(1)) = \text{C}(1) + \text{C}(5)/\text{RESID}(1)@\text{SQR}(\text{GARCH}(1)) + \text{C}(6)$					
"RESID(1)@\text{SQR}(\text{GARCH}(1))"					
Variable Coefficient Std. Error z-Statistic Prob.					
@SQR(GARCH(1))	0.010688	0.023999	0.419439	0.6749	
AR(1)	0.950167	0.016763	56.8818	0.0000	
MA(1)	-0.955590	0.036371	-24.89847	0.0000	
Variance Equation					
C(4)	-0.102549	0.074640	-1.218530	0.0000	
C(5)	0.362338	0.078984	4.592165	0.0000	
C(6)	-0.154619	0.052768	-2.930148	0.0034	
R-squared	0.003881	Mean dependent var		6.14E-05	
Adjusted R-squared	-0.000252	S.D. dependent var		0.012479	
S.E. of regression	0.012481	Akaike info criterion		-5.968233	
Sum squared resid	1.209162	Schwarz criterion		-5.911770	
Log likelihood	1453.296	Hannan-Quinn criter.		-5.947895	
Durbin-Watson stat	1.797521				
Inverted AR Roots	81				
Inverted MA Roots	91				

- Model EGARCH(0,2)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/13/16 Time: 09:24					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 82 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}(1)) = \text{C}(1) + \text{C}(5)/\text{RESID}(1)@\text{SQR}(\text{GARCH}(1)) + \text{C}(6)$					
"LOG(GARCH(1))"					
Variable Coefficient Std. Error z-Statistic Prob.					
@SQR(GARCH(1))	-0.010146	0.024982	-0.405126	0.6847	
AR(1)	0.948818	0.017256	54.98582	0.0000	
MA(1)	-0.973645	0.010192	-95.53137	0.0000	
Variance Equation					
C(4)	-0.114859	0.003369	-34.09637	0.0000	
C(5)	-0.003080	0.012460	-0.247462	0.8000	
C(6)	0.765610	0.003104	23.64556	0.0000	
C(7)	0.191419	0.72E-05	269.238	0.0000	
R-squared	0.007255	Mean dependent var		6.14E-05	
Adjusted R-squared	0.003136	S.D. dependent var		0.012479	
S.E. of regression	0.012460	Akaike info criterion		-5.91203	
Sum squared resid	0.074828	Schwarz criterion		-5.990813	
Log likelihood	1474.417	Hannan-Quinn criter.		-6.027475	
Durbin-Watson stat	1.945849				
Inverted AR Roots	95				
Inverted MA Roots	97				

- Model EGARCH(1,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/13/16 Time: 10:02					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 21 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}(1)) = \text{C}(1) + \text{C}(5)/\text{RESID}(1)@\text{SQR}(\text{GARCH}(1)) + \text{C}(6)$					
"RESID(1)@\text{SQR}(\text{GARCH}(1))"					
Variable Coefficient Std. Error z-Statistic Prob.					
@SQR(GARCH(1))	0.003670	0.014821	0.247626	0.8044	
AR(1)	0.948991	0.010889	87.15356	0.0000	
MA(1)	-0.979370	0.006461	-151.5821	0.0000	
Variance Equation					
C(4)	-0.119373	0.028399	-4.203507	0.0000	
C(5)	-0.072893	0.026980	-2.694311	0.0071	
C(6)	-0.090401	0.015315	-5.902937	0.0000	
C(7)	0.980637	0.001915	512.1231	0.0000	
R-squared	0.004134	Mean dependent var		6.14E-05	
Adjusted R-squared	0.000002	S.D. dependent var		0.012479	
S.E. of regression	0.012479	Akaike info criterion		-6.073559	
Sum squared resid	0.075064	Schwarz criterion		-6.013170	
Log likelihood	1479.838	Hannan-Quinn criter.		-6.049832	
Durbin-Watson stat	1.927956				
Inverted AR Roots	95				
Inverted MA Roots	98				

- Model EGARCH(0,3)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/13/16 Time: 09:25					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 82 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}(1)) = \text{C}(1) + \text{C}(5)/\text{RESID}(1)@\text{SQR}(\text{GARCH}(1)) + \text{C}(6)$					
"LOG(GARCH(1))"					
Variable Coefficient Std. Error z-Statistic Prob.					
@SQR(GARCH(1))	0.002184	0.023867	0.091498	0.9271	
AR(1)	0.882291	0.035888	22.86692	0.0000	
MA(1)	-0.939447	0.025249	-37.21548	0.0000	
Variance Equation					
C(4)	-0.073215	0.113362	-0.645849	0.5184	
C(5)	-0.100698	0.014526	-6.929804	0.0000	
C(6)	0.191952	0.012743	15.37420	0.0000	
C(7)	-0.165220	0.010731	-15.37400	0.0000	
C(8)	0.958223	0.014616	66.53585	0.0000	
R-squared	0.008030	Mean dependent var		6.14E-05	
Adjusted R-squared	0.003919	S.D. dependent var		0.012479	
S.E. of regression	0.012479	Akaike info criterion		-6.073559	
Sum squared resid	0.074770	Schwarz criterion		-6.003649	
Log likelihood	1478.196	Hannan-Quinn criter.		-6.035548	
Durbin-Watson stat	1.864748				
Inverted AR Roots	88				
Inverted MA Roots	94				

### • Model EGARCH(1,2)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:02					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 23 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)\text{ABS}(\text{RESID}(1))\text{@SQR}(\text{GARCH}(1)) + C(6)$					
$-\text{RESID}(1)^2\text{@SQR}(\text{GARCH}(1)) + C(7)\text{LOG}(\text{GARCH}(1)) + C(8)$					
$-\text{LOG}(\text{GARCH}(2))$					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
@SQR(GARCH)	0.019958	0.039530	0.504979	0.6138	
AR(1)	-0.710525	0.298868	-2.377383	0.0174	
MA(1)	0.688671	0.301371	2.285128	0.0223	
Variance Equation					
C(4)	-0.006971	1.61E-08	-433244.2	0.0000	
C(5)	-0.050655	6.77E-11	-7.47E+08	0.0000	
C(6)	0.010900	6.77E-11	-6.02E+08	0.0000	
C(7)	0.751761	0.072005	10.9588	0.0000	
C(8)	0.203318	0.072421	2.807428	0.0050	
R-squared	-0.001035	Mean dependent var			
Adjusted R-squared	0.005190	S.D. dependent var			
S.E. of regression	0.012512	Akaike info criterion			
Sum squared resid	0.075453	Schwarz criterion			
Log likelihood	1475.729	Hannan-Quinn criter.			
Durbin-Watson stat	1.928888				
Inverted AR Roots	.71				
Inverted MA Roots	.69				

### • Model EGARCH(1,3)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:02					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 33 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)\text{ABS}(\text{RESID}(1))\text{@SQR}(\text{GARCH}(1)) + C(6)$					
$-\text{RESID}(1)^2\text{@SQR}(\text{GARCH}(1)) + C(7)\text{LOG}(\text{GARCH}(1)) + C(8)$					
$-\text{LOG}(\text{GARCH}(2))$					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
@SQR(GARCH)	0.011039	0.020490	0.538729	0.5981	
AR(1)	0.906404	0.035912	25.23945	0.0000	
MA(1)	-0.857792	0.020174	-47.4548	0.0000	
Variance Equation					
C(4)	-0.250709	0.258895	-1.973844	0.0484	
C(5)	0.132272	0.038816	3.426340	0.0006	
C(6)	-0.077796	0.016201	-4.801399	0.0000	
C(7)	0.197038	0.008914	22.10519	0.0000	
C(8)	0.879330	0.010079	86.63328	0.0000	
R-squared	0.003174	Mean dependent var			
Adjusted R-squared	0.000961	S.D. dependent var			
S.E. of regression	0.012483	Akaike info criterion			
Sum squared resid	0.075113	Schwarz criterion			
Log likelihood	1469.911	Hannan-Quinn criter.			
Durbin-Watson stat	1.888974				
Inverted AR Roots	.91				
Inverted MA Roots	.96				

### • Model EGARCH(2,0)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:08					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Failure to improve Likelihood after 4 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)\text{ABS}(\text{RESID}(1))\text{@SQR}(\text{GARCH}(1)) + C(6)$					
$-\text{RESID}(1)^2\text{@SQR}(\text{GARCH}(2)) + C(7)\text{LOG}(\text{GARCH}(1)) + C(8)$					
$-\text{LOG}(\text{GARCH}(1))$					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
@SQR(GARCH)	0.023392	0.040002	0.507940	0.6116	
AR(1)	-0.859199	0.018817	-50.9738	0.0000	
MA(1)	0.962893	0.010972	87.75874	0.0000	
Variance Equation					
C(4)	-0.063798	0.082477	-109.8953	0.0000	
C(5)	0.163454	0.068055	2.401780	0.1613	
C(6)	0.153561	0.068475	2.242568	0.0249	
C(7)	-0.139757	0.051248	-2.727057	0.0064	
R-squared	-0.000293	Mean dependent var			
Adjusted R-squared	-0.004444	S.D. dependent var			
S.E. of regression	0.012507	Akaike info criterion			
Sum squared resid	0.075397	Schwarz criterion			
Log likelihood	1446.887	Hannan-Quinn criter.			
Durbin-Watson stat	1.981801				
Inverted AR Roots	.96				
Inverted MA Roots	.96				

### • Model EGARCH(2,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 15:09					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 28 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)\text{ABS}(\text{RESID}(1))\text{@SQR}(\text{GARCH}(1)) + C(6)$					
$-\text{RESID}(1)^2\text{@SQR}(\text{GARCH}(2)) + C(7)\text{LOG}(\text{GARCH}(1)) + C(8)$					
$-\text{LOG}(\text{GARCH}(2))$					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
@SQR(GARCH)	0.017540	0.047949	0.365682	0.7145	
AR(1)	-0.880198	0.409290	-2.062958	0.0993	
MA(1)	0.657841	0.174149	3.756570	0.1151	
Variance Equation					
C(4)	0.000481	0.017172	0.027747	0.9732	
C(5)	0.008483	0.096278	0.10156	0.9202	
C(6)	-0.045812	0.093841	-0.488184	0.6254	
C(7)	-0.075182	0.005114	-7.901882	0.0000	
C(8)	0.097121	0.002028	47.396708	0.0000	
R-squared	-0.001141	Mean dependent var			
Adjusted R-squared	-0.005071	S.D. dependent var			
S.E. of regression	0.012512	Akaike info criterion			
Sum squared resid	0.075491	Schwarz criterion			
Log likelihood	1445.729	Hannan-Quinn criter.			
Durbin-Watson stat	1.927575				
Inverted AR Roots	.68				
Inverted MA Roots	.66				

### • Model EGARCH(2,2)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:09					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 12 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)\text{ABS}(\text{RESID}(1))\text{@SQR}(\text{GARCH}(1)) + C(6)$					
$-\text{RESID}(1)^2\text{@SQR}(\text{GARCH}(2)) + C(7)\text{LOG}(\text{GARCH}(1)) + C(8)$					
$-\text{LOG}(\text{GARCH}(2))$					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
@SQR(GARCH)	-0.006703	0.017797	-0.376658	0.7064	
AR(1)	0.954688	0.012440	76.74053	0.0000	
MA(1)	-0.981524	0.006378	-146.9850	0.0000	
Variance Equation					

- Model EGARCH(2,3)-M

Dependent Variable	SAH4M			
Model	ML - ARCH (Maillard) - Normal distribution			
Date	08/10/2015			
Time	10:11			
Sample (days)	2,498			
Included observations:	485 after adjustments			
Convergence achieved after	62 iterations			
MA Backcast	1			
Presample:	broadcast (parameter = 0.7)			
LOG(GARCH(1,1)) + C(4)*SQR(BSRESID(1))/SQR(T(GARCH(1,1))) + C(6)				
*SQR(BSRESID(1)) + C(5)*SQR(GARCH(1,1)) + C(7)*RESID(1)				
*/SQR(T(GARCH(1,1)) + C(8)*LOG(GARCH(1,1)) + C(9)*LOG(GARCH(1,1)) + C(10)*LOG(GARCH(3))				
Variable	Coefficient	Std. Error	t-statistic	Prob.
@SQT(GARCH)	0.020958	0.022109	1.354928	0.1726
AR(1)	0.873054	0.051899	16.788981	0.0000
MA(1)	-0.928302	0.039860	-25.18427	0.0000
Variance Equation				
C(4)	-0.35129	0.102083	-3.655778	0.0058
C(5)	0.207881	0.048449	4.290988	0.0000
C(6)	225493.0	0.047053	4.813609	0.0000
C(7)	0.000000	0.000000	0.000000	1.0000
C(8)	0.139395	0.03276	4.152584	0.0000
C(9)	-0.171540	0.010790	-15.98790	0.0000
C(10)	0.796717	0.016740	45.53961	0.0000
R-squared	0.006290	Mean dependent var	6.14E-05	
Adjusted R-squared	0.002167	S.D. dependent var	0.012479	
S.E. of regression	0.012466	Akaike info criterion	-6.107460	
Sum squared resid	0.074901	Schwarz criterio	-0.020499	
Log Likelihood	1494.884	Hannan-Quinn criter.	-6.072844	
Durbin-Watson stat	1.693523			
Inverted AR Roots	.87			
Inverted MA Roots	.93			

- Model EGARCH(3,0)-M

Dependent Variable: SAHMM					
Method: ML - AR(Ch) (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:12					
Sample (adjusted): 2,486					
Instruments (endog): 485 after adjustments					
Convergence achieved after 25 iterations					
MacBac(1)					
Pre-estimation statistics: backcast (parameter = 0.7)					
$\text{LOG}(GARCH(1,1)) + C15)*\text{SORT}(GARCH(1,1)) + C(6)$					
$-AB5*\text{RESID}(1)^2/\text{SORT}(\text{GARCH}(2,2)) + C(7)/AB5*\text{RESID}(3)$					
$+C(8)/\text{SORT}(\text{GARCH}(3,3)) + C(9)/\text{SERT}(\text{GARCH}(1,1))$					
Variable					
Standard Error					
@GARCH(1,1)					
AB5(1)	0.931093	0.146243	-0.237108	0.000000	
M4(1)	0.921988	0.157909	5.834370	0.000000	
Variance Equation					
C(4)					
-9.211767	0.116840	-8.840600	0.0000		
C(5)					
0.234260	0.082288	0.234260	0.0000		
C(6)					
0.237905	0.237905	0.237905	0.0000		
C(7)					
0.141523	0.054895	2.579057	0.0094		
C(8)					
-0.313185	0.055203	2.579057	0.0093		
R-squared					
0.000032					
Adjusted R-squared					
-0.004182					
S.E. of regression					
0.012505					
Durbin-Watson stat					
1.955647					
Inverted AR Roots					
-93					
Inverted MA Roots					
-92					
Sargan statistic					
1448.474					
Schwarz criterion					
-5.9108					
Akaike criterion					
-5.912984					

- Model EGARCH(3,1)-M

Dependent Variable: S4A4M					
Method: ML - AR(Ch) (Markovian) - Normal distribution					
Date: 09/07/10 Time: 15:13					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 20 iterations					
MacBacstat:					
Systematic variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}(4)) = C(4) + C(5)\text{AB5}/\text{RESID}(1) + C(6)$					
+ $C(7)\text{AB5}/\text{RESID}(2) + C(8)\text{GARCH}(2,-1) + C(9)\text{AB5}/\text{RESID}(3)$					
+ $C(10)\text{GARCH}(3,-1) + C(11)\text{RESID}(1)/\text{GARCH}(4,-1) + C(12)$					
+ $C(13)\text{GARCH}(1,-1)$					
Variable					
Coefficient Std. Error z-Statistic Prob.					
@SQR(GARCH)					
AR(1)	0.028320	0.041470	5.674561	0.5704	
MA(1)	-0.998037	0.055390	-183.8347	0.0000	
Variance Equation					
C(4)					
	0.006879	0.014983	0.459131	0.6487	
C(5)					
	-0.010337	0.019146	-0.113057	0.9000	
C(6)					
	0.026522	0.015712	1.668000	0.1000	
C(7)					
	0.025622	0.015712	-0.483023	0.3308	
C(8)					
	-0.061311	0.007298	-8.239373	0.0000	
C(9)					
	0.997924	0.000102	982.399	3.3999	
Required					
Adjusted R-squared					
S.E. of regression	0.01854	SD dependent var	6.146451		
Sum squared resid	0.012491	SD dependent var	0.102479		
Log Likelihood	0.075203	Akaike info criterion	-6.045085		
Durbin-Watson stat	1474.928	Schwarz criterion	5.96742		
Inverted AR Roots	.99	Hannan-Quinn criter.	-6.014554		
Inverted MA Roots	-1.00				

- Model EGARCH(3,2)-M

Parameter Estimates					
	Estimate	Standard Error	t-Statistic	Prob.	
Methane - ARCH (Marquardt)	-0.007014	0.00013	-53.03	<0.0001	
Sample (adjusted)	2 498				
Observations	485	485	adjustments		
Convergence achieved after 8 iterations					
Residual sum-of-squares backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)\text{ABS}(\text{RESID}(1))^{0.7}\text{LOG}(\text{GARCH}(1)) + C(6)$					
$+ \text{ABS}(\text{RESID}(2))^{0.7}\text{LOG}(\text{GARCH}(2)) + C(7)\text{ABS}(\text{RESID}(3))$					
$+ (\text{SQRT}(\text{GARCH}))^{(1)}(C(8)\text{RESID}(1)^{0.5})\text{LOG}(\text{GARCH}(1)) + C(9)$					
$\text{LOG}(\text{GARCH}(1)) + C(10)\text{LOG}(\text{GARCH}(2))$					
Variable					
	Coefficient	Std. Err.	t-Statistic	Prob.	
@SQRT(GARCH)	-0.005296	0.016984	-3.11629	0.0753	
AR(1)	0.048011	0.0059472	100.0897	0.0000	
MA(1)	0.079373	0.005927	116.2491	0.0000	
Variance Equation					
C(4)	0.165419	0.01502	-10.1390	0.000	
C(5)	0.098856	0.003722	24.6782	0.0081	
C(6)	0.000000	0.000000	0.000000	0.2613	
C(7)	0.107740	0.002726	-37.1760	0.0000	
C(8)	0.123594	0.016122	-76.6889	0.0000	
C(9)	0.070849	0.000449	157.194	0.0000	
C(10)	0.265169	3.84E-05	69.1058	0.0000	
R-squared					
Adjusted R-squared	0.00512	Mean dependent var	6.14E-05		
S.E. of regression	0.000958	S.D. dependent var	0.012479		
Residual standard error	0.012473	S.D. of regressor	0.056117		
Log likelihood	-1478.608	Akaike info criterion	-5.96884		
Durbin-Watson stat	1.298907	Hannan-Quinn criter.	-0.022221		
Inverted AR Roots	95				
Inverted MA Roots	98				

- Model EGARCH(3,3)-M

Dependent variable: SAH4M					
Method: ML - RHO(ARCH) - Normal distribution					
Date: 09/07/16 Time: 16:13					
Sample (adjusted): 2488					
Included observations: 485 after adjustments					
R-squared: 0.7000					
Adjusted R-squared: 0.6970					
Log likelihood: -110.0000					
Akaike info criterion: 220.0000					
S.B. of residuals: 38.3889					
Sum squared resid: 145937.0000					
Durbin-Watson stat: 1.78368					
<b>Presample variance: backcast (parameter = 0.7)</b>					
$\text{LOG}(\text{GARCH}_t) = C_4 + \frac{1}{2} \text{ABS}(\text{RESID}_{t-1})^2 (\log(\text{GARCH}_{t-1})) + C_6$					
$\text{ABS}(\text{RESID}_{t-1})^2 = @SQRT(\text{GARCH}_{t-1}) + C_7 \text{ABS}(\text{RESID}_{t-2})^2$					
$\text{ABS}(\text{RESID}_{t-2})^2 = @SQRT(\text{GARCH}_{t-2}) + C_8 \text{ABS}(\text{RESID}_{t-3})^2$					
$\vdots$					
$\text{ABS}(\text{RESID}_{t-10})^2 = @SQRT(\text{GARCH}_{t-10}) + C_{10} \text{ABS}(\text{RESID}_{t-11})^2$					
$\text{ABS}(\text{RESID}_{t-11})^2 = @SQRT(\text{GARCH}_{t-11})$					
Variable	Coefficient	Std Error	t-Statistic	Prob.	
@SQRT(GARCH)	0.00548	0.18528	0.03409	0.7605	
AR(1)	0.88247	0.02351	38.3889	0.0000	
MA(1)	-0.95150	0.01208	-75.7659	0.0000	
<b>Variance Equation</b>					
C(4)	-0.00114	0.05883	-1.00468	0.3666	
C(5)	0.04313	0.04773	2.191789	0.0342	
C(6)	0.01170	0.04773	0.238649	0.7382	
C(7)	0.230932	0.055573	4.155437	0.0000	
C(8)	-0.11032	0.01806	-65.250909	0.0000	
C(9)	0.281123	0.026802	10.48877	0.0000	
C(10)	-0.05483	0.035881	-1.525813	0.1266	
C(11)	0.054839	0.035981	1.755813	0.0731	
R-squared	0.04143	Mean dependent var		6.14E-05	
Adjusted R-squared	-0.00000	S.D. dependent var		0.012479	
S.E. of regression	0.012479	Akaike info criterion		-0.691741	
Sum squared resid	0.070564	Schwarz criterion		-5.99864	
Log likelihood	1488.247	Hannan-Quinn criter.		-6.054455	
Durbin-Watson stat	1.873686				
Inverted AR Roots	89				
Inverted MA Roots	95				

## 2. Model EGARCH-M Variansi

- Model EGARCH(0,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date 09/13/16 Time: 09:25					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 41 iterations					
MA Backcast 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG(GARCH)} = C(4) + C(5)\text{RESID}(-1)/\text{SQRT}(\text{GARCH}(-1)) + C(6)$					
*LOG(GARCH(-1))					
Variable Coefficient Std. Error z-Statistic Prob.					
GARCH	-0.837566	1.914977	-0.437376	0.6618	
AR(1)	0.949388	0.016975	55.92851	0.0000	
MA(1)	-0.974652	0.012578	-77.48900	0.0000	
Variance Equation					
C(4)	-0.102407	0.061333	-1.669694	0.0950	
C(5)	-0.059076	0.014708	-4.696377	0.0000	
C(6)	0.988444	0.006788	145.6177		
R-squared	0.007204	Mean dependent var		6.14E-05	
Adjusted R-squared	0.003085	S.D. dependent var		0.012479	
S.E. of regression	0.012460	Akaike info criterion		-6.055082	
Sum squared resid	0.074832	Schwarz criterion		-6.003319	
Log likelihood	1474.357	Hannan-Quinn criter.		-6.034744	
Durbin-Watson stat	1.945668				
Inverted AR Roots	.95				
Inverted MA Roots	.97				

- Model EGARCH(0,2)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date 09/13/16 Time: 09:27					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 31 iterations					
MA Backcast 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG(GARCH)} = C(4) + C(5)\text{RESID}(-1)/\text{SQRT}(\text{GARCH}(-1)) + C(6)$					
*LOG(GARCH(-1)) *C(7)*LOG(GARCH(-2))					
Variable Coefficient Std. Error z-Statistic Prob.					
GARCH	-0.921021	1.97794	-0.416983	0.6774	
AR(1)	0.942780	0.016944	48.29958	0.0000	
MA(1)	-0.971138	0.010269	94.56985	0.0000	
Variance Equation					
C(4)	-0.128287	0.005184	-24.81159	0.0000	
C(5)	-0.096095	0.018839	-5.073812	0.0000	
C(6)	0.411862	0.000402	1024.989	0.0000	
C(7)	0.573562	0.000790	725.6699	0.0000	
R-squared	0.007262	Mean dependent var		6.14E-05	
Adjusted R-squared	0.003142	S.D. dependent var		0.012479	
S.E. of regression	0.012460	Akaike info criterion		-6.049020	
Sum squared resid	0.074828	Schwarz criterion		-5.988351	
Log likelihood	1473.887	Hannan-Quinn criter.		-6.025293	
Durbin-Watson stat	1.942319				
Inverted AR Roots	.94				
Inverted MA Roots	.97				

- Model EGARCH(0,3)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date 09/13/16 Time: 09:27					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 45 iterations					
MA Backcast 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG(GARCH)} = C(4) + C(5)\text{RESID}(-1)/\text{SQRT}(\text{GARCH}(-1)) + C(6)$					
*LOG(GARCH(-1)) *C(7)*LOG(GARCH(-2)) *C(8)*LOG(GARCH(-3))					
Variable Coefficient Std. Error z-Statistic Prob.					
GARCH	-0.153887	1.895800	-0.081225	0.5935	
AR(1)	0.888151	0.034789	25.52929	0.0000	
MA(1)	-0.942922	0.022109	-42.54923	0.0000	
Variance Equation					
C(4)	-0.058554	0.010299	-0.569880	0.5868	
C(5)	-0.101847	0.013563	-7.453994	0.0000	
C(6)	0.194255	0.011939	16.27041	0.0000	
C(7)	-0.167389	0.011838	-14.13955	0.0000	
C(8)	0.956218	0.000226	427.445	0.0000	
R-squared	0.008165	Mean dependent var		6.14E-05	
Adjusted R-squared	0.004049	S.D. dependent var		0.012479	
S.E. of regression	0.012454	Akaike info criterion		-6.02178	
Sum squared resid	0.074828	Schwarz criterion		-5.993161	
Log likelihood	1478.078	Hannan-Quinn criter.		-6.033060	
Durbin-Watson stat	1.889765				
Inverted AR Roots	.89				
Inverted MA Roots	.94				

- Model EGARCH(1,0)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date 09/17/16 Time: 15:17					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 28 iterations					
MA Backcast 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG(GARCH)} = C(4) + C(5)\text{ABS}(\text{RESID}(-1)/\text{SQRT}(\text{GARCH}(-1))) + C(6)$					
*LOG(GARCH(-1))					
Variable Coefficient Std. Error z-Statistic Prob.					
GARCH	0.709900	1.912672	0.371156	0.7105	
AR(1)	0.805238	0.065166	14.61482	0.0000	
MA(1)	-0.905663	0.036545	-24.78771	0.0000	
Variance Equation					
C(4)	-0.101310	0.074411	1.223.307	0.0000	
C(5)	0.361049	0.078563	4.595266		
C(6)	-0.154858	0.052634	2.842149	0.0033	
R-squared	0.003770	Mean dependent var		6.14E-05	
Adjusted R-squared	-0.000364	S.D. dependent var		0.012479	
S.E. of regression	0.012460	Akaike info criteron		-5.98811	
Sum squared resid	0.074832	Schwarz criteron		-5.983269	
Log likelihood	1453.272	Hannan-Quinn criter.		-5.947793	
Durbin-Watson stat	1.795480				
Inverted AR Roots	.81				
Inverted MA Roots	.91				

- Model EGARCH(1,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date 09/17/16 Time: 15:17					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 28 iterations					
MA Backcast 1					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG(GARCH)} = C(4) + C(5)\text{ABS}(\text{RESID}(-1)/\text{SQRT}(\text{GARCH}(-1))) + C(6)$					
*LOG(GARCH(-1)) + C(7)*LOG(GARCH(-1)) + C(8)*LOG(GARCH(-2))					
Variable Coefficient Std. Error z-Statistic Prob.					
GARCH	-0.603006	2.037799	-0.295910	0.7673	
AR(1)	0.931552	0.020781	44.82808	0.0000	
MA(1)	-0.961889	0.011144	-86.31738	0.0000	
Variance Equation					
C(4)	-0.032393	0.026940	-1.53243	0.1254	
C(5)	-0.044899	0.023307	-1.705592	0.0881	
C(6)	-0.062430	0.012434	-5.021087	0.0000	
C(7)	0.992437	0.000288	3472.256	0.0000	
R-squared	0.007990	Mean dependent var		6.14E-05	
Adjusted R-squared	0.002852	S.D. dependent var		0.012479	
S.E. of regression	0.012455	Akaike info criteron		-6.022725	
Sum squared resid	0.074775	Schwarz criteron		-6.01885	
Log likelihood	1479.527	Hannan-Quinn criter.		-6.048547	
Durbin-Watson stat	1.936558				
Inverted AR Roots	.93				
Inverted MA Roots	.91				

- Model EGARCH(1,2)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date 09/17/16 Time: 15:17					
Sample (adjusted): 2 486					

### • Model EGARCH(1,3)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Markwardt) - Normal distribution					
Date: 09/07/16	Time: 16:15				
Sample (adjusted): 2 498					
Included observations: 495 after adjustments					
Convergence achieved after 37 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*RESID(-1)*SQRT(GARCH(-1)) + C(7)*LOG(GARCH(-1)) + C(8)					
*LOG(GARCH(-2)) + C(9)*LOG(GARCH(-3))					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
GARCH	0.724509	1.758997	-0.414633	0.6597	
AR(1)	0.092039	0.038995	23.6790	0.0000	
MA(1)	-0.954496	0.021964	-43.6551	0.0000	
Variance Equation					
C(4)	-0.242279	0.127896	-1.894348	0.0582	
C(5)	0.128627	0.037951	3.389267	0.0007	
C(6)	-0.078664	0.016169	-4.865007	0.0000	
C(7)	0.116000	0.016169	21.9800	0.0000	
C(8)	0.186618	0.010233	-18.1305	0.0000	
C(9)	0.973899	0.010444	93.2458	0.0000	
R-squared	0.000413	Mean dependent var	6.14E-05		
Adjusted R-squared	0.000351	S.D. dependent var	0.012479		
S.E. of regression	0.012460	Akaike info criterion	-0.098958		
Sum squared resid	0.075068	Schwarz criterion	-5.991924		
Log likelihood	1490.870	Hannan-Quinn criter.	-6.03961		
Durbin-Watson stat	1.886301				
Inverted AR Roots	.90				
Inverted MA Roots	.95				

### • Model EGARCH(2,0)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Markwardt) - Normal distribution					
Date: 09/07/16	Time: 16:20				
Sample (adjusted): 2 498					
Included observations: 495 after adjustments					
Convergence achieved after 20 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*ABS(RESID(-1))@SQRT(GARCH(-2)) + C(7)*RESID(-1)					
/@SQRT(GARCH(-3))					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
GARCH	1.581203	3.757197	0.420846	0.6739	
AR(1)	-0.931954	0.035226	-5.699129	0.0000	
MA(1)	0.924049	0.011279	5.394995	0.0000	
Variance Equation					
C(4)	-0.089955	0.082460	-10.2341	0.0000	
C(5)	0.217985	0.074356	2.919562	0.0034	
C(6)	0.165577	0.069764	2.373373	0.0176	
C(7)	-0.146510	0.054035	2.711394	0.0087	
R-squared	0.000413	Mean dependent var	6.14E-05		
Adjusted R-squared	0.000351	S.D. dependent var	0.012479		
S.E. of regression	0.012501	Akaike info criterion	-0.098373		
Sum squared resid	0.075344	Schwarz criterion	-5.877983		
Log likelihood	1447.056	Hannan-Quinn criter.	-5.914646		
Durbin-Watson stat	1.953874				
Inverted AR Roots	.93				
Inverted MA Roots	.92				

### • Model EGARCH(2,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Markwardt) - Normal distribution					
Date: 09/07/16	Time: 16:21				
Sample (adjusted): 2 498					
Included observations: 495 after adjustments					
Convergence achieved after 24 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*ABS(RESID(-1))@SQRT(GARCH(-2)) + C(7)*RESID(-1)					
/@SQRT(GARCH(-3))					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
GARCH	5.310993	3.379555	-1.571477	0.1161	
AR(1)	-0.987540	0.005479	-180.2293	0.0000	
MA(1)	0.995092	0.001440	690.9777	0.0000	
Variance Equation					
C(4)	-0.020452	9.60E-05	-213.1800	0.0000	
C(5)	0.048376	0.089240	0.542335	0.5876	
C(6)	0.038300	0.005409	0.5719	0.5719	
C(7)	-0.083824	0.005300	-10.144529	0.0000	
C(8)	0.995041	2.37E-05	41981.02	0.0000	
R-squared	0.002581	Mean dependent var	6.14E-05		
Adjusted R-squared	0.002741	S.D. dependent var	0.012479		
S.E. of regression	0.012521	Akaike info criterion	-6.042017		
Sum squared resid	0.075570	Schwarz criterion	-5.973000		
Log likelihood	1473.189	Hannan-Quinn criter.	-6.014900		
Durbin-Watson stat	1.97438				
Inverted AR Roots	.99				
Inverted MA Roots	-1.00				

### • Model EGARCH(2,2)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Markwardt) - Normal distribution					
Date: 09/07/16	Time: 16:21				
Sample (adjusted): 2 498					
Included observations: 495 after adjustments					
Convergence achieved after 8 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*RESID(-1)*SQRT(GARCH(-2)) + C(7)*RESID(-1)					
/SQRT(GARCH(-3)) + C(8)*RESID(-1)*SQRT(GARCH(-1))					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
GARCH	-0.401716	1.371184	-0.306433	0.7593	
AR(1)	0.047633	0.015015	63.11447	0.0000	
MA(1)	-0.960438	0.009695	-140.9649	0.0000	
Variance Equation					
C(4)	-0.125878	7.29E-06	-173.4268	0.0000	
C(5)	0.039536	0.002072	146.8299	0.0000	
C(6)	-0.060383	0.000320	-188.8845	0.0000	
C(7)	-0.075959	0.014732	-5.156003	0.0000	
C(8)	0.082130	0.002372	35.8849	0.0000	
C(9)	0.152013	0.002397	53.1703	0.0000	

### • Model EGARCH(3,0)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Markwardt) - Normal distribution					
Date: 09/07/16	Time: 16:26				
Sample (adjusted): 2 498					
Included observations: 495 after adjustments					
Convergence achieved after 25 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*ABS(RESID(-1))@SQRT(GARCH(-2)) + C(7)*RESID(-1)					
/SQRT(GARCH(-3)) + C(8)*RESID(-1)*SQRT(GARCH(-1))					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
GARCH	0.834641	2.011740	0.414984	0.6782	
AR(1)	0.000454	0.003790	12.54832	0.0000	
MA(1)	-0.988288	0.043435	-23.58115	0.0000	
Variance Equation					
C(4)	-2.774447	0.119028	-77.91826	0.0000	
C(5)	0.354586	0.003371	43.73097	0.0000	
C(6)	0.123025	0.059606	2.053948	0.0390	
C(7)	0.095573	0.072891	1.311182	0.1898	
C(8)	-0.153392	0.054165	-2.841125	0.0045	
R-squared	0.005618	Mean dependent var	6.14E-05		
Adjusted R-squared	0.004889	S.D. dependent var	0.012479		
S.E. of regression	0.012471	Akaike info criterion	-6.042720		
Sum squared resid	0.075625	Schwarz criterion	-5.965078		
Log likelihood	1454.833	Hannan-Quinn criter.	-5.939206		
Durbin-Watson stat	1.800706				
Inverted AR Roots	.80				
Inverted MA Roots	.90				

### • Model EGARCH(3,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Markwardt) - Normal distribution					
Date: 09/07/16	Time: 16:26				
Sample (adjusted): 2 498					
Included observations: 495 after adjustments					
Convergence achieved after 26 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*ABS(RESID(-1))@SQRT(GARCH(-2)) + C(7)*ABS(RESID(-3))					
/@SQRT(GARCH(-3)) + C(8)*RESID(-1)*SQRT(GARCH(-1))					
Variable					
	Coefficient	Std. Error	z-Statistic	Prob.	
GARCH	3.192203	3.458060	0.923120	0.3559	
AR(1)	-0.990500	0.005358	-184.8790	0.0000	
MA(1)	0.995161	0.001649	603.6288	0.0000	
Variance Equation					
C(4)	-0.003388	0.001110	-3.54847	0.0004	
C(5)	-0.003395	0.001177	-3.120052	0.0044	
C(6)	-0.006013	0.024049	-0.465072	0.9481	
C(7)	-0.027600	0.052271	-0.528167	0.5974	
C(8)	-0.052271	0.006720	-8.820644	0.0000</	

- Model EGARCH(3,2)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:27					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 11 iterations					
MA Backcast:					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)*\text{ABS}(\text{RESID}-1)@\text{SQR}(\text{GARCH}(-1)) + C(6)$					
$*\text{ABS}(\text{RESID}-2)@(\text{SQR}(\text{GARCH}(-2))) + C(7)*\text{ABS}(\text{RESID}-3)$					
$@(\text{SQR}(\text{GARCH}(-3))) + C(8)*\text{ABS}(\text{RESID}-1)@\text{SQR}(\text{GARCH}(-1)) + C(9)$					
$*\text{LOG}(\text{GARCH}(-1)) + C(10)*\text{LOG}(\text{GARCH}(-2))$					
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Variable					
GARCH	-0.154789	1.400468	-0.105331	0.9120	
AR(1)	0.942308	0.012384	78.11239	0.0000	
MA(1)	-0.976285	0.006709	-145.11235	0.0000	
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Variance Equation					
C(4)	-0.125180	2.24E-05	-5597.591	0.0000	
C(5)	0.048548	0.008457	57.40869	0.0000	
C(6)	-0.026132	0.014225	1.873027	0.6662	
C(7)	-0.003000	0.000125	5.05235	0.0000	
C(8)	-0.102338	0.015457	-6.85280	0.0000	
C(9)	0.734553	0.154339	4.795359	0.0000	
C(10)	0.244977	0.155325	1.577193	0.1148	
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R-squared	0.005240	Mean dependent var		6.14E-05	
Adjusted R-squared	0.001113	S.D. dependent var		0.012479	
S.E. of regression	0.012472	Akaike info criterion		-6.05939	
Sum squared resid	0.074980	Schwarz criterion		-5.970668	
Log likelihood	1478.608	Hannan-Quinn criter.		-6.023043	
Durbin-Watson stat	1.927091				
<hr/>					
Inverted AR Roots	.94				
Inverted MA Roots	.98				

- Model EGARCH(3,3)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:27					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 33 iterations					
MA Backcast:					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)*\text{ABS}(\text{RESID}-1)@\text{SQR}(\text{GARCH}(-1)) + C(6)$					
$*\text{ABS}(\text{RESID}-2)@(\text{SQR}(\text{GARCH}(-2))) + C(7)*\text{ABS}(\text{RESID}-3)$					
$@(\text{SQR}(\text{GARCH}(-3))) + C(8)*\text{ABS}(\text{RESID}-1)@\text{SQR}(\text{GARCH}(-1)) + C(9)$					
$*\text{LOG}(\text{GARCH}(-1)) + C(10)*\text{LOG}(\text{GARCH}(-2))$					
<hr/>					
Variable					
GARCH	-0.031339	1.578809	-0.019850	0.9842	
AR(1)	0.891657	0.023455	38.16168	0.0000	
MA(1)	-0.950508	0.011998	-79.22115	0.0000	
<hr/>					
Variance Equation					
C(4)	-0.041696	0.042880	2.079388	0.2369	
C(5)	-0.027004	0.040122	-0.673054	0.5009	
C(6)	-0.227908	0.058363	-3.905022	0.0001	
C(7)	-0.113328	0.018868	-6.005308	0.0000	
C(8)	0.289350	0.017997	9.971909	0.0000	
C(9)	-0.145457	0.036537	-4.110200	0.0000	
C(10)	0.849078	0.038269	22.18717	0.0000	
<hr/>					
R-squared	0.005314	Mean dependent var		6.14E-05	
Adjusted R-squared	0.001198	S.D. dependent var		0.015479	
S.E. of regression	0.012472	Akaike info criterion		-6.089481	
Sum squared resid	0.074975	Schwarz criterion		-5.994583	
Log likelihood	1487.999	Hannan-Quinn criter.		-6.052195	
Durbin-Watson stat	1.376567				
<hr/>					
Inverted AR Roots	.89				
Inverted MA Roots	.95				

### 3. Model EGARCH-M Log

#### (Variansi)

- Model EGARCH(0,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/13/16 Time: 09:28					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 33 iterations					
MA Backcast:					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = C(4) + C(5)*\text{ABS}(\text{RESID}-1)@\text{SQR}(\text{GARCH}(-1)) + C(6)$					
$*\text{LOG}(\text{GARCH}(-1))$					
<hr/>					
Variable					
LOG(GARCH)	-1.40E-05	6.46E-05	-0.216472	0.8286	
AR(1)	-0.922640	0.005056	-198.3155	0.0000	
MA(1)	0.994955	0.002875	345.9406	0.0000	
<hr/>					
Variance Equation					
C(4)	-0.003211	Mean dependent var	6.14E-05		
C(5)	-0.00025	S.D. dependent var	0.012479		
S.E. of regression	0.012485	Akaike info criterion	-5.928117		
Sum squared resid	0.075133	Schwarz criterion	-5.876354		
Log likelihood	1443.588	Hannan-Quinn criter.	-5.907779		
Durbin-Watson stat	1.976057				
<hr/>					
Inverted AR Roots	.99				
Inverted MA Roots	.99				

- Model EGARCH(0,3)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/13/16 Time: 09:30					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 45 iterations					
MA Backcast:					
Presample variance: backcast (parameter = 0.7)					
$\text{LOG}(\text{GARCH}) = (C(4) + C(5)*\text{ABS}(\text{RESID}-1)@\text{SQR}(\text{GARCH}(-1)) + C(6)$					
$*\text{RESID}(-1)@\text{SQR}(\text{GARCH}(-1)) + C(7)*\text{ABS}(\text{RESID}-2)$					
$@(\text{SQR}(\text{GARCH}(-2))) + C(8)*\text{ABS}(\text{RESID}-3)$					
$@(\text{SQR}(\text{GARCH}(-3))) + C(9)*\text{ABS}(\text{RESID}-1)@\text{SQR}(\text{GARCH}(-1)) + C(10)$					
<hr/>					
Variable					
LOG(GARCH)	-5.35E-06	3.10E-05	-0.172803	0.8628	
AR(1)	0.882499	0.038441	22.95715	0.0000	
MA(1)	-0.939696	0.025326	-37.11204	0.0000	
<hr/>					
Variance Equation					
C(4)	-0.070763	0.113230	-0.624955	0.5320	
C(5)	-0.102688	0.014484	-6.922626	0.0000	
C(6)	0.191050	0.011392	16.76987	0.0000	
C(7)	-0.165428	0.010597	-15.61066	0.0000	
C(8)	0.966213	0.014313	67.50775	0.0000	
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R-squared	0.007297	Mean dependent var		6.14E-05	
Adjusted R-squared	0.003880	S.D. dependent var		0.012479	
S.E. of regression	0.012455	Akaike info criterion		-6.02714	
Sum squared resid	0.074773	Schwarz criterion		-5.933697	
Log likelihood	1478.208	Hannan-Quinn criter.		-6.035597	
Durbin-Watson stat	1.884509				
<hr/>					
Inverted AR Roots	.88				
Inverted MA Roots	.94				

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/13/16 Time: 09:29					
Sample (adjusted): 2 486					

- Model EGARCH(1,1)-M

Dependent Variable: SAHAM				
Method: ML - ARCH (Marquardt) - Normal distribution				
Date: 09/07/16 Time: 16:29				
Sample (adjusted): 2 485				
Included observations: 485 after adjustments				
Convergence achieved after 14 iterations				
MA Backcast: 1				
Presample variance: backcast (parameter = 0.7)				
$\text{LOG(GARCH)} = C(4) + C(5)*\text{ABS(RESID(-1))}@\text{SQRT(GARCH(-1))} + C(6)$				
$*\text{RESID(-1)}@\text{SQRT(GARCH(-1))} + C(7)*\text{LOG(GARCH(-1))}$				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
LOG(GARCH)	4.21E-05	5.08E-05	0.831274	0.4058
AR(1)	-0.594754	0.697213	-0.853045	0.3936
MA(1)	0.572581	0.712249	0.803905	0.4215
Variance Equation				
C(4)	-0.018104	0.011114	-1.629007	0.1033
C(5)	-0.018265	0.000772	-23.65380	0.0000
C(6)	-0.075591	0.006528	-11.57861	0.0000
C(7)	0.996126	0.001392	715.7047	0.0000
R-squared	-0.002729	Mean dependent var	6.14E-05	
Adjusted R-squared	-0.006889	S.D. dependent var	0.012479	
S.E. of regression	0.012180	Akaike info criterion	6.042998	
Sum squared resid	0.075591	Schwarz criterion	-5.982518	
Log likelihood	1472.405	Hannan-Quinn criter.	-6.019180	
Durbin-Watson stat	1.927300			
Inverted AR Roots	.59			
Inverted MA Roots	.57			

- Model EGARCH(2,0)-M

Dependent Variable: SAHAM				
Method: ML - ARCH (Marquardt) - Normal distribution				
Date: 09/07/16 Time: 16:31				
Sample (adjusted): 2 485				
Included observations: 485 after adjustments				
Convergence achieved after 25 iterations				
MA Backcast: 1				
Presample variance: backcast (parameter = 0.7)				
$\text{LOG(GARCH)} = C(4) + C(5)*\text{ABS(RESID(-1))}@\text{SQRT(GARCH(-1))} + C(6)$				
$*\text{RESID(-1)}@\text{SQRT(GARCH(-1))} + C(7)*\text{LOG(GARCH(-1))} + C(8)$				
$*\text{LOG(GARCH(-2))}$				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
LOG(GARCH)	4.43E-05	8.27E-06	2.298695	0.0222
AR(1)	0.942311	0.008091	116.4683	0.0000
MA(1)	-0.974870	0.001398	-698.2844	0.0000
Variance Equation				
C(4)	-0.133429	1.85E-09	-7223.595	0.0000
C(5)	-0.086524	1.20E-10	-7.22E+08	0.0000
C(6)	-0.101264	0.013328	-7.597963	0.0000
C(7)	0.874284	9.33E-12	9.37E+10	0.0000
C(8)	0.103268	8.54E-08	1580.134	0.0000
R-squared	0.005782	Mean dependent var	6.14E-05	
Adjusted R-squared	0.001636	S.D. dependent var	0.012479	
S.E. of regression	0.012180	Akaike info criterion	6.042998	
Sum squared resid	0.075591	Schwarz criterion	-5.982518	
Log likelihood	1480.320	Hannan-Quinn criter.	-6.044305	
Durbin-Watson stat	1.926950			
Inverted AR Roots	.94			
Inverted MA Roots	.97			

- Model EGARCH(1,2)-M

Dependent Variable: SAHAM				
Method: ML - ARCH (Marquardt) - Normal distribution				
Date: 09/07/16 Time: 16:29				
Sample (adjusted): 2 485				
Included observations: 485 after adjustments				
Convergence achieved after 15 iterations				
MA Backcast: 1				
Presample variance: backcast (parameter = 0.7)				
$\text{LOG(GARCH)} = C(4) + C(5)*\text{ABS(RESID(-1))}@\text{SQRT(GARCH(-1))} + C(6)$				
$*\text{RESID(-1)}@\text{SQRT(GARCH(-1))} + C(7)*\text{LOG(GARCH(-1))} + C(8)$				
$*\text{LOG(GARCH(-2))}$				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
LOG(GARCH)	4.43E-05	8.27E-06	2.298695	0.0222
AR(1)	0.942311	0.008091	116.4683	0.0000
MA(1)	-0.974870	0.001398	-698.2844	0.0000
Variance Equation				
C(4)	-0.133429	1.85E-09	-7223.595	0.0000
C(5)	-0.086524	1.20E-10	-7.22E+08	0.0000
C(6)	-0.101264	0.013328	-7.597963	0.0000
C(7)	0.874284	9.33E-12	9.37E+10	0.0000
C(8)	0.103268	8.54E-08	1580.134	0.0000
R-squared	0.005782	Mean dependent var	6.14E-05	
Adjusted R-squared	0.001636	S.D. dependent var	0.012479	
S.E. of regression	0.012180	Akaike info criterion	6.042998	
Sum squared resid	0.075591	Schwarz criterion	-5.982518	
Log likelihood	1480.320	Hannan-Quinn criter.	-6.044305	
Durbin-Watson stat	1.926950			
Inverted AR Roots	.94			
Inverted MA Roots	.97			

- Model EGARCH(2,1)-M

Dependent Variable: SAHAM				
Method: ML - ARCH (Marquardt) - Normal distribution				
Date: 09/07/16 Time: 16:32				
Sample (adjusted): 2 485				
Included observations: 485 after adjustments				
Convergence achieved after 30 iterations				
MA Backcast: 1				
Presample variance: backcast (parameter = 0.7)				
$\text{LOG(GARCH)} = C(4) + C(5)*\text{ABS(RESID(-1))}@\text{SQRT(GARCH(-1))} + C(6)$				
$*\text{RESID(-1)}@\text{SQRT(GARCH(-2))} + C(7)*\text{RESID(-1)}$				
$@\text{SQRT(GARCH(-1))} + C(8)*\text{LOG(GARCH(-1))}$				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
LOG(GARCH)	2.40E-05	4.28E-05	0.562990	0.5735
AR(1)	-0.988306	0.005374	-183.9147	0.0000
MA(1)	0.995274	0.001289	771.9848	0.0000
Variance Equation				
C(4)	-0.005657	2.80E-05	-202.1796	0.0000
C(5)	-0.065363	0.019167	-370.0720	0.4773
C(6)	0.034289	0.018145	19.379215	0.7045
C(7)	-0.061283	0.006451	-9.499805	0.0000
C(8)	0.996481	1.15E-05	86990.30	0.0000
R-squared	-0.000223	Mean dependent var	6.14E-05	
Adjusted R-squared	-0.004374	S.D. dependent var	0.012479	
S.E. of regression	0.012507	Akaike info criterion	6.049141	
Sum squared resid	0.075394	Schwarz criterion	-5.980124	
Log likelihood	1474.917	Hannan-Quinn criter.	-6.022024	
Durbin-Watson stat	1.989110			
Inverted AR Roots	.99			
Inverted MA Roots	-1.00			

- Model EGARCH(1,3)-M

Dependent Variable: SAHAM				
Method: ML - ARCH (Marquardt) - Normal distribution				
Date: 09/07/16 Time: 16:31				
Sample (adjusted): 2 485				
Included observations: 485 after adjustments				
Convergence achieved after 47 iterations				
MA Backcast: 1				
Presample variance: backcast (parameter = 0.7)				
$\text{LOG(GARCH)} = C(4) + C(5)*\text{ABS(RESID(-1))}@\text{SQRT(GARCH(-1))} + C(6)$				
$*\text{RESID(-1)}@\text{SQRT(GARCH(-2))} + C(7)*\text{LOG(GARCH(-1))} + C(8)$				
$@\text{SQRT(GARCH(-3))}$				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
LOG(GARCH)	-1.47E-05	2.55E-05	-0.576291	0.5644
AR(1)	0.808925	0.034444	28.38857	0.0000
MA(1)	-0.959759	0.019201	-49.99581	0.0000
Variance Equation				
C(4)	-0.252642	0.126268	-2.000841	0.0454
C(5)	0.133213	0.038562	3.454524	0.0006
C(6)	-0.174789	0.016241	-10.75161	0.0000
C(7)	0.197189	0.009819	22.10001	0.0000
C(8)	-0.187953	0.010384	-18.08202	0.0000
C(9)	0.973803	0.009926	98.10356	0.0000
R-squared	0.003550	Mean dependent var	6.14E-05	
Adjusted R-squared	0.000584	S.D. dependent var	0.012479	
S.E. of regression	0.012483	Akaike info criterion	6.059782	
Sum squared resid	0.075178	Schwarz criterion	-5.992138	
Log likelihood	1480.922	Hannan-Quinn criter.	-6.039275	
Durbin-Watson stat	1.888299			
Inverted AR Roots	.91			
Inverted MA Roots	.96			

- Model EGARCH(2,2)-M

Dependent Variable: SAHAM				
Method: ML - ARCH (Marquardt) - Normal distribution				
Date: 09/07/16 Time: 16:33				
Sample (adjusted): 2 485				
Included observations: 485 after adjustments				
Convergence achieved after 23 iterations				
MA Backcast: 1				
Presample variance: backcast (parameter = 0.7)				
$\text{LOG(GARCH)} = C(4) + C(5)*\text{ABS(RESID(-1))}@\text{SQRT(GARCH(-1))} + C(6)$				
<				

- Model EGARCH(3,0)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:35					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 18 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*ABS(RESID(-2))@SQRT(GARCH(-2)) + C(7)*ABS(RESID(-3))					
@SQRT(GARCH(-3)) + C(8)*RESID(-1)@SQRT(GARCH(-1)) + C(9)					
*LOG(GARCH(-1)) + C(10)*LOG(GARCH(-2))					
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Variable	Coefficient	Std. Error	z-Statistic	Prob.	
LOG(GARCH)	-3.11E-06	6.67E-05	-0.046200	0.9828	
AR(1)	-0.993693	0.009265	-158.5938	0.0000	
MA(1)	0.993553	0.005167	192.2750	0.0000	
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Variance Equation					
C(4)	-9.185521	0.121179	-75.80119	0.0000	
C(5)	0.221989	0.077508	2.884055	0.0042	
C(6)	0.149548	0.070314	2.128655	0.0334	
C(7)	0.132931	0.054748	2.440071	0.0147	
C(8)	-0.139272	0.053369	-2.609608	0.0091	
R-squared	0.003236	Mean dependent var		6.14E-05	
Adjusted R-squared	-0.000900	S.D. dependent var		0.012479	
S.E. of regression	0.012485	Akaike info criterion		-5.942159	
Sum squared resid	0.075131	Schwarz criterion		-5.873142	
Log likelihood	1448.973	Hannan-Quinn criter.		-5.915041	
Durbin-Watson stat	1.971356				
Inverted AR Roots	.99				
Inverted MA Roots	.99				

- Model EGARCH(3,2)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:35					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 14 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*ABS(RESID(-2))@SQRT(GARCH(-2)) + C(7)*ABS(RESID(-3))					
@SQRT(GARCH(-3)) + C(8)*RESID(-1)@SQRT(GARCH(-1)) + C(9)					
*LOG(GARCH(-1)) + C(10)*LOG(GARCH(-2))					
<hr/>					
Variable	Coefficient	Std. Error	z-Statistic	Prob.	
LOG(GARCH)	2.17E-06	8.56E-06	0.253661	0.7998	
AR(1)	0.923721	0.017434	52.9833	0.0000	
MA(1)	-0.959689	0.005607	-171.1509	0.0000	
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Variance Equation					
C(4)	-0.031680	1.42E-09	-22271630	0.0000	
C(5)	0.067241	0.000498	134.9732	0.0000	
C(6)	-0.061775	1.16E-08	-5325133	0.0000	
C(7)	-0.059410	6.11E-07	-97287.54	0.0000	
C(8)	-0.073532	0.012672	-5.802958	0.0000	
C(9)	0.691169	0.000156	4422.037	0.0000	
C(10)	0.300532	0.000188	160.097	0.0000	
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R-squared	0.007591	Mean dependent var		6.14E-05	
Adjusted R-squared	0.003473	S.D. dependent var		0.012479	
S.E. of regression	0.012458	Akaike info criterion		-6.054957	
Sum squared resid	0.074803	Schwarz criterion		-5.956866	
Log likelihood	1478.327	Hannan-Quinn criter.		-6.021061	
Durbin-Watson stat	1.924206				
Inverted AR Roots	.92				
Inverted MA Roots	.96				

- Model EGARCH(3,1)-M

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:35					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 7 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*ABS(RESID(-2))@SQRT(GARCH(-2)) + C(7)*ABS(RESID(-3))					
@SQRT(GARCH(-3)) + C(8)*RESID(-1)@SQRT(GARCH(-1)) + C(9)					
*LOG(GARCH(-1)) + C(10)*LOG(GARCH(-2))					
<hr/>					
Variable	Coefficient	Std. Error	z-Statistic	Prob.	
LOG(GARCH)	1.40E-05	6.34E-05	0.220274	0.8257	
AR(1)	-0.989666	0.005579	-177.3781	0.0000	
MA(1)	0.995141	0.001473	675.6953	0.0000	
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Variance Equation					
C(4)	-1.032368	0.448148	-2.303633	0.0212	
C(5)	0.160411	0.087783	1.827351	0.0676	
C(6)	-0.059388	0.089120	-0.655649	0.5143	
C(7)	0.097634	0.03010	0.655649	0.3342	
C(8)	-0.072148	0.031792	-2.293867	0.0232	
C(9)	0.899658	0.045766	19.655874	0.0000	
R-squared	0.001454	Mean dependent var		6.14E-05	
Adjusted R-squared	-0.002689	S.D. dependent var		0.012479	
S.E. of regression	0.012496	Akaike info criterion		-5.981922	
Sum squared resid	0.075266	Schwarz criterion		-5.904278	
Log likelihood	1459.616	Hannan-Quinn criter.		-5.951415	
Durbin-Watson stat	1.984344				
Inverted AR Roots	.99				
Inverted MA Roots	-1.00				

Dependent Variable: SAHAM					
Method: ML - ARCH (Marquardt) - Normal distribution					
Date: 09/07/16 Time: 16:35					
Sample (adjusted): 2 486					
Included observations: 485 after adjustments					
Convergence achieved after 18 iterations					
MA Backcast: 1					
Presample variance: backcast (parameter = 0.7)					
LOG(GARCH) = C(4) + C(5)*ABS(RESID(-1))@SQRT(GARCH(-1)) + C(6)					
*ABS(RESID(-2))@SQRT(GARCH(-2)) + C(7)*ABS(RESID(-3))					
@SQRT(GARCH(-3)) + C(8)*RESID(-1)@SQRT(GARCH(-1)) + C(9)					
*LOG(GARCH(-1)) + C(10)*LOG(GARCH(-2))					
<hr/>					
Variable	Coefficient	Std. Error	z-Statistic	Prob.	
LOG(GARCH)	1.69E-06	1.09E-05	0.157466	0.8749	
AR(1)	0.910511	0.015656	58.15641	0.0000	
MA(1)	-0.958761	0.004335	-221.1890	0.0000	
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Variance Equation					
C(4)	-0.084403	0.002084	-40.49380	0.0000	
C(5)	0.127970	0.011919	10.73670	0.0000	
C(6)	-0.226257	0.016508	-13.6535	0.0117	
C(7)	-0.227000	0.016508	-13.6535	0.0117	
C(8)	-0.132291	0.019403	-6.818982	0.0000	
C(9)	0.272665	0.000883	308.9154	0.0000	
C(10)	-0.136038	0.003143	-43.27879	0.0000	
C(11)	0.840657	1.32E-07	6353759	0.0000	
R-squared	0.00548	Mean dependent var		6.14E-05	
Adjusted R-squared	0.001522	S.D. dependent var		0.012479	
S.E. of regression	0.012479	Akaike info criterion		-5.999410	
Sum squared resid	0.074901	Schwarz criterion		-5.94511	
Log likelihood	1490.107	Hannan-Quinn criter.		-5.062124	
Durbin-Watson stat	1.897090				
Inverted AR Roots	.91				
Inverted MA Roots	.96				

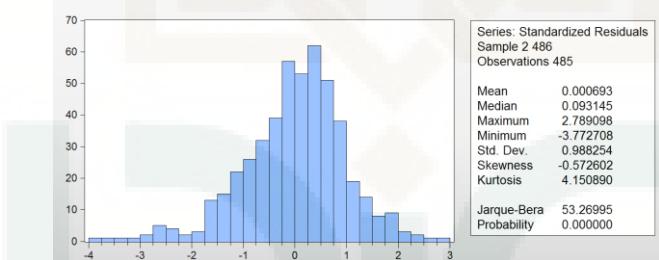
## LAMPIRAN 6 : Uji Asumsi Klasik Model terbaik EGARCH-M

- Model ARMA(1,1)-EGARCH(0,2)-M Standar Deviasi

- ✓ Uji Autokorelasi

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	1	-0.006	-0.006	0.0153	
2	1	-0.051	-0.051	1.2988	
3	1	-0.064	-0.064	3.2818	0.070
4	1	0.009	0.006	3.3246	0.190
5	1	-0.028	-0.028	3.7241	0.293
6	1	-0.037	-0.037	4.0044	0.344
7	1	-0.027	-0.030	4.0670	0.337
8	1	0.010	0.005	4.1375	0.658
9	1	-0.002	-0.005	4.1389	0.764
10	1	0.041	0.036	4.9834	0.759
11	1	0.036	0.037	5.6189	0.777
12	1	0.019	0.022	5.7963	0.832
13	1	-0.001	0.009	5.7972	0.887
14	1	-0.063	-0.058	7.7964	0.801
15	1	0.003	0.007	7.8010	0.856
16	1	0.031	0.027	8.2746	0.875
17	1	0.048	0.048	9.4298	0.854
18	1	-0.002	-0.002	9.4799	0.939
19	1	0.005	0.010	9.4799	0.924
20	1	0.025	0.026	9.7849	0.939
21	1	0.006	0.002	9.8024	0.958
22	1	-0.011	-0.005	9.8612	0.971
23	1	0.002	0.005	9.8635	0.981
24	1	0.038	0.045	10.8114	0.980
25	1	0.098	0.105	15.551	0.874
26	1	0.042	0.052	16.464	0.871
27	1	0.045	0.060	17.496	0.863
28	1	-0.035	-0.024	18.132	0.871
29	1	0.005	0.015	18.142	0.899
30	1	0.001	0.015	18.148	0.881
31	1	0.041	0.053	20.984	0.660
32	1	-0.032	-0.013	21.508	0.971
33	1	-0.060	-0.051	23.391	0.826
34	1	-0.045	-0.046	24.441	0.828

- ✓ Uji Normalitas



- ✓ Uji Heterokedastisitas

### Heteroskedasticity Test: ARCH

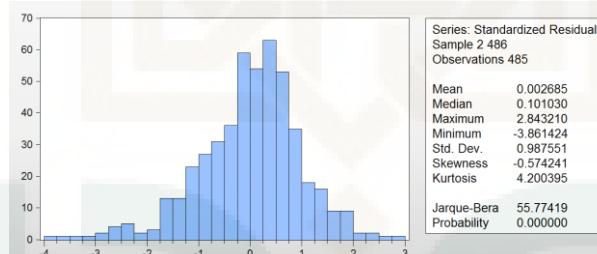
F-statistic	0.021834	Prob. F(1,482)	0.8826
Obs*R-squared	0.021923	Prob. Chi-Square(1)	0.8823

- Model ARMA(1,1)-EGARCH(0,2)-M Variansi

- ✓ Uji Autokorelasi

		Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	1	1	1	-0.001	-0.001	0.0009	
2	1	2	2	-0.053	-0.050	1.2379	
3	1	3	3	-0.063	-0.063	3.1799	0.075
4	1	4	4	0.011	0.008	3.2380	0.198
5	1	5	5	-0.062	-0.063	3.5763	0.311
6	1	6	6	0.062	0.063	3.6666	
7	1	7	7	-0.026	-0.026	3.9023	0.563
8	1	8	8	0.011	0.008	3.9582	0.682
9	1	9	9	-0.000	-0.003	3.9582	0.785
10	1	10	10	0.043	0.040	4.8734	0.771
11	1	11	11	0.037	0.039	5.5532	0.784
12	1	12	12	0.016	0.022	5.7371	0.837
13	1	13	13	-0.002	0.008	5.7388	0.890
14	1	14	14	-0.061	-0.056	7.5980	0.816
15	1	15	15	0.008	0.008	7.6049	0.868
16	1	16	16	0.041	0.042	7.6634	
17	1	17	17	0.049	0.047	9.2307	0.862
18	1	18	18	-0.006	0.001	9.3102	0.900
19	1	19	19	0.006	0.011	9.3278	0.929
20	1	20	20	0.025	0.029	9.6468	0.943
21	1	21	21	0.007	0.003	9.6727	0.961
22	1	22	22	-0.011	-0.008	9.7392	0.973
23	1	23	23	0.003	0.007	9.7448	0.982
24	1	24	24	0.038	0.045	10.480	0.981
25	1	25	25	0.098	0.104	15.439	0.878
26	1	26	26	0.046	0.042	16.424	0.717
27	1	27	27	0.046	0.060	17.531	0.862
28	1	28	28	0.036	0.028	18.192	0.869
29	1	29	29	0.004	0.014	18.203	0.897
30	1	30	30	0.083	0.075	20.254	0.855
31	1	31	31	0.043	0.053	21.212	0.851
32	1	32	32	-0.030	-0.012	21.683	0.865
33	1	33	33	-0.061	-0.052	23.628	0.826
34	1	34	34	-0.043	-0.045	24.604	0.822

- ✓ Uji Normalitas



- ✓ Uji Heterokedastisitas

#### Heteroskedasticity Test: ARCH

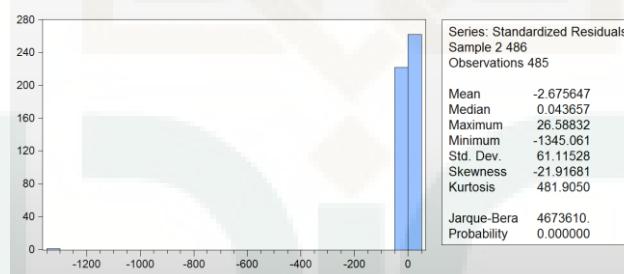
F-statistic	0.040017	Prob. F(1,482)	0.8415
Obs*R-squared	0.040179	Prob. Chi-Square(1)	0.8411

- Model ARMA(1,1)-EGARCH(1,2)-M Log (Variansi)

✓ Uji Autokorelasi

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob
1	1	1 -0.022 -0.022 0.2308			
1	1	2 -0.008 -0.009 0.2626			
1	1	3 0.002 0.002 0.2646 0.607			
1	1	4 -0.012 -0.012 0.3389 0.844			
1	1	5 0.002 0.002 0.3411 0.952			
1	1	6 -0.001 -0.001 0.3419 0.987			
1	1	7 -0.002 -0.001 0.3429 0.997			
1	1	8 -0.002 -0.002 0.3452 0.999			
1	1	9 0.005 0.005 0.3578 1.000			
1	1	10 0.004 0.004 0.3650 1.000			
1	1	11 -0.000 0.000 0.3650 1.000			
1	1	12 -0.007 -0.007 0.3862 1.000			
1	1	13 0.007 0.007 0.4088 1.000			
1	1	14 -0.007 -0.007 0.4349 1.000			
1	1	15 -0.005 -0.005 0.4454 1.000			
1	1	16 -0.001 -0.002 0.4462 1.000			
1	1	17 0.005 0.005 0.4565 1.000			
1	1	18 -0.006 -0.006 0.4747 1.000			
1	1	19 -0.006 -0.006 0.4906 1.000			
1	1	20 -0.004 -0.004 0.4988 1.000			
1	1	21 0.000 0.000 0.4986 1.000			
1	1	22 0.001 0.001 0.4994 1.000			
1	1	23 -0.002 -0.002 0.5022 1.000			
1	1	24 -0.002 -0.002 0.5042 1.000			
1	1	25 -0.001 -0.001 0.5047 1.000			
1	1	26 -0.004 -0.005 0.5140 1.000			
1	1	27 -0.000 -0.000 0.5140 1.000			
1	1	28 -0.002 -0.002 0.5161 1.000			
1	1	29 -0.003 -0.003 0.5199 1.000			
1	1	30 -0.002 -0.003 0.5229 1.000			
1	1	31 -0.003 -0.003 0.5286 1.000			
1	1	32 -0.001 -0.001 0.5288 1.000			
1	1	33 -0.003 -0.003 0.5325 1.000			
1	1	34 0.001 0.001 0.5334 1.000			

✓ Uji Normalitas



✓ Uji Heterokedastisitas

Heteroskedasticity Test: ARCH

F-statistic	0.001366	Prob. F(1,482)	0.9705
Obs*R-squared	0.001372	Prob. Chi-Square(1)	0.9705

**LAMPIRAN 7:** Tabel Chi-Kuadrat**TABEL CHI-KUADRAT**

Db	0.25	0.2	0.15	0.1	0.05	0.025	0.02	0.01
1	1.323	1.642	2.072	2.706	3.841	5.024	5.412	6.635
2	2.773	3.219	3.794	4.605	5.991	7.378	7.824	9.210
3	4.108	4.642	5.317	6.251	7.815	9.348	9.837	11.345
4	5.385	5.989	6.745	7.779	9.488	11.143	11.668	13.277
5	6.626	7.289	8.115	9.236	11.070	12.833	13.388	15.086
6	7.841	8.558	9.446	10.645	12.592	14.449	15.033	16.812
7	9.037	9.803	10.748	12.017	14.067	16.013	16.622	18.475
8	10.219	11.030	12.027	13.362	15.507	17.535	18.168	20.090
9	11.389	12.242	13.288	14.684	16.919	19.023	19.679	21.666
10	12.549	13.442	14.534	15.987	18.307	20.483	21.161	23.209
11	13.701	14.631	15.767	17.275	19.675	21.920	22.618	24.725
12	14.845	15.812	16.989	18.549	21.026	23.337	24.054	26.217
13	15.984	16.985	18.202	19.812	22.362	24.736	25.472	27.688
14	17.117	18.151	19.406	21.064	23.685	26.119	26.873	29.141
15	18.245	19.311	20.603	22.307	24.996	27.488	28.259	30.578
16	19.369	20.465	21.793	23.542	26.296	28.845	29.633	32.000
17	20.489	21.615	22.977	24.769	27.587	30.191	30.995	33.409
18	21.605	22.760	24.155	25.989	28.869	31.526	32.346	34.805
19	22.718	23.900	25.329	27.204	30.144	32.852	33.687	36.191
20	23.828	25.038	26.498	28.412	31.410	34.170	35.020	37.566
21	24.935	26.171	27.662	29.615	32.671	35.479	36.343	38.932
22	26.039	27.301	28.822	30.813	33.924	36.781	37.659	40.289
23	27.141	28.429	29.979	32.007	35.172	38.076	38.968	41.638
24	28.241	29.553	31.132	33.196	36.415	39.364	40.270	42.980
25	29.339	30.675	32.282	34.382	37.652	40.646	41.566	44.314
26	30.435	31.795	33.429	35.563	38.885	41.923	42.856	45.642
27	31.528	32.912	34.574	36.741	40.113	43.195	44.140	46.963
28	32.620	34.027	35.715	37.916	41.337	44.461	45.419	48.278
29	33.711	35.139	36.854	39.087	42.557	45.722	46.693	49.588
30	34.800	36.250	37.990	40.256	43.773	46.979	47.962	50.892
31	35.887	37.359	39.124	41.422	44.985	48.232	49.226	52.191
32	36.973	38.466	40.256	42.585	46.194	49.480	50.487	53.486
33	38.058	39.572	41.386	43.745	47.400	50.725	51.743	54.776
34	39.141	40.676	42.514	44.903	48.602	51.966	52.995	56.061
35	40.223	41.778	43.640	46.059	49.802	53.203	54.244	57.342
36	41.304	42.879	44.764	47.212	50.998	54.437	55.489	58.619
37	42.383	43.978	45.886	48.363	52.192	55.668	56.730	59.893

38	43.462	45.076	47.007	49.513	53.384	56.896	57.969	61.162
39	44.539	46.173	48.126	50.660	54.572	58.120	59.204	62.428
40	45.616	47.269	49.244	51.805	55.758	59.342	60.436	63.691
41	46.692	48.363	50.360	52.949	56.942	60.561	61.665	64.950
42	47.766	49.456	51.475	54.090	58.124	61.777	62.892	66.206
43	48.840	50.548	52.588	55.230	59.304	62.990	64.116	67.459
44	49.913	51.639	53.700	56.369	60.481	64.201	65.337	68.710
45	50.985	52.729	54.810	57.505	61.656	65.410	66.555	69.957
46	52.056	53.818	55.920	58.641	62.830	66.617	67.771	71.201
47	53.127	54.906	57.028	59.774	64.001	67.821	68.985	72.443
48	54.196	55.993	58.135	60.907	65.171	69.023	70.197	73.683
49	55.265	57.079	59.241	62.038	66.339	70.222	71.406	74.919
50	56.334	58.164	60.346	63.167	67.505	71.420	72.613	76.154
51	57.401	59.248	61.450	64.295	68.669	72.616	73.818	77.386
52	58.468	60.332	62.553	65.422	69.832	73.810	75.021	78.616
53	59.534	61.414	63.654	66.548	70.993	75.002	76.223	79.843
54	60.600	62.496	64.755	67.673	72.153	76.192	77.422	81.069
55	61.665	63.577	65.855	68.796	73.311	77.380	78.619	82.292
56	62.729	64.658	66.954	69.919	74.468	78.567	79.815	83.513
57	63.793	65.737	68.052	71.040	75.624	79.752	81.009	84.733
58	64.857	66.816	69.149	72.160	76.778	80.936	82.201	85.950
59	65.919	67.894	70.246	73.279	77.931	82.117	83.391	87.166
60	66.981	68.972	71.341	74.397	79.082	83.298	84.580	88.379
61	68.043	70.049	72.436	75.514	80.232	84.476	85.767	89.591
62	69.104	71.125	73.530	76.630	81.381	85.654	86.953	90.802
63	70.165	72.201	74.623	77.745	82.529	86.830	88.137	92.010
64	71.225	73.276	75.715	78.860	83.675	88.004	89.320	93.217
65	72.285	74.351	76.807	79.973	84.821	89.177	90.501	94.422
66	73.344	75.424	77.898	81.085	85.965	90.349	91.681	95.626
67	74.403	76.498	78.988	82.197	87.108	91.519	92.860	96.828
68	75.461	77.571	80.078	83.308	88.250	92.689	94.037	98.028
69	76.519	78.643	81.167	84.418	89.391	93.856	95.213	99.228
70	77.577	79.715	82.255	85.527	90.531	95.023	96.388	100.425
71	78.634	80.786	83.343	86.635	91.670	96.189	97.561	101.621
72	79.690	81.857	84.430	87.743	92.808	97.353	98.733	102.816
73	80.747	82.927	85.517	88.850	93.945	98.516	99.904	104.010
74	81.803	83.997	86.602	89.956	95.081	99.678	101.074	105.202
75	82.858	85.066	87.688	91.061	96.217	100.839	102.243	106.393
76	83.913	86.135	88.772	92.166	97.351	101.999	103.410	107.583
77	84.968	87.203	89.857	93.270	98.484	103.158	104.576	108.771
78	86.022	88.271	90.940	94.374	99.617	104.316	105.742	109.958
79	87.077	89.338	92.023	95.476	100.749	105.473	106.906	111.144

80	88.130	90.405	93.106	96.578	101.879	106.629	108.069	112.329
81	89.184	91.472	94.188	97.680	103.010	107.783	109.232	113.512
82	90.237	92.538	95.269	98.780	104.139	108.937	110.393	114.695
83	91.289	93.604	96.350	99.880	105.267	110.090	111.553	115.876
84	92.342	94.669	97.431	100.980	106.395	111.242	112.712	117.057
85	93.394	95.734	98.511	102.079	107.522	112.393	113.871	118.236
86	94.446	96.799	99.590	103.177	108.648	113.544	115.028	119.414
87	95.497	97.863	100.669	104.275	109.773	114.693	116.184	120.591
88	96.548	98.927	101.748	105.372	110.898	115.841	117.340	121.767
89	97.599	99.991	102.826	106.469	112.022	116.989	118.495	122.942
90	98.650	101.054	103.904	107.565	113.145	118.136	119.648	124.116
91	99.700	102.117	104.981	108.661	114.268	119.282	120.801	125.289
92	100.750	103.179	106.058	109.756	115.390	120.427	121.954	126.462
93	101.800	104.241	107.135	110.850	116.511	121.571	123.105	127.633
94	102.850	105.303	108.211	111.944	117.632	122.715	124.255	128.803
95	103.899	106.364	109.286	113.038	118.752	123.858	125.405	129.973
96	104.948	107.425	110.362	114.131	119.871	125.000	126.554	131.141
97	105.997	108.486	111.437	115.223	120.990	126.141	127.702	132.309
98	107.045	109.547	112.511	116.315	122.108	127.282	128.849	133.476
99	108.093	110.607	113.585	117.407	123.225	128.422	129.996	134.642
100	109.141	111.667	114.659	118.498	124.342	129.561	131.142	135.807
101	110.189	112.726	115.732	119.589	125.458	130.700	132.287	136.971
102	111.236	113.786	116.805	120.679	126.574	131.838	133.431	138.134
103	112.284	114.845	117.878	121.769	127.689	132.975	134.575	139.297
104	113.331	115.903	118.950	122.858	128.804	134.111	135.718	140.459
105	114.378	116.962	120.022	123.947	129.918	135.247	136.860	141.620
106	115.424	118.020	121.094	125.035	131.031	136.382	138.002	142.780
107	116.471	119.078	122.165	126.123	132.144	137.517	139.143	143.940
108	117.517	120.135	123.236	127.211	133.257	138.651	140.283	145.099
109	118.563	121.192	124.306	128.298	134.369	139.784	141.423	146.257
110	119.608	122.250	125.376	129.385	135.480	140.917	142.562	147.414
111	120.654	123.306	126.446	130.472	136.591	142.049	143.700	148.571
112	121.699	124.363	127.516	131.558	137.701	143.180	144.838	149.727
113	122.744	125.419	128.585	132.643	138.811	144.311	145.975	150.882
114	123.789	126.475	129.654	133.729	139.921	145.441	147.111	152.037
115	124.834	127.531	130.723	134.813	141.030	146.571	148.247	153.191
116	125.878	128.587	131.791	135.898	142.138	147.700	149.383	154.344
117	126.923	129.642	132.859	136.982	143.246	148.829	150.517	155.496
118	127.967	130.697	133.927	138.066	144.354	149.957	151.652	156.648
119	129.011	131.752	134.995	139.149	145.461	151.084	152.785	157.800
120	130.055	132.806	136.062	140.233	146.567	152.211	153.918	158.950
121	131.098	133.861	137.129	141.315	147.674	153.338	155.051	160.100

122	132.142	134.915	138.196	142.398	148.779	154.464	156.183	161.250
123	133.185	135.969	139.262	143.480	149.885	155.589	157.314	162.398
124	134.228	137.022	140.328	144.562	150.989	156.714	158.445	163.546
125	135.271	138.076	141.394	145.643	152.094	157.839	159.575	164.694
126	136.313	139.129	142.460	146.724	153.198	158.962	160.705	165.841
127	137.356	140.182	143.525	147.805	154.302	160.086	161.834	166.987
128	138.398	141.235	144.590	148.885	155.405	161.209	162.963	168.133
129	139.440	142.288	145.655	149.965	156.508	162.331	164.091	169.278
130	140.482	143.340	146.719	151.045	157.610	163.453	165.219	170.423
131	141.524	144.392	147.784	152.125	158.712	164.575	166.346	171.567
132	142.566	145.444	148.848	153.204	159.814	165.696	167.473	172.711
133	143.608	146.496	149.912	154.283	160.915	166.816	168.600	173.854
134	144.649	147.548	150.975	155.361	162.016	167.936	169.725	174.996
135	145.690	148.599	152.038	156.440	163.116	169.056	170.851	176.138
136	146.731	149.651	153.102	157.518	164.216	170.175	171.976	177.280
137	147.772	150.702	154.164	158.595	165.316	171.294	173.100	178.421
138	148.813	151.753	155.227	159.673	166.415	172.412	174.224	179.561
139	149.854	152.803	156.289	160.750	167.514	173.530	175.348	180.701
140	150.894	153.854	157.352	161.827	168.613	174.648	176.471	181.840
141	151.934	154.904	158.414	162.904	169.711	175.765	177.594	182.979
142	152.975	155.954	159.475	163.980	170.809	176.882	178.716	184.118
143	154.015	157.004	160.537	165.056	171.907	177.998	179.838	185.256
144	155.055	158.054	161.598	166.132	173.004	179.114	180.959	186.393
145	156.094	159.104	162.659	167.207	174.101	180.229	182.080	187.530
146	157.134	160.153	163.720	168.283	175.198	181.344	183.200	188.666
147	158.174	161.202	164.781	169.358	176.294	182.459	184.321	189.802
148	159.213	162.251	165.841	170.432	177.390	183.573	185.440	190.938
149	160.252	163.300	166.902	171.507	178.485	184.687	186.560	192.073
150	161.291	164.349	167.962	172.581	179.581	185.800	187.678	193.208
151	162.330	165.398	169.022	173.655	180.676	186.914	188.797	194.342
152	163.369	166.446	170.081	174.729	181.770	188.026	189.915	195.476
153	164.408	167.495	171.141	175.803	182.865	189.139	191.033	196.609
154	165.446	168.543	172.200	176.876	183.959	190.251	192.150	197.742
155	166.485	169.591	173.259	177.949	185.052	191.362	193.267	198.874
156	167.523	170.639	174.318	179.022	186.146	192.474	194.384	200.006
157	168.561	171.686	175.377	180.094	187.239	193.584	195.500	201.138
158	169.599	172.734	176.435	181.167	188.332	194.695	196.616	202.269
159	170.637	173.781	177.494	182.239	189.424	195.805	197.731	203.400
160	171.675	174.828	178.552	183.311	190.516	196.915	198.846	204.530
161	172.713	175.875	179.610	184.382	191.608	198.025	199.961	205.660
162	173.751	176.922	180.667	185.454	192.700	199.134	201.076	206.790
163	174.788	177.969	181.725	186.525	193.791	200.243	202.190	207.919

164	175.825	179.016	182.783	187.596	194.883	201.351	203.303	209.047
165	176.863	180.062	183.840	188.667	195.973	202.459	204.417	210.176
166	177.900	181.109	184.897	189.737	197.064	203.567	205.530	211.304
167	178.937	182.155	185.954	190.808	198.154	204.675	206.642	212.431
168	179.974	183.201	187.011	191.878	199.244	205.782	207.755	213.558
169	181.011	184.247	188.067	192.948	200.334	206.889	208.867	214.685
170	182.047	185.293	189.123	194.017	201.423	207.995	209.978	215.812
171	183.084	186.338	190.180	195.087	202.513	209.102	211.090	216.938
172	184.120	187.384	191.236	196.156	203.602	210.208	212.201	218.063
173	185.157	188.429	192.292	197.225	204.690	211.313	213.311	219.189
174	186.193	189.475	193.347	198.294	205.779	212.419	214.422	220.314
175	187.229	190.520	194.403	199.363	206.867	213.524	215.532	221.438
176	188.265	191.565	195.458	200.432	207.955	214.628	216.641	222.563
177	189.301	192.610	196.514	201.500	209.042	215.733	217.751	223.687
178	190.337	193.654	197.569	202.568	210.130	216.837	218.860	224.810
179	191.373	194.699	198.624	203.636	211.217	217.941	219.969	225.933
180	192.409	195.743	199.679	204.704	212.304	219.044	221.077	227.056
181	193.444	196.788	200.733	205.771	213.391	220.148	222.185	228.179
182	194.480	197.832	201.788	206.839	214.477	221.251	223.293	229.301
183	195.515	198.876	202.842	207.906	215.563	222.353	224.401	230.423
184	196.550	199.920	203.896	208.973	216.649	223.456	225.508	231.544
185	197.586	200.964	204.950	210.040	217.735	224.558	226.615	232.665
186	198.621	202.008	206.004	211.106	218.820	225.660	227.722	233.786
187	199.656	203.052	207.058	212.173	219.906	226.761	228.828	234.907
188	200.690	204.095	208.112	213.239	220.991	227.863	229.935	236.027
189	201.725	205.139	209.165	214.305	222.076	228.964	231.040	237.147
190	202.760	206.182	210.218	215.371	223.160	230.064	232.146	238.266
191	203.795	207.225	211.272	216.437	224.245	231.165	233.251	239.386
192	204.829	208.268	212.325	217.502	225.329	232.265	234.356	240.505
193	205.864	209.311	213.378	218.568	226.413	233.365	235.461	241.623
194	206.898	210.354	214.430	219.633	227.496	234.465	236.566	242.742
195	207.932	211.397	215.483	220.698	228.580	235.564	237.670	243.860
196	208.966	212.439	216.535	221.763	229.663	236.664	238.774	244.977
197	210.000	213.482	217.588	222.828	230.746	237.763	239.877	246.095
198	211.034	214.524	218.640	223.892	231.829	238.861	240.981	247.212
199	212.068	215.567	219.692	224.957	232.912	239.960	242.084	248.329
200	213.102	216.609	220.744	226.021	233.994	241.058	243.187	249.445
201	214.136	217.651	221.796	227.085	235.077	242.156	244.290	250.561
202	215.170	218.693	222.848	228.149	236.159	243.254	245.392	251.677
203	216.203	219.735	223.899	229.213	237.240	244.351	246.494	252.793
204	217.237	220.777	224.951	230.276	238.322	245.448	247.596	253.908
205	218.270	221.818	226.002	231.340	239.403	246.545	248.698	255.023

206	219.303	222.860	227.053	232.403	240.485	247.642	249.799	256.138
207	220.337	223.901	228.104	233.466	241.566	248.739	250.900	257.253
208	221.370	224.943	229.155	234.529	242.647	249.835	252.001	258.367
209	222.403	225.984	230.206	235.592	243.727	250.931	253.102	259.481
210	223.436	227.025	231.257	236.655	244.808	252.027	254.202	260.595
211	224.469	228.066	232.307	237.717	245.888	253.122	255.302	261.708
212	225.502	229.107	233.358	238.780	246.968	254.218	256.402	262.821
213	226.534	230.148	234.408	239.842	248.048	255.313	257.502	263.934
214	227.567	231.189	235.458	240.904	249.128	256.408	258.601	265.047
215	228.600	232.230	236.509	241.966	250.207	257.503	259.701	266.159
216	229.632	233.270	237.559	243.028	251.286	258.597	260.800	267.271
217	230.665	234.311	238.608	244.090	252.365	259.691	261.898	268.383
218	231.697	235.351	239.658	245.151	253.444	260.785	262.997	269.495
219	232.729	236.391	240.708	246.213	254.523	261.879	264.095	270.606
220	233.762	237.432	241.757	247.274	255.602	262.973	265.193	271.717
221	234.794	238.472	242.807	248.335	256.680	264.066	266.291	272.828
222	235.826	239.512	243.856	249.396	257.758	265.159	267.389	273.939
223	236.858	240.552	244.905	250.457	258.837	266.252	268.486	275.049
224	237.890	241.592	245.954	251.517	259.914	267.345	269.584	276.159
225	238.922	242.631	247.003	252.578	260.992	268.438	270.681	277.269
226	239.954	243.671	248.052	253.638	262.070	269.530	271.777	278.379
227	240.985	244.711	249.101	254.699	263.147	270.622	272.874	279.488
228	242.017	245.750	250.150	255.759	264.224	271.714	273.970	280.597
229	243.049	246.790	251.198	256.819	265.301	272.806	275.066	281.706
230	244.080	247.829	252.247	257.879	266.378	273.898	276.162	282.814
231	245.112	248.868	253.295	258.939	267.455	274.989	277.258	283.923
232	246.143	249.908	254.343	259.998	268.531	276.080	278.354	285.031
233	247.174	250.947	255.391	261.058	269.608	277.171	279.449	286.139
234	248.206	251.986	256.440	262.117	270.684	278.262	280.544	287.247
235	249.237	253.025	257.487	263.176	271.760	279.352	281.639	288.354
236	250.268	254.063	258.535	264.235	272.836	280.443	282.734	289.461
237	251.299	255.102	259.583	265.294	273.911	281.533	283.828	290.568
238	252.330	256.141	260.631	266.353	274.987	282.623	284.922	291.675
239	253.361	257.179	261.678	267.412	276.062	283.713	286.016	292.782
240	254.392	258.218	262.726	268.471	277.138	284.802	287.110	293.888
241	255.423	259.256	263.773	269.529	278.213	285.892	288.204	294.994
242	256.453	260.295	264.820	270.588	279.288	286.981	289.298	296.100
243	257.484	261.333	265.867	271.646	280.362	288.070	290.391	297.206
244	258.515	262.371	266.914	272.704	281.437	289.159	291.484	298.311
245	259.545	263.409	267.961	273.762	282.511	290.248	292.577	299.417
246	260.576	264.447	269.008	274.820	283.586	291.336	293.670	300.522
247	261.606	265.485	270.055	275.878	284.660	292.425	294.762	301.626

248	262.636	266.523	271.101	276.935	285.734	293.513	295.855	302.731
249	263.667	267.561	272.148	277.993	286.808	294.601	296.947	303.835
250	264.697	268.599	273.194	279.050	287.882	295.689	298.039	304.940
251	265.727	269.636	274.241	280.108	288.955	296.776	299.131	306.044
252	266.757	270.674	275.287	281.165	290.028	297.864	300.222	307.147
253	267.787	271.711	276.333	282.222	291.102	298.951	301.314	308.251
254	268.817	272.749	277.379	283.279	292.175	300.038	302.405	309.354
255	269.847	273.786	278.425	284.336	293.248	301.125	303.496	310.457
256	270.877	274.823	279.471	285.393	294.321	302.212	304.587	311.560
257	271.907	275.861	280.517	286.449	295.393	303.298	305.678	312.663
258	272.937	276.898	281.563	287.506	296.466	304.385	306.768	313.766
259	273.966	277.935	282.608	288.562	297.538	305.471	307.859	314.868
260	274.996	278.972	283.654	289.619	298.611	306.557	308.949	315.970
261	276.026	280.009	284.699	290.675	299.683	307.643	310.039	317.072
262	277.055	281.046	285.745	291.731	300.755	308.729	311.129	318.174
263	278.085	282.082	286.790	292.787	301.827	309.814	312.218	319.275
264	279.114	283.119	287.835	293.843	302.898	310.900	313.308	320.377
265	280.143	284.156	288.880	294.899	303.970	311.985	314.397	321.478
266	281.173	285.192	289.925	295.954	305.041	313.070	315.487	322.579
267	282.202	286.229	290.970	297.010	306.113	314.155	316.576	323.680
268	283.231	287.265	292.015	298.065	307.184	315.240	317.664	324.780
269	284.260	288.302	293.060	299.121	308.255	316.325	318.753	325.881
270	285.289	289.338	294.105	300.176	309.326	317.409	319.842	326.981
271	286.318	290.374	295.149	301.231	310.397	318.494	320.930	328.081
272	287.347	291.410	296.194	302.286	311.467	319.578	322.018	329.181
273	288.376	292.446	297.238	303.341	312.538	320.662	323.106	330.281
274	289.405	293.482	298.283	304.396	313.608	321.746	324.194	331.380
275	290.434	294.518	299.327	305.451	314.678	322.829	325.282	332.480
276	291.463	295.554	300.371	306.505	315.749	323.913	326.369	333.579
277	292.492	296.590	301.415	307.560	316.819	324.996	327.457	334.678
278	293.520	297.626	302.459	308.614	317.888	326.079	328.544	335.776
279	294.549	298.662	303.503	309.669	318.958	327.163	329.631	336.875
280	295.577	299.697	304.547	310.723	320.028	328.246	330.718	337.974
281	296.606	300.733	305.591	311.777	321.097	329.328	331.805	339.072
282	297.634	301.768	306.635	312.831	322.167	330.411	332.891	340.170
283	298.663	302.804	307.678	313.885	323.236	331.493	333.978	341.268
284	299.691	303.839	308.722	314.939	324.305	332.576	335.064	342.365
285	300.720	304.874	309.765	315.993	325.374	333.658	336.150	343.463
286	301.748	305.910	310.809	317.047	326.443	334.740	337.236	344.560
287	302.776	306.945	311.852	318.100	327.512	335.822	338.322	345.658
288	303.804	307.980	312.896	319.154	328.580	336.904	339.408	346.755
289	304.832	309.015	313.939	320.207	329.649	337.986	340.493	347.852

290	305.860	310.050	314.982	321.260	330.717	339.067	341.579	348.948
291	306.888	311.085	316.025	322.314	331.786	340.148	342.664	350.045
292	307.916	312.120	317.068	323.367	332.854	341.230	343.749	351.141
293	308.944	313.155	318.111	324.420	333.922	342.311	344.834	352.237
294	309.972	314.190	319.154	325.473	334.990	343.392	345.919	353.334
295	311.000	315.224	320.196	326.526	336.058	344.472	347.003	354.429
296	312.028	316.259	321.239	327.578	337.125	345.553	348.088	355.525
297	313.055	317.294	322.282	328.631	338.193	346.634	349.172	356.621
298	314.083	318.328	323.324	329.684	339.260	347.714	350.257	357.716
299	315.111	319.363	324.367	330.736	340.328	348.794	351.341	358.811
300	316.138	320.397	325.409	331.789	341.395	349.874	352.425	359.906
301	317.166	321.431	326.451	332.841	342.462	350.954	353.508	361.001
302	318.193	322.466	327.494	333.893	343.529	352.034	354.592	362.096
303	319.221	323.500	328.536	334.945	344.596	353.114	355.676	363.191
304	320.248	324.534	329.578	335.997	345.663	354.194	356.759	364.285
305	321.276	325.568	330.620	337.049	346.730	355.273	357.842	365.379
306	322.303	326.602	331.662	338.101	347.796	356.352	358.925	366.474
307	323.330	327.637	332.704	339.153	348.863	357.432	360.008	367.568
308	324.357	328.670	333.746	340.205	349.929	358.511	361.091	368.661
309	325.385	329.704	334.787	341.256	350.995	359.590	362.174	369.755
310	326.412	330.738	335.829	342.308	352.062	360.669	363.257	370.849
311	327.439	331.772	336.871	343.359	353.128	361.747	364.339	371.942
312	328.466	332.806	337.912	344.411	354.194	362.826	365.421	373.035
313	329.493	333.840	338.954	345.462	355.260	363.904	366.504	374.128
314	330.520	334.873	339.995	346.513	356.325	364.983	367.586	375.221
315	331.547	335.907	341.037	347.564	357.391	366.061	368.668	376.314
316	332.574	336.940	342.078	348.616	358.456	367.139	369.749	377.407
317	333.601	337.974	343.119	349.667	359.522	368.217	370.831	378.499
318	334.627	339.007	344.160	350.717	360.587	369.295	371.913	379.592
319	335.654	340.041	345.201	351.768	361.652	370.372	372.994	380.684
320	336.681	341.074	346.242	352.819	362.718	371.450	374.075	381.776
321	337.707	342.107	347.283	353.870	363.783	372.527	375.157	382.868
322	338.734	343.140	348.324	354.920	364.847	373.605	376.238	383.960
323	339.761	344.174	349.365	355.971	365.912	374.682	377.318	385.051
324	340.787	345.207	350.406	357.021	366.977	375.759	378.399	386.143
325	341.814	346.240	351.447	358.072	368.042	376.836	379.480	387.234
326	342.840	347.273	352.487	359.122	369.106	377.913	380.560	388.325
327	343.867	348.306	353.528	360.172	370.171	378.990	381.641	389.416
328	344.893	349.339	354.569	361.222	371.235	380.066	382.721	390.507
329	345.919	350.372	355.609	362.272	372.299	381.143	383.801	391.598
330	346.946	351.404	356.649	363.322	373.363	382.219	384.881	392.689
331	347.972	352.437	357.690	364.372	374.427	383.295	385.961	393.779

332	348.998	353.470	358.730	365.422	375.491	384.372	387.041	394.870
333	350.024	354.503	359.770	366.472	376.555	385.448	388.121	395.960
334	351.050	355.535	360.810	367.521	377.619	386.524	389.200	397.050
335	352.077	356.568	361.851	368.571	378.682	387.599	390.280	398.140
336	353.103	357.600	362.891	369.620	379.746	388.675	391.359	399.230
337	354.129	358.633	363.931	370.670	380.809	389.751	392.438	400.319
338	355.155	359.665	364.971	371.719	381.873	390.826	393.517	401.409
339	356.181	360.698	366.010	372.768	382.936	391.902	394.596	402.498
340	357.207	361.730	367.050	373.818	383.999	392.977	395.675	403.588
341	358.232	362.762	368.090	374.867	385.062	394.052	396.754	404.677
342	359.258	363.794	369.130	375.916	386.125	395.127	397.833	405.766
343	360.284	364.827	370.169	376.965	387.188	396.202	398.911	406.855
344	361.310	365.859	371.209	378.014	388.251	397.277	399.989	407.944
345	362.336	366.891	372.248	379.063	389.314	398.351	401.068	409.032
346	363.361	367.923	373.288	380.112	390.376	399.426	402.146	410.121
347	364.387	368.955	374.327	381.160	391.439	400.500	403.224	411.209
348	365.412	369.987	375.367	382.209	392.501	401.575	404.302	412.297
349	366.438	371.019	376.406	383.258	393.564	402.649	405.380	413.386
350	367.464	372.051	377.445	384.306	394.626	403.723	406.457	414.474
351	368.489	373.082	378.484	385.354	395.688	404.797	407.535	415.562
352	369.515	374.114	379.523	386.403	396.750	405.871	408.613	416.649
353	370.540	375.146	380.563	387.451	397.812	406.945	409.690	417.737
354	371.565	376.178	381.602	388.499	398.874	408.019	410.767	418.824
355	372.591	377.209	382.641	389.548	399.936	409.093	411.844	419.912
356	373.616	378.241	383.679	390.596	400.997	410.166	412.921	420.999
357	374.641	379.272	384.718	391.644	402.059	411.240	413.998	422.086
358	375.667	380.304	385.757	392.692	403.121	412.313	415.075	423.173
359	376.692	381.335	386.796	393.740	404.182	413.386	416.152	424.260
360	377.717	382.367	387.835	394.787	405.244	414.459	417.229	425.347
361	378.742	383.398	388.873	395.835	406.305	415.532	418.305	426.434
362	379.767	384.430	389.912	396.883	407.366	416.605	419.382	427.520
363	380.792	385.461	390.950	397.931	408.427	417.678	420.458	428.607
364	381.817	386.492	391.989	398.978	409.488	418.751	421.534	429.693
365	382.842	387.523	393.027	400.026	410.549	419.823	422.610	430.779
366	383.867	388.554	394.066	401.073	411.610	420.896	423.686	431.865
367	384.892	389.586	395.104	402.120	412.671	421.968	424.762	432.951
368	385.917	390.617	396.142	403.168	413.732	423.041	425.838	434.037
369	386.942	391.648	397.180	404.215	414.792	424.113	426.913	435.123
370	387.967	392.679	398.218	405.262	415.853	425.185	427.989	436.208
371	388.992	393.710	399.257	406.309	416.913	426.257	429.065	437.294
372	390.016	394.740	400.295	407.356	417.974	427.329	430.140	438.379
373	391.041	395.771	401.333	408.403	419.034	428.401	431.215	439.464

374	392.066	396.802	402.371	409.450	420.094	429.473	432.290	440.550
375	393.091	397.833	403.409	410.497	421.154	430.544	433.365	441.635
376	394.115	398.864	404.446	411.544	422.214	431.616	434.440	442.719
377	395.140	399.894	405.484	412.591	423.274	432.687	435.515	443.804
378	396.164	400.925	406.522	413.637	424.334	433.759	436.590	444.889
379	397.189	401.956	407.560	414.684	425.394	434.830	437.665	445.974
380	398.213	402.986	408.597	415.730	426.454	435.901	438.739	447.058
381	399.238	404.017	409.635	416.777	427.513	436.972	439.814	448.142
382	400.262	405.047	410.672	417.823	428.573	438.043	440.888	449.227
383	401.287	406.078	411.710	418.870	429.632	439.114	441.962	450.311
384	402.311	407.108	412.747	419.916	430.692	440.185	443.037	451.395
385	403.335	408.139	413.785	420.962	431.751	441.256	444.111	452.479
386	404.360	409.169	414.822	422.009	432.811	442.326	445.185	453.562
387	405.384	410.199	415.859	423.055	433.870	443.397	446.259	454.646
388	406.408	411.229	416.897	424.101	434.929	444.467	447.332	455.730
389	407.432	412.260	417.934	425.147	435.988	445.538	448.406	456.813
390	408.457	413.290	418.971	426.193	437.047	446.608	449.480	457.897
391	409.481	414.320	420.008	427.239	438.106	447.678	450.553	458.980
392	410.505	415.350	421.045	428.284	439.165	448.748	451.627	460.063
393	411.529	416.380	422.082	429.330	440.223	449.818	452.700	461.146
394	412.553	417.410	423.119	430.376	441.282	450.888	453.773	462.229
395	413.577	418.440	424.156	431.422	442.341	451.958	454.846	463.312
396	414.601	419.470	425.193	432.467	443.399	453.027	455.920	464.395
397	415.625	420.500	426.230	433.513	444.458	454.097	456.992	465.477
398	416.649	421.530	427.267	434.558	445.516	455.167	458.065	466.560
399	417.673	422.560	428.303	435.604	446.574	456.236	459.138	467.642
400	418.697	423.590	429.340	436.649	447.632	457.305	460.211	468.724
401	419.721	424.619	430.377	437.694	448.691	458.375	461.283	469.807
402	420.745	425.649	431.413	438.740	449.749	459.444	462.356	470.889
403	421.768	426.679	432.450	439.785	450.807	460.513	463.428	471.971
404	422.792	427.708	433.486	440.830	451.865	461.582	464.501	473.053
405	423.816	428.738	434.523	441.875	452.923	462.651	465.573	474.135
406	424.840	429.768	435.559	442.920	453.980	463.720	466.645	475.216
407	425.863	430.797	436.596	443.965	455.038	464.789	467.717	476.298
408	426.887	431.827	437.632	445.010	456.096	465.857	468.789	477.379
409	427.910	432.856	438.668	446.055	457.153	466.926	469.861	478.461
410	428.934	433.885	439.705	447.100	458.211	467.994	470.933	479.542
411	429.958	434.915	440.741	448.144	459.268	469.063	472.004	480.623
412	430.981	435.944	441.777	449.189	460.326	470.131	473.076	481.704
413	432.005	436.974	442.813	450.234	461.383	471.200	474.148	482.785
414	433.028	438.003	443.849	451.278	462.440	472.268	475.219	483.866
415	434.052	439.032	444.885	452.323	463.497	473.336	476.290	484.947

416	435.075	440.061	445.921	453.367	464.554	474.404	477.362	486.028
417	436.098	441.091	446.957	454.412	465.611	475.472	478.433	487.109
418	437.122	442.120	447.993	455.456	466.668	476.540	479.504	488.189
419	438.145	443.149	449.029	456.501	467.725	477.607	480.575	489.269
420	439.168	444.178	450.065	457.545	468.782	478.675	481.646	490.350
421	440.192	445.207	451.100	458.589	469.839	479.743	482.717	491.430
422	441.215	446.236	452.136	459.633	470.895	480.810	483.787	492.510
423	442.238	447.265	453.172	460.677	471.952	481.878	484.858	493.590
424	443.261	448.294	454.207	461.721	473.009	482.945	485.929	494.670
425	444.285	449.323	455.243	462.765	474.065	484.012	486.999	495.750
426	445.308	450.352	456.279	463.809	475.122	485.080	488.070	496.830
427	446.331	451.380	457.314	464.853	476.178	486.147	489.140	497.910
428	447.354	452.409	458.350	465.897	477.234	487.214	490.210	498.989
429	448.377	453.438	459.385	466.941	478.290	488.281	491.281	500.069
430	449.400	454.467	460.420	467.985	479.347	489.348	492.351	501.148
431	450.423	455.495	461.456	469.028	480.403	490.414	493.421	502.227
432	451.446	456.524	462.491	470.072	481.459	491.481	494.491	503.306
433	452.469	457.553	463.526	471.116	482.515	492.548	495.560	504.386
434	453.492	458.581	464.562	472.159	483.571	493.614	496.630	505.465
435	454.515	459.610	465.597	473.203	484.626	494.681	497.700	506.544
436	455.538	460.639	466.632	474.246	485.682	495.747	498.770	507.622
437	456.560	461.667	467.667	475.290	486.738	496.814	499.839	508.701
438	457.583	462.695	468.702	476.333	487.793	497.880	500.908	509.780
439	458.606	463.724	469.737	477.376	488.849	498.946	501.978	510.858
440	459.629	464.752	470.772	478.419	489.905	500.012	503.047	511.937
441	460.652	465.781	471.807	479.463	490.960	501.079	504.116	513.015
442	461.674	466.809	472.842	480.506	492.015	502.144	505.186	514.094
443	462.697	467.837	473.877	481.549	493.071	503.210	506.255	515.172
444	463.720	468.866	474.912	482.592	494.126	504.276	507.324	516.250
445	464.742	469.894	475.946	483.635	495.181	505.342	508.392	517.328
446	465.765	470.922	476.981	484.678	496.236	506.408	509.461	518.406
447	466.787	471.950	478.016	485.721	497.291	507.473	510.530	519.484
448	467.810	472.978	479.051	486.764	498.346	508.539	511.599	520.562
449	468.833	474.007	480.085	487.807	499.401	509.604	512.667	521.639
450	469.855	475.035	481.120	488.849	500.456	510.670	513.736	522.717
451	470.878	476.063	482.154	489.892	501.511	511.735	514.804	523.794
452	471.900	477.091	483.189	490.935	502.566	512.800	515.873	524.872
453	472.922	478.119	484.223	491.977	503.621	513.865	516.941	525.949
454	473.945	479.147	485.258	493.020	504.675	514.931	518.009	527.026
455	474.967	480.175	486.292	494.062	505.730	515.996	519.077	528.104
456	475.990	481.203	487.327	495.105	506.784	517.061	520.145	529.181
457	477.012	482.230	488.361	496.147	507.839	518.125	521.213	530.258

458	478.034	483.258	489.395	497.190	508.893	519.190	522.281	531.335
459	479.057	484.286	490.429	498.232	509.947	520.255	523.349	532.411
460	480.079	485.314	491.464	499.274	511.002	521.320	524.417	533.488
461	481.101	486.342	492.498	500.317	512.056	522.384	525.485	534.565
462	482.123	487.369	493.532	501.359	513.110	523.449	526.552	535.641
463	483.146	488.397	494.566	502.401	514.164	524.513	527.620	536.718
464	484.168	489.425	495.600	503.443	515.218	525.578	528.687	537.794
465	485.190	490.452	496.634	504.485	516.272	526.642	529.755	538.871
466	486.212	491.480	497.668	505.527	517.326	527.706	530.822	539.947
467	487.234	492.508	498.702	506.569	518.380	528.771	531.889	541.023
468	488.256	493.535	499.736	507.611	519.434	529.835	532.956	542.099
469	489.278	494.563	500.770	508.653	520.488	530.899	534.024	543.175
470	490.300	495.590	501.804	509.695	521.541	531.963	535.091	544.251
471	491.322	496.618	502.838	510.737	522.595	533.027	536.158	545.327
472	492.344	497.645	503.871	511.779	523.649	534.090	537.224	546.403
473	493.366	498.672	504.905	512.820	524.702	535.154	538.291	547.479
474	494.388	499.700	505.939	513.862	525.756	536.218	539.358	548.554
475	495.410	500.727	506.972	514.904	526.809	537.282	540.425	549.630
476	496.432	501.754	508.006	515.945	527.862	538.345	541.491	550.705
477	497.454	502.782	509.040	516.987	528.916	539.409	542.558	551.781
478	498.476	503.809	510.073	518.028	529.969	540.472	543.624	552.856
479	499.497	504.836	511.107	519.070	531.022	541.536	544.691	553.931
480	500.519	505.863	512.140	520.111	532.075	542.599	545.757	555.006
481	501.541	506.891	513.174	521.152	533.128	543.662	546.823	556.081
482	502.563	507.918	514.207	522.194	534.181	544.725	547.890	557.156
483	503.584	508.945	515.240	523.235	535.234	545.788	548.956	558.231
484	504.606	509.972	516.274	524.276	536.287	546.851	550.022	559.306
485	505.628	510.999	517.307	525.317	537.340	547.914	551.088	560.381
486	506.650	512.026	518.340	526.359	538.393	548.977	552.154	561.455
487	507.671	513.053	519.374	527.400	539.446	550.040	553.220	562.530
488	508.693	514.080	520.407	528.441	540.499	551.103	554.285	563.604
489	509.714	515.107	521.440	529.482	541.551	552.166	555.351	564.679
490	510.736	516.134	522.473	530.523	542.604	553.228	556.417	565.753

**LAMPIRAN 7:** Perhitungan *Likelihood Ratio Test*

Date	close	return	return*1000 0000	T-1	T-5	T-20	T-60	T-1	T-5	T-20	T-60	T-1	T-5	T-20	T-60
02/01/2014	596.15	0	0	True											
03/01/2014	585.64	-0.01779	-177870	False	True	False	True								
06/01/2014	579.93	-0.0098	-97979	False	False	False	True	False	False	False	True	False	False	True	True
07/01/2014	572.29	-0.01326	-132616	False	False	False	True	False	False	False	True	False	False	False	True
08/01/2014	576.41	0.007173	71733	True	False	True									
09/01/2014	574.28	-0.0037	-37020	False	True	True	True	False	True	True	True	False	True	True	True
10/01/2014	582.38	0.014006	140060	True											
13/01/2014	601.81	0.032819	328186	True											
15/01/2014	609.9	0.013353	133533	True											
16/01/2014	606.82	-0.00506	-50628	False	True	True	True	False	False	True	True	False	True	True	True
17/01/2014	603.06	-0.00622	-62155	False	False	True	True	False	False	True	True	False	False	True	True
20/01/2014	608.32	0.008684	86844	True	False	True									
21/01/2014	609.11	0.001298	12978	True											
22/01/2014	614.41	0.008664	86636	True											
23/01/2014	614.97	0.000911	9110.3	True											
24/01/2014	604.37	-0.01739	-173869	False	True	False	True								
27/01/2014	583.88	-0.03449	-344911	False											
28/01/2014	588.27	0.007491	74906	True	False	True									
29/01/2014	601.54	0.022307	223069	True											
30/01/2014	602.87	0.002209	22086	True											
03/02/2014	595.62	-0.0121	-120987	False	True	False	True	False	False	False	True	False	False	False	True

04/02/2014	587.49	-0.01374	-137437	False	False	False	True	False	False	False	True	False	False	False	True
05/02/2014	594.5	0.011862	118615	True	False	True	True	True	True	True	True	True	True	True	True
06/02/2014	601.06	0.010974	109740	True	True	True	True	True	True	True	True	True	True	True	True
07/02/2014	606.22	0.008548	85481	True	True	True	True	True	True	True	True	True	True	True	True
10/02/2014	603.33	-0.00478	-47786	False	True	True	True	False	False	True	True	False	True	True	True
11/02/2014	604.7	0.002268	22681	True	False	True	True	True	True	True	True	True	True	True	True
12/02/2014	609.08	0.007217	72172	True	True	True	True	True	True	True	True	True	True	True	True
13/02/2014	607.22	-0.00306	-30585	False	True	True	True	False	True	True	True	False	True	True	True
14/02/2014	608.97	0.002878	28778	True	True	True	True	True	True	True	True	True	True	True	True
17/02/2014	615.61	0.010845	108447	True	True	True	True	True	True	True	True	True	True	True	True
18/02/2014	615.1	-0.00083	-8288	True	True	True	True	True	True	True	True	True	True	True	True
19/02/2014	621.73	0.010721	107211	True	True	True	True	True	True	True	True	True	True	True	True
20/02/2014	622.16	0.000691	6913.7	True	True	True	True	True	True	True	True	True	True	True	True
21/02/2014	626.97	0.007701	77014	True	True	True	True	True	True	True	True	True	True	True	True
24/02/2014	621.94	-0.00806	-80550	False	True	True	True	False	False	True	True	False	False	True	True
25/02/2014	614.48	-0.01207	-120673	False	False	False	True	False	False	False	True	False	False	False	True
26/02/2014	606.03	-0.01385	-138468	False	False	False	True	False	False	False	True	False	False	False	True
27/02/2014	612.84	0.011174	111744	True	False	True	True	True	True	True	True	True	True	True	True
28/02/2014	626.86	0.022619	226193	True	True	True	True	True	True	True	True	True	True	True	True
03/03/2014	618.98	-0.01265	-126503	False	True	False	True	False	False	False	True	False	False	False	True
04/03/2014	620.05	0.001727	17272	True	False	True	True	True	True	True	True	True	True	True	True
05/03/2014	628	0.01274	127401	True	True	True	True	True	True	True	True	True	True	True	True
06/03/2014	631	0.004766	47657	True	True	True	True	True	True	True	True	True	True	True	True
07/03/2014	631.74	0.001172	11720	True	True	True	True	True	True	True	True	True	True	True	True
10/03/2014	632.91	0.00185	18503	True	True	True	True	True	True	True	True	True	True	True	True
11/03/2014	635.35	0.003848	38478	True	True	True	True	True	True	True	True	True	True	True	True

12/03/2014	633.17	-0.00344	-34371	False	True	True	True	False	True	True	True	True	False	True	True	True	True
13/03/2014	641.31	0.012774	127740	True													
14/03/2014	661.74	0.03136	313598	True													
17/03/2014	663.86	0.003199	31985	True													
18/03/2014	651.32	-0.01907	-190702	False	True	False	True										
19/03/2014	655.45	0.006321	63210	True	False	True											
20/03/2014	634.17	-0.03301	-330050	False	True	False											
21/03/2014	636.55	0.003746	37459	True	False	True											
24/03/2014	637.79	0.001946	19461	True													
25/03/2014	632.44	-0.00842	-84237	False	True	False	True	False	False	False	False	True	False	False	True	True	True
26/03/2014	636.48	0.006368	63676	True	False	True											
27/03/2014	635.02	-0.0023	-22964	False	True	True	True	False	True								
28/03/2014	640.41	0.008452	84520	True													
01/04/2014	657.09	0.025712	257125	True													
02/04/2014	655.27	-0.00277	-27736	False	True	True	True	False	True	True	True	True	False	True	True	True	True
03/04/2014	658.53	0.004963	49627	True													
04/04/2014	653.27	-0.00802	-80196	False	True	True	True	False	False	True	True	True	False	False	True	True	True
07/04/2014	667.22	0.021129	211292	True	False	True											
08/04/2014	666.52	-0.00105	-10496	True													
09/04/2014	666.52	0	0	True													
10/04/2014	643.15	-0.03569	-356922	False	True	False											
11/04/2014	653.28	0.015628	156279	True	False	True											
14/04/2014	659.71	0.009795	97945	True													
15/04/2014	659.78	0.000106	1061.1	True													
16/04/2014	657.86	-0.00291	-29144	False	True	True	True	False	True	True	True	True	True	False	True	True	True
17/04/2014	663.59	0.008672	86724	True													

21/04/2014	663.52	-0.00011	-1055	True													
22/04/2014	664.13	0.000919	9188.9	True													
23/04/2014	664.14	1.51E-05	150.72	True													
24/04/2014	663.18	-0.00145	-14466	True													
25/04/2014	663.21	4.53E-05	452.79	True													
28/04/2014	650.32	-0.01963	-196272	False	True	False											
29/04/2014	645.25	-0.00783	-78267	False	False	True	True	False	False	True	True	False	False	True	True	True	True
30/04/2014	647.67	0.003743	37434	True	False	True											
02/05/2014	646.25	-0.00219	-21949	False	True	True	True	False	True								
05/05/2014	648.25	0.00309	30900	True													
06/05/2014	647.04	-0.00187	-18683	False	True												
07/05/2014	651.73	0.007222	72223	True													
08/05/2014	652.8	0.00164	16405	True													
09/05/2014	655.95	0.004814	48138	True													
12/05/2014	662.47	0.009891	98906	True													
13/05/2014	661.05	-0.00215	-21458	False	True	True	True	False	True								
14/05/2014	672.6	0.017321	173213	True													
16/05/2014	680.63	0.011868	118681	True													
19/05/2014	678.08	-0.00375	-37535	False	True	True	True	False	True	True	True	True	False	True	True	True	True
20/05/2014	660.08	-0.0269	-269042	False	True	False											
21/05/2014	664.78	0.007095	70951	True	False	True											
22/05/2014	672.51	0.011561	115608	True													
23/05/2014	672.11	-0.0006	-5950	True													
26/05/2014	671.82	-0.00043	-4315.4	True													
28/05/2014	673.96	0.00318	31803	True													
30/05/2014	656.83	-0.02575	-257455	False	True	False											

02/06/2014	658.9	0.003147	31466	True	False	True	True	True	True	True	True	True	True	True	True	True	True
03/06/2014	662.61	0.005615	56147	True	True	True	True	True	True	True	True	True	True	True	True	True	True
04/06/2014	661.62	-0.0015	-14952	True	True	True	True	True	True	True	True	True	True	True	True	True	True
05/06/2014	663.03	0.002129	21289	True	True	True	True	True	True	True	True	True	True	True	True	True	True
06/06/2014	666.4	0.00507	50698	True	True	True	True	True	True	True	True	True	True	True	True	True	True
09/06/2014	658.99	-0.01118	-111818	False	True	False	True	False	False	False	False	True	False	False	True	True	True
10/06/2014	669.18	0.015345	153447	True	False	True	True	True	True	True	True	True	True	True	True	True	True
11/06/2014	672.99	0.005677	56774	True	True	True	True	True	True	True	True	True	True	True	True	True	True
12/06/2014	666.65	-0.00947	-94652	False	True	False	True	False	False	False	False	True	False	False	True	True	True
13/06/2014	665.27	-0.00207	-20722	False	False	True	True	False	True	True	True	True	True	True	True	True	True
16/06/2014	655.9	-0.01418	-141846	False	True	False	True	False	False	False	False	True	False	False	False	True	True
17/06/2014	661.51	0.008517	85167	True	False	True	True	True	True	True	True	True	True	True	True	True	True
18/06/2014	658.05	-0.00524	-52442	False	True	True	True	False	False	True	True	True	False	True	True	True	True
19/06/2014	654.36	-0.00562	-56233	False	False	True	True	False	False	True	True	True	False	False	True	True	True
20/06/2014	652.97	-0.00213	-21265	False	False	True	True	False	True	True	True	True	True	True	True	True	True
23/06/2014	653.44	0.00072	7195.8	True	True	True	True	True	True	True	True	True	True	True	True	True	True
24/06/2014	654.65	0.00185	18501	True	True	True	True	True	True	True	True	True	True	True	True	True	True
25/06/2014	651.63	-0.00462	-46239	False	True	True	True	False	False	True	True	True	False	True	True	True	True
26/06/2014	656.69	0.007735	77351	True	False	True	True	True	True	True	True	True	True	True	True	True	True
27/06/2014	651.89	-0.00734	-73362	False	True	True	True	False	False	True	True	True	False	False	True	True	True
30/06/2014	655	0.004759	47594	True	False	True	True	True	True	True	True	True	True	True	True	True	True
01/07/2014	656.35	0.002059	20589	True	True	True	True	True	True	True	True	True	True	True	True	True	True
02/07/2014	663.86	0.011377	113771	True	True	True	True	True	True	True	True	True	True	True	True	True	True
03/07/2014	661.79	-0.00312	-31230	False	True	True	True	False	True	True	True	True	False	True	True	True	True
04/07/2014	663.63	0.002777	27765	True	True	True	True	True	True	True	True	True	True	True	True	True	True
07/07/2014	679.41	0.0235	235000	True	True	True	True	True	True	True	True	True	True	True	True	True	True

08/07/2014	683.29	0.005695	56946	True	True												
10/07/2014	692.85	0.013894	138942	True	True												
11/07/2014	679.85	-0.01894	-189413	False	True	False	True										
14/07/2014	679.71	-0.00021	-2058.8	True	False	True	True										
15/07/2014	688.2	0.012413	124132	True	True												
16/07/2014	694.49	0.009098	90982	True	True												
17/07/2014	685.93	-0.0124	-124022	False	True	False	True	False	False	False	False	True	False	False	False	True	True
18/07/2014	689.79	0.005612	56116	True	False	True	True										
21/07/2014	697.11	0.010556	105560	True	True												
22/07/2014	692.33	-0.00688	-68805	False	True	True	True	False	False	True	True	True	False	False	True	True	True
23/07/2014	692.14	-0.00027	-2744.8	True	False	True	True										
24/07/2014	692.46	0.000462	4622.4	True	True												
25/07/2014	690.4	-0.00298	-29793	False	True	True	True	False	True	True	True	True	False	True	True	True	True
04/08/2014	701.23	0.015565	155647	True	True												
05/08/2014	697.15	-0.00584	-58353	False	True	True	True	False	False	True	True	False	False	True	True	True	True
06/08/2014	687.88	-0.01339	-133862	False	False	False	True	False	False	False	False	True	False	False	False	True	True
07/08/2014	690.39	0.003642	36423	True	False	True	True										
08/08/2014	686.73	-0.00532	-53155	False	True	True	True	False	False	True	True	True	False	True	True	True	True
11/08/2014	697.35	0.015346	153462	True	False	True	True										
12/08/2014	700.19	0.004064	40643	True	True												
13/08/2014	707.38	0.010216	102163	True	True												
14/08/2014	703.81	-0.00506	-50596	False	True	True	True	False	False	True	True	True	False	True	True	True	True
15/08/2014	701.44	-0.00337	-33731	False	False	True	True	False	False	True	True	True	False	True	True	True	True
18/08/2014	702.47	0.001467	14673	True	True												
19/08/2014	701.37	-0.00157	-15671	True	True												
20/08/2014	706.22	0.006891	68912	True	True												

21/08/2014	707.44	0.001726	17261	True	True												
22/08/2014	704.21	-0.00458	-45762	False	True	True	True	False	False	True	True	False	True	True	True	True	True
25/08/2014	701.09	-0.00444	-44403	False	False	True	True	False	False	True	True	False	True	True	True	True	True
26/08/2014	696	-0.00729	-72866	False	False	True	True	False	False	True	True	False	False	True	True	True	True
27/08/2014	698.91	0.004172	41723	True	False	True	True										
28/08/2014	701.52	0.003727	37275	True	True												
29/08/2014	691.13	-0.01492	-149215	False	True	False	True										
01/09/2014	699.5	0.012038	120378	True	False	True	True										
02/09/2014	703.05	0.005062	50622	True	True												
03/09/2014	707.22	0.005914	59138	True	True												
04/09/2014	702.23	-0.00708	-70808	False	True	True	True	False	False	True	True	False	False	True	True	True	True
05/09/2014	702.85	0.000883	8825.1	True	False	True	True										
08/09/2014	707.98	0.007272	72724	True	True												
09/09/2014	698.21	-0.0139	-138959	False	True	False	True	False	False	False	False	True	False	False	False	True	True
10/09/2014	688.65	-0.01379	-137868	False	False	False	True	False	False	False	False	True	False	False	False	True	True
11/09/2014	683.32	-0.00777	-77699	False	False	True	True	False	False	True	True	False	False	True	True	True	True
12/09/2014	688.68	0.007813	78134	True	False	True	True										
15/09/2014	691.6	0.004231	42310	True	True												
16/09/2014	691	-0.00087	-8679	True	True												
17/09/2014	699.09	0.01164	116397	True	True												
18/09/2014	702.72	0.005179	51790	True	True												
19/09/2014	704.71	0.002828	28279	True	True												
22/09/2014	702.42	-0.00325	-32549	False	True	True	True	False	True	True	True	True	False	True	True	True	True
23/09/2014	696.19	-0.00891	-89089	False	True	False	True	False	False	False	False	True	False	False	True	True	True
24/09/2014	692.53	-0.00527	-52710	False	False	True	True	False	False	False	True	True	False	True	True	True	True
25/09/2014	695	0.00356	35602	True	False	True	True										

26/09/2014	687.63	-0.01066	-106609	False	True	False	True	False	False	False	True	False	False	True	True	True
29/09/2014	689.48	0.002687	26868	True	False	True										
30/09/2014	687.62	-0.0027	-27013	False	True	True	True	False	True	True	True	False	True	True	True	True
01/10/2014	682.39	-0.00763	-76350	False	True	True	True	False	False	True	True	False	False	True	True	True
02/10/2014	661.7	-0.03079	-307891	False												
03/10/2014	658.99	-0.0041	-41040	False	False	True	True	False	True	True	True	False	True	True	True	True
06/10/2014	665.12	0.009259	92591	True	False	True										
07/10/2014	671.01	0.008817	88166	True												
08/10/2014	659.35	-0.01753	-175296	False	True	False	True									
09/10/2014	662.82	0.005249	52490	True	False	True										
10/10/2014	655.99	-0.01036	-103579	False	True	False	True	False	False	False	False	True	False	False	True	True
13/10/2014	647.24	-0.01343	-134284	False	False	False	True	False	False	False	True	False	False	False	False	True
14/10/2014	650.34	0.004778	47782	True	False	True										
15/10/2014	652.77	0.00373	37295	True												
16/10/2014	651.98	-0.00121	-12110	True												
17/10/2014	663.57	0.017621	176205	True												
20/10/2014	662.62	-0.00143	-14327	True												
21/10/2014	661.88	-0.00112	-11174	True												
22/10/2014	668.13	0.009398	93985	True												
23/10/2014	671.07	0.004391	43907	True												
24/10/2014	666.41	-0.00697	-69684	False	True	True	True	False	False	True	True	False	False	True	True	True
27/10/2014	658.7	-0.01164	-116368	False	False	False	True	False	False	False	False	True	False	False	False	True
28/10/2014	652.62	-0.00927	-92732	False	False	False	True	False	False	False	False	True	False	False	True	True
29/10/2014	667.8	0.022994	229937	True	False	True										
30/10/2014	666.81	-0.00148	-14836	True												
31/10/2014	670.44	0.005429	54291	True												

03/11/2014	670.19	-0.00037	-3729.6	True	True	True	True	True	True	True	True	True	True	True	True	True	True
04/11/2014	664.45	-0.0086	-86016	False	True	False	True	False	False	False	True	False	False	True	True	True	True
05/11/2014	665.43	0.001474	14738	True	False	True	True	True	True	True	True	True	True	True	True	True	True
06/11/2014	662.14	-0.00496	-49564	False	True	True	True	False	False	True	True	True	False	True	True	True	True
07/11/2014	654.02	-0.01234	-123391	False	False	False	True	False	False	False	False	True	False	False	False	True	True
10/11/2014	649.65	-0.0067	-67042	False	False	True	True	False	False	True	True	True	False	False	True	True	True
11/11/2014	661.68	0.018348	183483	True	False	True	True	True	True	True	True	True	True	True	True	True	True
12/11/2014	663.92	0.00338	33796	True	True	True	True	True	True	True	True	True	True	True	True	True	True
13/11/2014	665.7	0.002678	26775	True	True	True	True	True	True	True	True	True	True	True	True	True	True
14/11/2014	665.84	0.00021	2103.1	True	True	True	True	True	True	True	True	True	True	True	True	True	True
17/11/2014	668.51	0.004002	40019	True	True	True	True	True	True	True	True	True	True	True	True	True	True
18/11/2014	675.76	0.010787	107866	True	True	True	True	True	True	True	True	True	True	True	True	True	True
19/11/2014	678.64	0.004253	42528	True	True	True	True	True	True	True	True	True	True	True	True	True	True
20/11/2014	672.59	-0.00895	-89548	False	True	False	True	False	False	False	False	True	False	False	True	True	True
21/11/2014	677.52	0.007303	73031	True	False	True	True	True	True	True	True	True	True	True	True	True	True
24/11/2014	686.49	0.013153	131525	True	True	True	True	True	True	True	True	True	True	True	True	True	True
25/11/2014	680.1	-0.00935	-93518	False	True	False	True	False	True	False	False	False	True	False	False	True	True
26/11/2014	681.6	0.002203	22031	True	False	True	True	True	True	True	True	True	True	True	True	True	True
27/11/2014	684.71	0.004552	45525	True	True	True	True	True	True	True	True	True	True	True	True	True	True
28/11/2014	683.02	-0.00247	-24713	False	True	True	True	False	True	True	True						
01/12/2014	685.4	0.003478	34785	True	True	True	True	True	True	True	True	True	True	True	True	True	True
02/12/2014	685.92	0.000758	7583.3	True	True	True	True	True	True	True	True	True	True	True	True	True	True
03/12/2014	681.74	-0.00611	-61126	False	True	True	True	False	False	True	True	True	False	False	True	True	True
04/12/2014	686.69	0.007235	72346	True	False	True	True	True	True	True	True	True	True	True	True	True	True
05/12/2014	688.28	0.002313	23128	True	True	True	True	True	True	True	True	True	True	True	True	True	True
08/12/2014	680.77	-0.01097	-109712	False	True	False	True	False	False	False	False	True	False	False	True	True	True

09/12/2014	678.71	-0.00303	-30306	False	False	True	True	False	True	True	True	True	False	True	True	True	True
10/12/2014	682.72	0.005891	58908	True	True												
11/12/2014	679.66	-0.00449	-44921	False	True	True	True	False	False	True	True	False	True	True	True	True	True
12/12/2014	680.39	0.001074	10736	True	False	True	True										
15/12/2014	674.28	-0.00902	-90207	False	True	False	True	False	False	False	False	True	False	False	True	True	True
16/12/2014	663.39	-0.01628	-162824	False	True												
17/12/2014	661.6	-0.0027	-27020	False	False	True	True	False	True	True	True	True	False	True	True	True	True
18/12/2014	675.49	0.020777	207772	True	True												
19/12/2014	679.18	0.005448	54478	True	True												
29/12/2014	685.84	0.009758	97582	True	True												
30/12/2014	691.04	0.007553	75533	True	True												
31/12/2014	691.04	0	0	True	True												
02/01/2015	694.47	0.004951	49512	True	True												
05/01/2015	689.09	-0.00778	-77770	False	True	True	True	False	False	True	True	False	False	True	True	True	True
06/01/2015	681.07	-0.01171	-117068	False	False	False	True	False	False	False	True	False	False	False	True	True	True
07/01/2015	687.51	0.009411	94113	True	False	True	True										
08/01/2015	688.14	0.000916	9159.4	True	True												
09/01/2015	688.95	0.001176	11764	True	True												
12/01/2015	683.78	-0.00753	-75324	False	True	True	True	False	False	True	True	False	False	True	True	True	True
13/01/2015	692.15	0.012166	121665	True	False	True	True										
14/01/2015	681.66	-0.01527	-152718	False	True	False	True										
15/01/2015	687.57	0.008633	86327	True	False	True	True										
16/01/2015	681.69	-0.00859	-85886	False	True	False	True	False	False	False	False	True	False	False	True	True	True
19/01/2015	681.64	-7.3E-05	-733.31	True	False	True	True										
20/01/2015	688.62	0.010188	101879	True	True												
21/01/2015	702.1	0.019386	193862	True	True												

22/01/2015	708.84	0.009554	95541	True	True												
23/01/2015	716.73	0.011069	110693	True	True												
26/01/2015	705.43	-0.01589	-158916	False	True	False	True										
27/01/2015	707.71	0.003227	32269	True	False	True	True										
28/01/2015	706.09	-0.00229	-22917	False	True	True	True	True	False	True	True						
29/01/2015	703.1	-0.00424	-42437	False	True	True	True	True	False	False	True	True	False	True	True	True	True
30/01/2015	706.68	0.005079	50788	True	False	True	True										
02/02/2015	701.5	-0.00736	-73570	False	True	True	True	True	False	False	True	True	False	False	True	True	True
03/02/2015	704.64	0.004466	44662	True	False	True	True										
04/02/2015	708.72	0.005773	57734	True	True												
05/02/2015	700.4	-0.01181	-118089	False	True	False	True	False	True	False	False	True	False	False	False	True	True
06/02/2015	711.52	0.015752	157519	True	False	True	True										
09/02/2015	710.89	-0.00089	-8858.3	True	True												
10/02/2015	707.01	-0.00547	-54729	False	True	True	True	True	False	False	True	True	False	True	True	True	True
11/02/2015	712.14	0.00723	72297	True	False	True	True										
12/02/2015	713.98	0.00258	25804	True	True												
13/02/2015	721.53	0.010519	105191	True	True												
16/02/2015	709.6	-0.01667	-166726	False	True	False	True										
17/02/2015	714.34	0.006658	66577	True	False	True	True										
18/02/2015	718.68	0.006057	60571	True	True												
19/02/2015	718.68	0	0	True	True												
20/02/2015	715.36	-0.00463	-46303	False	True	True	True	True	False	False	True	True	False	True	True	True	True
23/02/2015	718.39	0.004227	42267	True	False	True	True										
24/02/2015	720.43	0.002836	28356	True	True												
25/02/2015	727.44	0.009683	96833	True	True												
26/02/2015	727.37	-9.6E-05	-962.42	True	True												

27/02/2015	722.1	-0.00727	-72717	False	True	True	True	False	False	True	True	False	False	True	True
02/03/2015	728.61	0.008975	89750	True	False	True	True								
03/03/2015	730.2	0.00218	21799	True	True										
04/03/2015	723.39	-0.00937	-93700	False	True	False	True	False	False	False	True	False	False	True	True
05/03/2015	722.09	-0.0018	-17987	True	False	True	True								
06/03/2015	734.85	0.017517	175165	True	True										
09/03/2015	724.65	-0.01398	-139776	False	True	False	True	False	False	False	True	False	False	False	True
10/03/2015	725.85	0.001655	16545	True	False	True	True								
11/03/2015	720.53	-0.00736	-73563	False	True	True	True	False	False	True	True	False	False	True	True
12/03/2015	723.77	0.004487	44866	True	False	True	True								
13/03/2015	723.68	-0.00012	-1243.9	True	True										
16/03/2015	725.35	0.002305	23050	True	True										
17/03/2015	724.68	-0.00092	-9241	True	True										
18/03/2015	718.32	-0.00882	-88150	False	True	False	True	False	False	False	True	False	False	True	True
19/03/2015	724.86	0.009063	90634	True	False	True	True								
20/03/2015	721.67	-0.00441	-44106	False	True	True	True	False	False	True	True	False	True	True	True
23/03/2015	721	-0.00093	-9288.1	True	False	True	True								
24/03/2015	721.5	0.000693	6932.4	True	True										
25/03/2015	711.03	-0.01462	-146177	False	True	False	True								
26/03/2015	703.48	-0.01068	-106752	False	False	False	True	False	False	False	True	False	False	True	True
27/03/2015	709.98	0.009197	91974	True	False	True	True								
30/03/2015	720.5	0.014709	147086	True	True										
31/03/2015	728.2	0.01063	106303	True	True										
01/04/2015	718.59	-0.01328	-132848	False	True	False	True	False	False	False	True	False	False	False	True
02/04/2015	716.8	-0.00249	-24942	False	False	True	True	False	True	True	True	True	True	True	True
06/04/2015	720.87	0.005662	56620	True	True										

07/04/2015	727.56	0.009238	92377	True													
08/04/2015	719.99	-0.01046	-104592	False	True	False	True	False	False	False	True	False	False	True	True	True	True
09/04/2015	723.85	0.005347	53468	True	False	True											
10/04/2015	722.08	-0.00245	-24482	False	True	True	True	False	True								
13/04/2015	717.43	-0.00646	-64606	False	True	True	True	False	False	True	True	True	False	False	True	True	True
14/04/2015	711.11	-0.00885	-88483	False	False	True	False	False	False	False	True	False	False	False	True	True	True
15/04/2015	711.09	-2.8E-05	-280.66	True	False	True											
16/04/2015	710.41	-0.00096	-9568.1	True													
17/04/2015	709.33	-0.00152	-15213	True													
20/04/2015	704.25	-0.00719	-71875	False	True	True	True	False	False	True	True	False	False	True	True	True	True
21/04/2015	717.98	0.019308	193083	True	False	True											
22/04/2015	716.12	-0.00259	-25939	False	True	True	True	False	True	True	True	False	True	True	True	True	True
23/04/2015	718.85	0.003805	38049	True													
24/04/2015	723.29	0.006158	61575	True													
27/04/2015	698.24	-0.03525	-352473	False	True	False											
28/04/2015	701.08	0.004059	40592	True	False	True											
29/04/2015	674.87	-0.0381	-381020	False	True	False											
30/04/2015	664.8	-0.01503	-150338	False	True												
01/05/2015	664.8	0	0	True	False	True											
04/05/2015	679.16	0.02137	213705	True													
05/05/2015	686.25	0.010385	103853	True													
06/05/2015	692.3	0.008777	87774	True													
07/05/2015	685.97	-0.00919	-91855	False	True	False	True	False	True	False	False	True	False	False	True	True	True
08/05/2015	696.7	0.015521	155211	True	False	True											
11/05/2015	696.16	-0.00078	-7754.4	True													
12/05/2015	696.95	0.001134	11342	True													

13/05/2015	706.03	0.012944	129441	True													
15/05/2015	708.85	0.003986	39861	True													
18/05/2015	708.51	-0.00048	-4797.2	True													
19/05/2015	711.75	0.004563	45625	True													
20/05/2015	714.8	0.004276	42760	True													
21/05/2015	712.28	-0.00353	-35316	False	True	True	True	False	True	True	True	False	True	True	True	True	True
22/05/2015	711.77	-0.00072	-7162.8	True													
25/05/2015	711.27	-0.0007	-7027.2	True													
26/05/2015	719.3	0.011226	112264	True													
27/05/2015	707.77	-0.01616	-161593	False	True	False	True										
28/05/2015	707.16	-0.00086	-8623	True	False	True											
29/05/2015	698.07	-0.01294	-129375	False	True	False	True	False	False	False	False	True	False	False	False	False	True
01/06/2015	700.65	0.003689	36891	True	False	True											
03/06/2015	692.4	-0.01184	-118447	False	True	False	True	False	False	False	False	True	False	False	False	False	True
04/06/2015	685.29	-0.01032	-103218	False	False	False	True	False	False	False	True	False	False	False	True	True	True
05/06/2015	684.75	-0.00079	-7882.7	True	False	True											
08/06/2015	672.87	-0.0175	-175017	False	True	False	True										
09/06/2015	655.7	-0.02585	-258488	False													
10/06/2015	664.75	0.013708	137076	True	False	True											
11/06/2015	666.6	0.002779	27791	True													
12/06/2015	665.66	-0.00141	-14111	True													
15/06/2015	648.04	-0.02683	-268266	False	True	False											
16/06/2015	653.03	0.007671	76707	True	False	True											
17/06/2015	660.82	0.011858	118584	True													
18/06/2015	665.06	0.006396	63958	True													
19/06/2015	666.82	0.002643	26429	True													

22/06/2015	661.64	-0.0078	-77985	False	True	True	True	False	False	True	True	True	False	False	True	True
23/06/2015	657.11	-0.00687	-68702	False	False	True	True	False	False	True	True	False	False	True	True	True
24/06/2015	666.37	0.013994	139937	True	False	True										
25/06/2015	659.79	-0.00992	-99235	False	True	False	True	False	False	False	True	False	False	True	True	True
26/06/2015	658.85	-0.00143	-14257	True	False	True										
29/06/2015	652.82	-0.00919	-91944	False	True	False	True	False	False	False	True	False	False	True	True	True
30/06/2015	656.99	0.006367	63673	True	False	True										
01/07/2015	654.81	-0.00332	-33237	False	True	True	True	False	True	True	True	False	True	True	True	True
02/07/2015	662.42	0.011555	115547	True												
03/07/2015	670.93	0.012765	127650	True												
06/07/2015	661.37	-0.01435	-143514	False	True	False	False	False	False	False	True	False	False	False	True	True
07/07/2015	657.72	-0.00553	-55342	False	False	True	True	False	False	True	True	False	True	True	True	True
08/07/2015	653.25	-0.00682	-68194	False	False	True	True	False	False	True	True	False	False	True	True	True
09/07/2015	645.59	-0.0118	-117952	False	False	False	True	False	False	False	True	False	False	False	True	True
10/07/2015	648.74	0.004867	48673	True	False	True										
13/07/2015	654.82	0.009328	93284	True												
14/07/2015	655.9	0.001648	16480	True												
15/07/2015	653.65	-0.00344	-34363	False	True	True	True	False	True	True	True	False	True	True	True	True
22/07/2015	658.39	0.007225	72254	True												
23/07/2015	656.34	-0.00312	-31185	False	True	True	True	False	True	True	True	True	False	True	True	True
24/07/2015	646.94	-0.01443	-144254	False	True	False	False	False	False	False	True	False	False	False	True	True
27/07/2015	632.14	-0.02314	-231426	False												
28/07/2015	628.63	-0.00557	-55681	False	False	True	True	False	False	True	True	False	True	True	True	True
29/07/2015	629.1	0.000747	7473.3	True	False	True										
30/07/2015	628.9	-0.00032	-3178.9	True												
31/07/2015	641.97	0.020569	205692	True												

03/08/2015	636.99	-0.00779	-77876	False	True	True	True	False	False	True	True	True	False	False	True	True
04/08/2015	634.22	-0.00436	-43581	False	False	True	True	False	False	True	True	False	True	True	True	True
05/08/2015	644.25	0.015691	156910	True	False	True										
06/08/2015	634.64	-0.01503	-150289	False	True	False	True									
07/08/2015	631.77	-0.00453	-45325	False	False	True	True	False	False	False	True	True	False	True	True	True
10/08/2015	628.83	-0.00466	-46645	False	False	True	True	False	False	True	True	False	True	True	True	True
11/08/2015	607.75	-0.0341	-340974	False												
12/08/2015	585.32	-0.0376	-376049	False												
13/08/2015	605.3	0.033565	335655	True	False	True										
14/08/2015	606.41	0.001832	18321	True												
18/08/2015	597.19	-0.01532	-153210	False	True	False	True									
19/08/2015	592.13	-0.00851	-85091	False	False	False	True	False	False	False	True	False	False	True	True	True
20/08/2015	587.99	-0.00702	-70163	False	False	True	True	False	False	True	True	False	False	True	True	True
21/08/2015	572.01	-0.02755	-275534	False												
24/08/2015	544.39	-0.04949	-494906	False												
25/08/2015	554.87	0.019068	190679	True	False	True										
26/08/2015	553.09	-0.00321	-32131	False	True	True	True	False	True	True	True	False	True	True	True	True
27/08/2015	585.17	0.056382	563816	True												
28/08/2015	586.09	0.001571	15710	True												
31/08/2015	598.28	0.020586	205855	True												
01/09/2015	584.1	-0.02399	-239868	False	True	False										
02/09/2015	582.66	-0.00247	-24684	False	False	True	True	False	True							
03/09/2015	590.89	0.014026	140261	True												
04/09/2015	589.14	-0.00297	-29660	False	True	True	True	False	True	True	True	False	True	True	True	True
07/09/2015	565.33	-0.04125	-412542	False	True	False										
08/09/2015	567.34	0.003549	35492	True	False	True										

09/09/2015	574.99	0.013394	133938	True													
10/09/2015	577.06	0.003594	35936	True													
11/09/2015	584.9	0.013495	134947	True													
14/09/2015	591.68	0.011525	115250	True													
15/09/2015	580.28	-0.01946	-194551	False	True	False											
16/09/2015	577.07	-0.00555	-55472	False	False	True	True	False	False	True	True	True	False	True	True	True	True
17/09/2015	584.43	0.012673	126734	True	False	True											
18/09/2015	584.84	0.000701	7013.5	True													
21/09/2015	583.28	-0.00267	-26710	False	True	True	True	False	True	True	True	True	True	False	True	True	True
22/09/2015	576.16	-0.01228	-122820	False	True	False	True	False	False	False	False	True	False	False	False	False	True
23/09/2015	561.53	-0.02572	-257201	False													
25/09/2015	557.23	-0.00769	-76872	False	False	True	True	False	False	True	True	True	False	False	True	True	True
28/09/2015	542	-0.02771	-277120	False													
29/09/2015	554.43	0.022675	226745	True	False	True											
30/09/2015	556.09	0.00299	29897	True													
01/10/2015	563.06	0.012456	124560	True													
02/10/2015	553.87	-0.01646	-164562	False	True	False	True										
05/10/2015	576.34	0.039768	397678	True	False	True											
06/10/2015	596.68	0.034683	346831	True													
07/10/2015	602.55	0.00979	97897	True													
08/10/2015	601.15	-0.00233	-23261	False	True	True	True	False	True								
09/10/2015	615.43	0.023477	234767	True													
12/10/2015	619.08	0.005913	59133	True													
13/10/2015	592.98	-0.04307	-430739	False	True	False											
15/10/2015	599.48	0.010902	109019	True	False	True											
16/10/2015	602.01	0.004211	42115	True													

19/10/2015	612.11	0.016638	166379	True													
20/10/2015	612.84	0.001192	11920	True													
21/10/2015	616.93	0.006652	66516	True													
22/10/2015	611.34	-0.0091	-91022	False	True	False	True	False	False	False	False	True	False	False	True	True	True
23/10/2015	620.24	0.014453	144532	True	False	True											
26/10/2015	623.61	0.005419	54187	True													
27/10/2015	620.94	-0.00429	-42907	False	True	True	True	False	False	True	True	False	True	True	True	True	True
28/10/2015	610.9	-0.0163	-163011	False	True												
29/10/2015	586.97	-0.03996	-399597	False													
30/10/2015	586.1	-0.00148	-14833	True	False	True											
02/11/2015	593.58	0.012682	126816	True													
03/11/2015	599.47	0.009874	98739	True													
04/11/2015	610.47	0.018183	181832	True													
05/11/2015	605.23	-0.00862	-86206	False	True	False	True	False	False	False	True	False	False	False	True	True	True
06/11/2015	603.79	-0.00238	-23821	False	False	True	True	False	True								
09/11/2015	591.37	-0.02078	-207845	False	True	False											
10/11/2015	582.21	-0.01561	-156106	False	True												
11/11/2015	584.88	0.004575	45755	True	False	True											
12/11/2015	582.48	-0.00411	-41119	False	True	True	True	False	True	True	True	True	True	False	True	True	True
13/11/2015	587.55	0.008667	86665	True	False	True											
16/11/2015	581.53	-0.0103	-102987	False	True	False	True	False	False	False	False	True	False	False	True	True	True
17/11/2015	589.3	0.013273	132728	True	False	True											
18/11/2015	593.79	0.00759	75903	True													
19/11/2015	596.86	0.005157	51569	True													
20/11/2015	604.54	0.012785	127852	True													
23/11/2015	595.6	-0.0149	-148985	False	True	False	True										

24/11/2015	594.88	-0.00121	-12095	True	False	True											
25/11/2015	599.28	0.007369	73693	True													
26/11/2015	601.79	0.00418	41795	True													
27/11/2015	601.04	-0.00125	-12471	True													
30/11/2015	579.8	-0.03598	-359783	False	True	False											
01/12/2015	598.03	0.030958	309578	True	False	True											
02/12/2015	596.9	-0.00189	-18913	False	True	True	True	False	True								
03/12/2015	596.57	-0.00055	-5530.4	True													
04/12/2015	592.9	-0.00617	-61708	False	True	True	True	False	False	True	True	True	True	False	False	True	True
07/12/2015	595.72	0.004745	47449	True	False	True											
08/12/2015	582.21	-0.02294	-229395	False	True	False											
10/12/2015	578.3	-0.00674	-67385	False	False	True	True	False	False	True	True	True	False	False	True	True	True
11/12/2015	565.09	-0.02311	-231077	False													
14/12/2015	565.63	0.000955	9551	True	False	True											
15/12/2015	573.18	0.01326	132596	True													
16/12/2015	583.17	0.017279	172789	True													
17/12/2015	600.52	0.029317	293173	True													
18/12/2015	588.22	-0.0207	-206950	False	True	False											
21/12/2015	591.69	0.005882	58819	True	False	True											
22/12/2015	595.6	0.006586	65864	True													
23/12/2015	593.25	-0.00395	-39534	False	True	True	True	False	True	True	True	True	False	True	True	True	True
28/12/2015	597.28	0.00677	67702	True													
29/12/2015	599.44	0.00361	36098	True													
30/12/2015	603.35	0.006502	65015	True													

## **DAFTAR RIWAYAT HIDUP**

### **Daftar Pribadi:**

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### **Latar Belakang Pendidikan**

2000-2006 SDN Wanásari 10

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