ANALISIS RISIKO SAHAM SYARIAH DENGAN PENDEKATAN *VALUE AT RISK-FUZZY TIME SERIES AVERAGE BASED* (VaR-FTSAB)

(Studi kasus: Indeks harga saham JII periode 1 Januari 2014 sampai 29 Januari 2016)

SKRIPSI
untuk memenuhi sebagian persyaratan
mencapai derajat Sarjana S-1

Jurusan Matematika

Disusun Oleh:

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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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sudah dapat diajukan kembali kepada Program Studi Matematika Fakultas Sains dan Teknologi UIN Sunan Kalijaga Yogyakarta sebagai salah satu syarat untuk memperoleh gelar Sarjana Strata Satu dalam bidang matematika.

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

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Menyatakan dengan sesungguhnya bahwa skripsi ini merupakan hasil pekerjaan penulis sendiri dan sepanjang pengetahuan penulis tidak berisi materi yang dipublikasikan atau ditulis orang lain, dan atau telah digunakan sebagai persyaratan penyelesaian Tugas Akhir di Perguruan Tinggi lain, kecuali bagian tertentu yang penulis ambil sebagai bahan acuan. Apabila terbukti pernyataan ini tidak benar, sepenuhnya menjadi tanggung jawab penulis.

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MOTTO

"Sebaik-baiknya bekal adalah ilmu, dengan ilmu kebahagian dunia dan akhirat dapat tercapai"

****

"Sebaik-baiknya orang adalah yang bermanfaat bagi orang lain"

(al-Hadits)

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ANALISIS RISIKO SAHAM SYARIAH DENGAN PENDEKATAN *VALUE AT RISK-FUZZY TIME SERIES AVERAGE BASED* (VaR-FTSAB)

(Studi kasus: Indeks harga saham JII periode 1 Januari 2014 sampai 29 Januari 2016)

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Setiap investasi terdapat 2 (dua) hal mendasar yang selalu menyertai kegiatan investasi tersebut, yaitu tingkat keuntungan (*return*) dan risiko yang dihadapi. Alat yang sering digunakan pelaku bisnis keuangan untuk mengukur risiko adalah *Value at Risk* (VaR). *Value at Risk* (VaR) merupakan kerugian terbesar yang mungkin terjadi dalam rentang waktu/periode tertentu yang diprediksi dengan tingkat kepercayaan tertentu.

Pada penelitian ini, VaR akan diimplementasikan pada indeks saham syariah dengan pendekatan *Fuzzy Time Series Average-based* (FTSAB). FTSAB sendiri merupakan salah satu metode *fuzzy time series* untuk peramalan dengan konsep dasar *fuzzy set* dengan konsep penentuan interval berbasis rata-rata (*Average Based*). Data yang digunakan adalah data saham di *Jakarta Islamic Index* (JII) periode 1 Januari 2014 sampai 29 Januari 2016. Dengan menggunakan VaR-FTASB akan dihitung seberapa besar risiko yang akan terjadi.

Hasil penelitian ini menunjukkan bahwa VaR-FTSAB menghasilkan besar risiko untuk 1 hari ke depan, 7 hari ke depan, 10 hari ke depan, 30 hari ke depan dengan investasi awal Rp.10.000.000,- berturut-turut adalah Rp.505.877,00, Rp.1.338.425,00, Rp.1.599.724,00, Rp.2.770.803,00. Akan tetapi dari uji *Likelihood Ratio*(LR), keseluruh nilai VaR-FTSAB dikatakan tidak valid karena nilai LRnya tidak terdefinisi. Sehingga model VaR-FTSAB belum mampu untuk menganalisis risiko investasi saham syariah. Selain itu, keuntungan yang mungkin akan diperoleh sebesar Rp.541,00 atau 0,00541%.

Kata Kunci: *Return*, Risiko, *Value at Risk* (VaR), *Fuzzy Time Series* (FTS), *Fuzzy Time Series Average Based* (FTSAB), VaR-FTSAB.

BAB I

PENDAHULUAN

1.1. Latar Belakang

Investasi merupakan salah satu ajaran dan konsep Islam yang memenuhi proses *tadrij* dan *trichotomy* pengetahuan tersebut. Hal ini dibuktikan bahwa konsep investasi selain sebagai pengetahuan juga bernuansa spiritual karena menggunakan norma syariah, sekaligus merupakan hakikat dari sebuah ilmu dan amal, oleh karenanya investasi sangat dianjurkan bagi setiap muslim. Hal tersebut dijelaskan dalam Al-Qur'an surat al-Hasyr ayat 18 (Nurul Huda, 2008: 18).

Kegiatan investasi terutama di pasar modal merupakan aktivitas yang sangat mempengaruhi kondisi perekonomian suatu Negara. Terbentuknya *Jakarta Islamic Index* (JII) tahun 2000 menandai perkembangan pasar modal syariah di Indonesia. Dengan latar belakang masyarakat yang mayoritas bergama islam, JII menjadi respon akan kebutuhan informasi mengenai investasi secara Islami.

Salah satu bentuk investasi yang umum adalah saham. Saham merupakan surat berharga yang berisi bukti penyertaan modal pada suatu perusahaan. Investor sebagai pemilik dana, tertarik untuk berinvestasi pada pasar modal karena peluang mendapatkan *return* lebih tinggi dibandingkan dengan bentuk *financial* yang lain seperti deposito. Saham syariah merupakan salah satu bentuk saham biasa yang memiliki karakteristik khusus berupa kontrol ketat dalam hal kehalalan ruang lingkup kegiatan usaha.

Saham syariah merupakan rangakaian dari nilai-nilai yang dicatat dalam jangka waktu yang berurutan sehingga saham syariah dapat dinyatakan sebagai data runtun waktu (*time series*). Analisis *time series* atau runtun waktu dapat di klasifikasikan menjadi dua yaitu model univariat dan model multivariat. Model univariat hanya mengamati satu variabel, sedangkan model multivariat lebih dari satu variabel runtun waktu. Model *time series* yang paling popular dan banyak digunakan dalam peramalan data *time series* univariat adalah model *Autoregressive Integrated Moving Average* atau dikenal dengan model ARIMA (p,d,q) (Makridakis, 1998: 381).

Berbagai pendekatan telah dikembangkan dalam bidang peramalan, namun berbagai pendekatan tersebut tidak dapat menangani masalah peramalan dimana nilai-nilai *time series* berupa istilah linguistik yang diwakili *fuzzy set*, sehingga diusulkan sebuah konsep yang bernama *fuzzy time series* oleh Song dan Chissom (1993) untuk menyelesaikan masalah peramalan apabila data historis berupa nilai-nilai linguistik.

Dalam peramalan menggunakan *fuzzy time series* standar, panjang interval ditentukan di awal proses perhitungan. Sedangkan penentuan panjang interval sangat berpengaruh dalam pembentukan *fuzzy relationship* yang tentunya akan memberikan dampak perbedaan hasil perhitungan peramalan. Oleh karena itu, pembentukan *fuzzy relationship* haruslah tepat dan hal ini mengharuskan penentuan panjang interval yang sesuai. Xihao dan Yimin (2007) memperkenalkan suatu metode untuk menentukan panjang interval yaitu *Average Based*.

Setiap keputusan investasi selalu menyangkut dua hal, yaitu risiko dan *return*. Risiko mempunyai hubungan positif dan linear dengan *return* yang diharapkan dari suatu investasi, sehingga semakin besar *return* yang diharapkan semakin besar pula risiko yang harus ditanggung oleh seorang investor.

Jorion (2000), menyatakan risiko sebagai *volatility* dari suatu hasil yang tidak diekspetasi, secara *general* nilai dari aset atau kewajiban dari bunga. Sedangkan menurut Jones (1996) risiko adalah kemungkinan pendapatan yang diterima (*actual return*) dalam suatu investasi akan berbeda dengan pendapatan yang diharapkan (*expected return*). Dalam teori portofolio, risiko dinyatakan sebagai kemungkinan keuntungan menyimpang dari yang diharapkan. Karenanya risiko mempunyai dua dimensi, yaitu menyimpang lebih besar atau lebih kecil dari *return* yang diharapkan. Dari sini muncul konsep ukuran penyebaran yang dimaksudkan untuk mengetahui seberapa jauh kemungkinan nilai yang akan diperoleh menyimpang dari nilai yang diharapkan. Ukuran ini dinyatakan dalam standar deviasi atau *varience* (bentuk kuadrat dari standar deviasi) yang merupakan ukuran untuk risiko total (Nurul Huda, 2008: 14-15).

Salah satu aspek yang penting dalam analisis risiko adalah perhitungan *Value at Risk* yang selanjutnya disingkat VaR. Fardiansyah (2006) menyatakan pengukuran risiko dengan metode *Value at Risk* (VaR) saat ini sangat populer digunakan secara luas oleh industri keuangan di seluruh dunia. Sejalan dengan itu, peraturan pemerintah, dalam hal ini peraturan Bank Indonesia (BI) No.5/8/PBI/2003 tentang penerapan pengelolaan risiko bagi perbankan pada tahun 2008 dan surat edaran No.5/21/DPNP tanggal 29 September 2003 tentang

penerapan metode VaR, menyebabkan pengembangan konsep VaR pada institusi perbankan berkembang pesat. (Agung D. Buchdadi, 2008 : 182-183).

Oleh karena pentingnya menghitung risiko dalam sebuah investasi, peneliti menggunakan VaR sebagai alat ukur untuk mengetahui seberapa besar nilai risiko yang akan terjadi dengan pendekatan *Fuzzy Time Series Average Based*, maka peneliti mengambil judul tentang **"Analisis Risiko Saham Syariah dengan Pendekatan VaR-*Fuzzy Times Series Average Based* (VaR-FTSAB)".**

1.2. Batasan Masalah

Penelitian ini menggunakan metode *Fuzzy Time Series* (FTS) yang dikembangkan oleh Sun Xihao dan Li Yimin. Dalam jurnalnya yang berjudul "*Average-based fuzzy time series models for forecasting Shanghai compound index"* Xihao dan Yimin memperkenalkan metode untuk menentukan panjang interval efektif berbasis rata-rata atau *Average Based.*

1.3. Rumusan Masalah

Berdasarkan latar belakang yang telah diuraikan, maka masalah yang akan dikaji pada penelitian ini sebagai berikut.

1) Bagaimana langkah-langkah analisis risiko pada indeks saham JII dengan model VaR-FTSAB?
2) Berapa besar risiko investasi indeks harga saham JII periode 1 Januari 2014 sampai 29 Januari 2016 yang dihasilkan dengan menggunakan model VaR-FTSAB?

1.4. Tujuan Penelitian

Berdasarkan rumusan masalah di atas, maka tujuan dari penelitian ini adalah:

1) Untuk mengetahui langkah-langkah analisis risiko pada indeks saham JII dengan menggunakan model VaR-FTSAB.
2) Untuk mengetahui besar risiko investasi indeks harga saham JII periode 1 Januari 2014 sampai 29 Januari 2016 dengan menggunakan model VaR-FTSAB.

1.5. Manfaat Penelitian

Penelitian ini diharapkan dapat memberikan manfaat sebagai berikut.

a. Bagi Investor

   Memberikan pengetahuan mengenai model VaR-FTSAB terhadap investor dalam mengambil keputusan investasi pada saham-saham JII di pasar modal.

b. Bagi Peneliti

   Menambah pengetahuan dalam bidang statistik khususnya dalam analisis risiko invetasi saham dengan pendekatan VaR-FTSAB.

1.6. Tinjauan Pustaka

Penelitian ini menggunakan metode literatur yaitu dengan mempelajari beberapa buku, jurnal, karya ilmiah, dan hasil penelitian sebelumnya yang berkaitan dengan penelitian ini, diantaranya:

1. Penelitian Komet Rachmawansah yang berjudul *Average Based Fuzzy Time Series* untuk Peramalan Kurs Valuta Asing. Objek yang diteliti pada penelitian tersebut adalah nilai tukar USD-IDR dan EUR-USD.
2. Penelitian Muhammad Ferry Irwansyah yang berjudul Peramalan dengan Menggunakan Metode *Time-Invariant Fuzzy Time Series.* Objek yang diteliti yaitu harga penutupan saham *Jakarta Islamic Index* (JII) periode Januari 2013 sampai Juni 2013.
3. Penelitian Wendy Andrytiarandy yang berjudul Metode *Fuzzy Time Series* Selisih Data Historis pada Metode Chen dengan Penentuan Interval Berbasis Rata-Rata. Penelitian ini menggabungkan metode *Average Based* Xihao untuk menentukan panjang interval sedangkan untuk proses defuzzifikasi menggunakan metode Chen. adapun objek yang diteliti adalah penjualan mobil di Indonesia.

Tabel 1.1: Tinjauan Pustaka

No	Nama Peneliti	Judul Penelitian	Model	Objek
1	Komet Rachmawansah	*Average Based Fuzzy Time Series* untuk Peramalan Kurs Valuta Asing	*Average Based Fuzzy Time Series*	Kurs Valuta Asing
2	Muhammad Ferry Irwansyah	Peramalan dengan Menggunakan Metode *Time-Invariant Fuzzy Time Series*	*Time-Invariant Fuzzy Time Series*	Indeks Harga Saham JII
3	Wendy Andrytiarandy	Metode *Fuzzy Time Series* Selisih Data Historis pada Metode Chen dengan Penentuan Interval Berbasis Rata-Rata	*Fuzzy Time Series* oleh Chen Berbasis Interval Rata-Rata	Data Penjualan Mobil di Indonesia

Terdapat perbedaan yang mendasar antara penelitian sekarang dengan ketiga penelitian di atas yaitu penelitian sekarang bertujuan untuk mencari besar risiko sedangkan ketiga penelitian di atas untuk peramalan. Pada penelitian Komet Rachmawansah, metode yang digunakan sama yaitu *Fuzzy Time Serie Average Based* (FTSAB), dengan objek yang diteliti berbeda yaitu Kurs Valuta Asing. Pada penelitian Muhammad Ferry Irwansyah metode yang digunakan berbeda yaitu *Time-Invariant Fuzzy Time Series*, dengan objek penelitian sama yaitu indeks saham JII. Sedangkan Pada penelitian Wendy Andrytiarandy, merupakan penggabungan metode FTSAB Xihao dan Chen, berbeda dengan penelitian sekarang yaitu hanya FTSAB yang diperkenalkan oleh Xihao, dengan objek penelitian yang berbeda juga yaitu data penjualan mobil di Indonesia.

1.7. Sistematika Penulisan

Secara garis besar gambaran mengenai analisis risiko dengan VaR-FTSAB pada skripsi ini sebagai berikut:

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-FTSAB.

BAB III: METODE PENELITIAN

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

BAB IV: PEMBAHASAN

Berisi pembahasan mengenai analisis risiko investasi saham dengan VaR-FTSAB.

BAB V : STUDI KASUS

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

BAB VI : KESIMPULAN DAN SARAN

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

BAB VI

PENUTUP

6.1. Kesimpulan

Berdasarkan pembahasan dan studi kasus yang dilakukan diperoleh kesimpulan sebagai berikut.

1. Langkah-langkah dalam melakukan analisis risiko investasi saham dengan model VaR-FTSAB yaitu sebagai berikut:
    a. Mengumpulkan data indeks saham JII
    b. Menentukan nilai *return* indeks saham JII
    c. Statistik deskriptif
    d. Menguji kestasioneran data
    e. Menguji kenormalan data, karena data tidak normal maka nilai α yang digunakan dikoreksi menggunakan *Cornish fisher Expansion*
    f. Menentukan model *mean* (ARIMA) yang sesuai
    g. Pemeriksaan diagnosa model ARIMA (analisis residual)
    h. Memodelkan residual kuadrat ARIMA dengan *Fuzzy Time Series Average Based* (FTSAB)
    i. Menghitung VaR-FTSAB
    j. Menguji validitas VaR-FTSAB

2. Berdasarkan pemeriksaan diagnosa model, diperoleh model terbaik yaitu model ARIMA (0,0,3), model tersebut dipilih berdasarkan nilai probabilitas dari parameter model kurang dari 0,05 dan memiliki nilai SIC terkecil. Jadi persamaan model ARIMA (0,0,3).
3. Berdasarkan nilai *Likelihood Ratio* (LR) dari seluruh VaR untuk tiap periode waktu periode diperoleh nilai LR yang tidak terdefinisi. Oleh karena itu, model VaR-FTSAB dikatakan tidak valid yang artinya belum bisa untuk meramalkan besar risiko.
4. Kemungkinan keuntungan investasi dapat diketahui dengan mengalikan *excepted return* dengan dana investasi. Dengan *excepted return* sebesar 0,0000541 dan dana investasi Rp. 10.000.000,00 diperoleh keuntungan sebesar Rp.541,00.

6.2. Saran

Skripsi ini membahas tentang analisis risiko menggunakan model VaR-FTSAB. Adapun saran-saran yang dapat peneliti sampaikan antara lain adalah:

1. Mengukur risiko harga saham dengan *Value at Risk* penting bagi pelaku usaha khususnya investor untuk meminimalisir terjadinya risiko.
2. Penelitian selanjutnya dapat dilakukan dengan menggunakan metode *Fuzzy Time Series* yang lainnya.

Demikian saran dari peneliti, semoga bisa menjadi masukan bagi peneliti selanjutnya khususnya dalam bidang statistik.

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LAMPIRAN 1: Data *Return* Saham *Jakarta Islamic Index* (JII)

Date	Close	Return	Residual	Return* 10000000	t-1	t-7	t-10	t-30
1/2/2014	596.15	0	0.0000178495	0	T	T	T	T
1/3/2014	585.64	-0.01778706	-0.017568144	-177870.6157	T	T	T	T
1/6/2014	579.93	-0.0097979	-0.009665062	-97978.97407	T	T	T	T
1/7/2014	572.29	-0.01326158	-0.013259523	-132615.7706	T	T	T	T
1/8/2014	576.41	0.007173349	0.005151941	71733.48729	T	T	T	T
1/9/2014	574.28	-0.00370203	-0.004814105	-37020.33439	T	T	T	T
1/10/2014	582.38	0.014006031	0.012480377	140060.3146	T	T	T	T
1/13/2014	601.81	0.032818613	0.0334114	328186.1333	T	T	T	T
1/15/2014	609.9	0.013353271	0.012799355	133532.711	T	T	T	T
1/16/2014	606.82	-0.00506283	-0.003626826	-50628.30397	T	T	T	T
1/17/2014	603.06	-0.00621553	-0.002371178	-62155.27308	T	T	T	T
1/20/2014	608.32	0.00868438	0.010157086	86843.79859	T	T	T	T
1/21/2014	609.11	0.00129778	0.000880474	12977.7994	T	T	T	T
1/22/2014	614.41	0.008663563	0.008390733	86635.63051	T	T	T	T
1/23/2014	614.97	0.000911025	0.002079709	9110.251741	T	T	T	T
1/24/2014	604.37	-0.01738685	-0.017285546	-173868.5408	T	T	T	T
1/27/2014	583.88	-0.03449109	-0.033525648	-344910.9407	T	T	T	T
1/28/2014	588.27	0.007490569	0.007729862	74905.69352	T	T	T	T
1/29/2014	601.54	0.022306937	0.020318045	223069.3687	T	T	T	T
1/30/2014	602.87	0.002208579	-0.001648915	22085.79421	T	T	T	T
2/3/2014	595.62	-0.01209871	-0.011209299	-120987.0503	T	T	T	T
2/4/2014	587.49	-0.01374366	-0.01140585	-137436.6386	T	T	T	T
2/5/2014	594.5	0.011861509	0.011671783	118615.0856	T	T	T	T
2/6/2014	601.06	0.010974044	0.009684291	109740.437	T	T	T	T
2/7/2014	606.22	0.008548149	0.007235781	85481.48818	T	T	T	T
2/10/2014	603.33	-0.00477857	-0.003435603	-47785.69762	T	T	T	T
2/11/2014	604.7	0.002268148	0.003382432	22681.48232	T	T	T	T
2/12/2014	609.08	0.007217163	0.008049719	72171.6276	T	T	T	T
2/13/2014	607.22	-0.00305853	-0.003453838	-30585.34027	T	T	T	T

2/14/2014	608.97	0.002877842	0.003267028	28778.41935	T	T	T	T
2/17/2014	615.61	0.010844664	0.011770873	108446.6399	T	T	T	T
2/18/2014	615.1	-0.0008288	-0.001226207	-8288.045849	T	T	T	T
2/19/2014	621.73	0.010721066	0.011096973	107210.6553	T	T	T	T
2/20/2014	622.16	0.000691368	0.002045736	6913.682615	T	T	T	T
2/21/2014	626.97	0.007701395	0.007560306	77013.95355	T	T	T	T
2/24/2014	621.94	-0.00805502	-0.006778189	-80550.18065	T	T	T	T
2/25/2014	614.48	-0.01206728	-0.011831895	-120672.7914	T	T	T	T
2/26/2014	606.03	-0.01384681	-0.012976915	-138468.115	T	T	T	T
2/27/2014	612.84	0.011174397	0.010394492	111743.9686	T	T	T	T
2/28/2014	626.86	0.022619272	0.021257883	226192.7178	T	T	T	T
3/3/2014	618.98	-0.01265028	-0.014143414	-126502.7661	T	T	T	T
3/4/2014	620.05	0.001727171	0.002923171	17271.70922	T	T	T	T
3/5/2014	628	0.012740066	0.015186019	127400.6587	T	T	T	T
3/6/2014	631	0.004765696	0.003138341	47656.96073	T	T	T	T
3/7/2014	631.74	0.001172039	0.001508382	11720.38726	T	T	T	T
3/10/2014	632.91	0.001850288	0.003597606	18502.88013	T	T	T	T
3/11/2014	635.35	0.003847801	0.004208902	38478.01095	T	T	T	T
3/12/2014	633.17	-0.00343707	-0.003263513	-34370.68736	T	T	T	T
3/13/2014	641.31	0.012774035	0.013187979	127740.346	T	T	T	T
3/14/2014	661.74	0.031359758	0.031844038	313597.5819	T	T	T	T
3/17/2014	663.86	0.003198547	0.002823044	31985.46843	T	T	T	T
3/18/2014	651.32	-0.01907018	-0.017552756	-190701.7763	T	T	T	T
3/19/2014	655.45	0.006320957	0.009984963	63209.57308	T	T	T	T
3/20/2014	634.17	-0.03300501	-0.032680188	-330050.1046	T	T	T	T
3/21/2014	636.55	0.00374592	0.001726283	37459.20167	T	T	T	T
3/24/2014	637.79	0.00194609	0.00309497	19460.90407	T	T	T	T
3/25/2014	632.44	-0.00842368	-0.012183898	-84236.83458	T	T	T	T
3/26/2014	636.48	0.006367607	0.006566235	63676.06638	T	T	T	T
3/27/2014	635.02	-0.00229644	-0.001940328	-22964.38288	T	T	T	T
3/28/2014	640.41	0.008452028	0.007050137	84520.28126	T	T	T	T
4/1/2014	657.09	0.025712482	0.026467999	257124.8241	T	T	T	T
4/2/2014	655.27	-0.00277364	-0.002996898	-27736.41534	T	T	T	T

4/3/2014	658.53	0.004962727	0.005773923	49627.27309	T	T	T	T
4/4/2014	653.27	-0.00801957	-0.004974138	-80195.71572	T	T	T	T
4/7/2014	667.22	0.021129232	0.020784406	211292.3245	T	T	T	T
4/8/2014	666.52	-0.00104961	-0.000385253	-10496.06473	T	T	T	T
4/9/2014	666.52	0	-0.000572329	0	T	T	T	T
4/10/2014	643.15	-0.03569216	-0.033300687	-356921.6084	T	T	T	T
4/11/2014	653.28	0.015627856	0.015583528	156278.5612	T	T	T	T
4/14/2014	659.71	0.009794506	0.009728653	97945.05905	T	T	T	T
4/15/2014	659.78	0.000106112	-0.003725498	1061.12206	T	T	T	T
4/16/2014	657.86	-0.00291437	-0.001121314	-29143.70144	T	T	T	T
4/17/2014	663.59	0.00867241	0.009791798	86724.09643	T	T	T	T
4/21/2014	663.52	-0.0001055	-0.000534162	-1055.029313	T	T	T	T
4/22/2014	664.13	0.000918894	0.000789875	9188.943343	T	T	T	T
4/23/2014	664.14	1.50722E-05	0.001141726	150.7223659	T	T	T	T
4/24/2014	663.18	-0.00144656	-0.001508018	-14465.57215	T	T	T	T
4/25/2014	663.21	4.52793E-05	0.000136163	452.7929141	T	T	T	T
4/28/2014	650.32	-0.01962716	-0.019495787	-196271.5508	T	T	T	T
4/29/2014	645.25	-0.00782672	-0.008000236	-78267.21604	T	T	T	T
4/30/2014	647.67	0.003743443	0.00375911	37434.4253	T	T	T	T
5/2/2014	646.25	-0.00219486	-0.004438059	-21948.55306	T	T	T	T
5/5/2014	648.25	0.003089999	0.002169484	30899.98596	T	T	T	T
5/6/2014	647.04	-0.00186834	-0.001435815	-18683.42028	T	T	T	T
5/7/2014	651.73	0.007222253	0.006711606	72222.52651	T	T	T	T
5/8/2014	652.8	0.00164045	0.001890073	16404.50225	T	T	T	T
5/9/2014	655.95	0.0048138	0.004648594	48137.99554	T	T	T	T
5/12/2014	662.47	0.009890645	0.010662889	98906.4522	T	T	T	T
5/13/2014	661.05	-0.00214577	-0.001928294	-21457.68237	T	T	T	T
5/14/2014	672.6	0.017321302	0.017856174	173213.0182	T	T	T	T
5/16/2014	680.63	0.011868084	0.013094966	118680.8357	T	T	T	T
5/19/2014	678.08	-0.00375355	-0.003975418	-37535.47045	T	T	T	T
5/20/2014	660.08	-0.02690423	-0.024849686	-269042.346	T	T	T	T
5/21/2014	664.78	0.007095137	0.008601857	70951.36926	T	T	T	T
5/22/2014	672.51	0.011560794	0.011103378	115607.9365	T	T	T	T

5/23/2014	672.11	-0.000595	-0.00345423	-5950.008378	T	T	T	T
5/26/2014	671.82	-0.00043154	0.000558201	-4315.373661	T	T	T	T
5/28/2014	673.96	0.003180337	0.004457903	31803.36693	T	T	T	T
5/30/2014	656.83	-0.02574554	-0.026142983	-257455.3563	T	T	T	T
6/2/2014	658.9	0.003146555	0.003210782	31465.55362	T	T	T	T
6/3/2014	662.61	0.005614745	0.006127676	56147.44832	T	T	T	T
6/4/2014	661.62	-0.00149519	-0.004503231	-14951.93734	T	T	T	T
6/5/2014	663.03	0.002128916	0.002498352	21289.16328	T	T	T	T
6/6/2014	666.4	0.005069845	0.005774901	50698.45098	T	T	T	T
6/9/2014	658.99	-0.01118178	-0.011699928	-111817.8216	T	T	T	T
6/10/2014	669.18	0.015344727	0.01563219	153447.2707	T	T	T	T
6/11/2014	672.99	0.005677384	0.00634185	56773.8406	T	T	T	T
6/12/2014	666.65	-0.00946525	-0.010811454	-94652.49272	T	T	T	T
6/13/2014	665.27	-0.0020722	-0.000273548	-20722.03208	T	T	T	T
6/16/2014	655.9	-0.01418463	-0.013454929	-141846.2846	T	T	T	T
6/17/2014	661.51	0.008516741	0.007272764	85167.40825	T	T	T	T
6/18/2014	658.05	-0.00524422	-0.005275693	-52442.17671	T	T	T	T
6/19/2014	654.36	-0.00562326	-0.007171399	-56232.62242	T	T	T	T
6/20/2014	652.97	-0.00212649	-0.001289683	-21264.93801	T	T	T	T
6/23/2014	653.44	0.000719577	0.000112551	7195.765954	T	T	T	T
6/24/2014	654.65	0.00185006	0.001024912	18500.59738	T	T	T	T
6/25/2014	651.63	-0.00462385	-0.004772246	-46238.54478	T	T	T	T
6/26/2014	656.69	0.007735145	0.007748095	77351.44616	T	T	T	T
6/27/2014	651.89	-0.00733621	-0.007218282	-73362.09426	T	T	T	T
6/30/2014	655	0.004759377	0.004210278	47593.76588	T	T	T	T
7/1/2014	656.35	0.002058911	0.002950414	20589.11048	T	T	T	T
7/2/2014	663.86	0.011377115	0.010546572	113771.1459	T	T	T	T
7/3/2014	661.79	-0.00312301	-0.00263857	-31230.09452	T	T	T	T
7/4/2014	663.63	0.002776521	0.003115999	27765.2096	T	T	T	T
7/7/2014	679.41	0.023499962	0.024713461	234999.6196	T	T	T	T
7/8/2014	683.29	0.0056946	0.005391004	56945.99875	T	T	T	T
7/10/2014	692.85	0.013894156	0.014252686	138941.5628	T	T	T	T
7/11/2014	679.85	-0.01894134	-0.016097786	-189413.4061	T	T	T	T

7/14/2014	679.71	-0.00020588	0.000414413	-2058.813156	T	T	T	T
7/15/2014	688.2	0.012413242	0.01405317	124132.4182	T	T	T	T
7/16/2014	694.49	0.009098238	0.007246011	90982.38043	T	T	T	T
7/17/2014	685.93	-0.01240218	-0.012354494	-124021.7735	T	T	T	T
7/18/2014	689.79	0.0056116	0.007228572	56116.0005	T	T	T	T
7/21/2014	697.11	0.010556024	0.011389757	105560.2447	T	T	T	T
7/22/2014	692.33	-0.00688045	-0.008301971	-68804.50902	T	T	T	T
7/23/2014	692.14	-0.00027448	0.000557251	-2744.761487	T	T	T	T
7/24/2014	692.46	0.000462237	0.001772754	4622.374652	T	T	T	T
7/25/2014	690.4	-0.00297933	-0.003934565	-29793.31899	T	T	T	T
8/4/2014	701.23	0.015564733	0.015628851	155647.3288	T	T	T	T
8/5/2014	697.15	-0.00583528	-0.005631302	-58352.77343	T	T	T	T
8/6/2014	687.88	-0.01338622	-0.013838934	-133862.1868	T	T	T	T
8/7/2014	690.39	0.003642266	0.005440537	36422.6565	T	T	T	T
8/8/2014	686.73	-0.0053155	-0.005963447	-53155.04286	T	T	T	T
8/11/2014	697.35	0.01534623	0.013753909	153462.2964	T	T	T	T
8/12/2014	700.19	0.004064327	0.004690321	40643.27252	T	T	T	T
8/13/2014	707.38	0.010216281	0.009530121	102162.8125	T	T	T	T
8/14/2014	703.81	-0.00505958	-0.003477042	-50595.80366	T	T	T	T
8/15/2014	701.44	-0.00337306	-0.00283339	-33730.62796	T	T	T	T
8/18/2014	702.47	0.001467287	0.002563832	14672.86656	T	T	T	T
8/19/2014	701.37	-0.0015671	-0.001967168	-15670.96324	T	T	T	T
8/20/2014	706.22	0.006891205	0.006565192	68912.04556	T	T	T	T
8/21/2014	707.44	0.00172606	0.002021057	17260.60476	T	T	T	T
8/22/2014	704.21	-0.00457618	-0.004802529	-45761.84723	T	T	T	T
8/25/2014	701.09	-0.00444033	-0.003684936	-44403.3305	T	T	T	T
8/26/2014	696	-0.00728664	-0.0070541	-72866.44988	T	T	T	T
8/27/2014	698.91	0.00417228	0.003619696	41722.79613	T	T	T	T
8/28/2014	701.52	0.003727498	0.003303506	37274.98033	T	T	T	T
8/29/2014	691.13	-0.01492149	-0.015733144	-149214.9153	T	T	T	T
9/1/2014	699.5	0.012037848	0.012454334	120378.4766	T	T	T	T
9/2/2014	703.05	0.005062202	0.005442307	50622.01863	T	T	T	T
9/3/2014	707.22	0.005913754	0.004103483	59137.54493	T	T	T	T

9/4/2014	702.23	-0.00708079	-0.005647785	-70807.93249	T	T	T	T
9/5/2014	702.85	0.000882506	0.001508703	8825.064191	T	T	T	T
9/8/2014	707.98	0.007272353	0.007744504	72723.52827	T	T	T	T
9/9/2014	698.21	-0.01389587	-0.014545708	-138958.6784	T	T	T	T
9/10/2014	688.65	-0.01378675	-0.013613161	-137867.5441	T	T	T	T
9/11/2014	683.32	-0.00776991	-0.006878823	-77699.12891	T	T	T	T
9/12/2014	688.68	0.00781343	0.006139787	78134.30421	T	T	T	T
9/15/2014	691.6	0.004231007	0.002664663	42310.07363	T	T	T	T
9/16/2014	691	-0.0008679	-0.001659379	-8678.953393	T	T	T	T
9/17/2014	699.09	0.011639704	0.012346154	116397.0416	T	T	T	T
9/18/2014	702.72	0.00517895	0.005485549	51789.50241	T	T	T	T
9/19/2014	704.71	0.002827924	0.002636994	28279.23714	T	T	T	T
9/22/2014	702.42	-0.00325491	-0.001834349	-32549.10369	T	T	T	T
9/23/2014	696.19	-0.00890888	-0.008277704	-89088.77059	T	T	T	T
9/24/2014	692.53	-0.00527101	-0.004967599	-52710.1416	T	T	T	T
9/25/2014	695	0.003560245	0.003349183	35602.45267	T	T	T	T
9/26/2014	687.63	-0.01066094	-0.011613377	-106609.3572	T	T	T	T
9/29/2014	689.48	0.002686751	0.002115174	26867.51433	T	T	T	T
9/30/2014	687.62	-0.00270131	-0.002315949	-27013.08786	T	T	T	T
10/1/2014	682.39	-0.00763499	-0.008971236	-76349.88603	T	T	T	T
10/2/2014	661.7	-0.03078906	-0.030545691	-307890.6474	T	T	T	T
10/3/2014	658.99	-0.00410395	-0.004370429	-41039.54447	T	T	T	T
10/6/2014	665.12	0.009259123	0.008226884	92591.23281	T	T	T	T
10/7/2014	671.01	0.008816587	0.00530197	88165.86906	T	T	T	T
10/8/2014	659.35	-0.01752959	-0.018032456	-175295.9004	T	T	T	T
10/9/2014	662.82	0.005249006	0.006195599	52490.05819	T	T	T	T
10/10/2014	655.99	-0.01035794	-0.009747891	-103579.4099	T	T	T	T
10/13/2014	647.24	-0.01342838	-0.015503209	-134283.766	T	T	T	T
10/14/2014	650.34	0.004778191	0.005491063	47781.91491	T	T	T	T
10/15/2014	652.77	0.003729533	0.002607931	37295.32778	T	T	T	T
10/16/2014	651.98	-0.00121102	-0.002994835	-12110.21416	T	T	T	T
10/17/2014	663.57	0.017620504	0.018252311	176205.0395	T	T	T	T
10/20/2014	662.62	-0.00143269	-0.001132623	-14326.93899	T	T	T	T

10/21/2014	661.88	-0.00111739	-0.001461977	-11173.8781	T	T	T	T
10/22/2014	668.13	0.009398495	0.011498624	93984.94687	T	T	T	T
10/23/2014	671.07	0.004390691	0.00426037	43906.91005	T	T	T	T
10/24/2014	666.41	-0.00696841	-0.007136624	-69684.07642	T	T	T	T
10/27/2014	658.7	-0.01163684	-0.010313799	-116368.4236	T	T	T	T
10/28/2014	652.62	-0.00927319	-0.008782989	-92731.91192	T	T	T	T
10/29/2014	667.8	0.022993687	0.02217254	229936.8687	T	T	T	T
10/30/2014	666.81	-0.00148356	-0.002670281	-14835.64775	T	T	T	T
10/31/2014	670.44	0.005429071	0.004418492	54290.71477	T	T	T	T
11/3/2014	670.19	-0.00037296	0.002178235	-3729.589852	T	T	T	T
11/4/2014	664.45	-0.00860161	-0.008908853	-86016.08419	T	T	T	T
11/5/2014	665.43	0.001473789	0.001982185	14737.88874	T	T	T	T
11/6/2014	662.14	-0.0049564	-0.004705771	-49564.01117	T	T	T	T
11/7/2014	654.02	-0.01233907	-0.013364135	-123390.7399	T	T	T	T
11/10/2014	649.65	-0.00670417	-0.006476097	-67041.69338	T	T	T	T
11/11/2014	661.68	0.018348252	0.017806801	183482.5153	T	T	T	T
11/12/2014	663.92	0.00337959	0.001841899	33795.8988	T	T	T	T
11/13/2014	665.7	0.002677502	0.001932356	26775.01948	T	T	T	T
11/14/2014	665.84	0.000210305	0.002259173	2103.053553	T	T	T	T
11/17/2014	668.51	0.004001928	0.004213859	40019.28264	T	T	T	T
11/18/2014	675.76	0.010786628	0.011008967	107866.2797	T	T	T	T
11/19/2014	678.64	0.004252819	0.004512762	42528.19385	T	T	T	T
11/20/2014	672.59	-0.00895485	-0.008469995	-89548.45941	T	T	T	T
11/21/2014	677.52	0.00730313	0.008569833	73031.30471	T	T	T	T
11/24/2014	686.49	0.013152542	0.013671785	131525.4176	T	T	T	T
11/25/2014	680.1	-0.00935183	-0.010326399	-93518.33	T	T	T	T
11/26/2014	681.6	0.002203129	0.003189182	22031.29411	T	T	T	T
11/27/2014	684.71	0.004552483	0.006125572	45524.82783	T	T	T	T
11/28/2014	683.02	-0.00247125	-0.003659418	-24712.52087	T	T	T	T
12/1/2014	685.4	0.003478473	0.003845423	34784.73456	T	T	T	T
12/2/2014	685.92	0.000758334	0.001463148	7583.336089	T	T	T	T
12/3/2014	681.74	-0.00611264	-0.006533695	-61126.39249	T	T	T	T
12/4/2014	686.69	0.007234617	0.007677075	72346.17217	T	T	T	T

12/5/2014	688.28	0.002312818	0.002481169	23128.17986	T	T	T	T
12/8/2014	680.77	-0.01097123	-0.011723007	-109712.3416	T	T	T	T
12/9/2014	678.71	-0.00303057	-0.002147238	-30305.69796	T	T	T	T
12/10/2014	682.72	0.005890807	0.006176293	58908.06897	T	T	T	T
12/11/2014	679.66	-0.00449214	-0.005841005	-44921.4356	T	T	T	T
12/12/2014	680.39	0.001073552	0.000826489	10735.5182	T	T	T	T
12/15/2014	674.28	-0.00902069	-0.008310037	-90206.87302	T	T	T	T
12/16/2014	663.39	-0.01628242	-0.016954495	-162824.2277	T	T	T	T
12/17/2014	661.6	-0.00270197	-0.002606871	-27019.67715	T	T	T	T
12/18/2014	675.49	0.020777231	0.01982107	207772.312	T	T	T	T
12/19/2014	679.18	0.005447839	0.003497038	54478.39212	T	T	T	T
12/29/2014	685.84	0.009758226	0.009458277	97582.25889	T	T	T	T
12/30/2014	691.04	0.007553274	0.009833906	75532.73638	T	T	T	T
12/31/2014	691.04	0	0.000402373	0	T	T	T	T
1/2/2015	694.47	0.004951246	0.006039525	49512.45582	T	T	T	T
1/5/2015	689.09	-0.007777	-0.006645498	-77769.97201	T	T	T	T
1/6/2015	681.07	-0.01170682	-0.011660528	-117068.246	T	T	T	T
1/7/2015	687.51	0.009411288	0.010106202	94112.88275	T	T	T	T
1/8/2015	688.14	0.000915938	0.0001513	9159.379676	T	T	T	T
1/9/2015	688.95	0.001176389	-0.000165283	11763.89455	T	T	T	T
1/12/2015	683.78	-0.00753245	-0.006369616	-75324.45987	T	T	T	T
1/13/2015	692.15	0.012166459	0.012183868	121664.5894	T	T	T	T
1/14/2015	681.66	-0.01527177	-0.015290788	-152717.6961	T	T	T	T
1/15/2015	687.57	0.008632693	0.007899799	86326.9252	T	T	T	T
1/16/2015	681.69	-0.00858864	-0.007186753	-85886.40735	T	T	T	T
1/19/2015	681.64	-7.3331E-05	-0.001832704	-733.3074076	T	T	T	T
1/20/2015	688.62	0.010187906	0.011096865	101879.0641	T	T	T	T
1/21/2015	702.1	0.019386222	0.018559307	193862.2218	T	T	T	T
1/22/2015	708.84	0.009554059	0.009343186	95540.59358	T	T	T	T
1/23/2015	716.73	0.011069304	0.01234612	110693.0354	T	T	T	T
1/26/2015	705.43	-0.01589164	-0.013756185	-158916.367	T	T	T	T
1/27/2015	707.71	0.0032269	0.004301936	32269.00313	T	T	T	T
1/28/2015	706.09	-0.00229169	-0.000871133	-22916.89988	T	T	T	T

1/29/2015	703.1	-0.00424365	-0.005826451	-42436.5129	T	T	T	T
1/30/2015	706.68	0.005078842	0.005573827	50788.41768	T	T	T	T
2/2/2015	701.5	-0.00735704	-0.00745727	-73570.37296	T	T	T	T
2/3/2015	704.64	0.004466156	0.003795759	44661.55839	T	T	T	T
2/4/2015	708.72	0.00577343	0.00641476	57734.29803	T	T	T	T
2/5/2015	700.4	-0.01180885	-0.012666892	-118088.5051	T	T	T	T
2/6/2015	711.52	0.01575192	0.016188664	157519.2019	T	T	T	T
2/9/2015	710.89	-0.00088583	-0.000147739	-8858.276105	T	T	T	T
2/10/2015	707.01	-0.0054729	-0.006930368	-54729.03049	T	T	T	T
2/11/2015	712.14	0.007229718	0.009092402	72297.18148	T	T	T	T
2/12/2015	713.98	0.00258038	0.002563381	25803.80371	T	T	T	T
2/13/2015	721.53	0.010519075	0.00972166	105190.7485	T	T	T	T
2/16/2015	709.6	-0.0166726	-0.015626419	-166726.0041	T	T	T	T
2/17/2015	714.34	0.00665768	0.006952625	66576.80097	T	T	T	T
2/18/2015	718.68	0.006057109	0.007175693	60571.09054	T	T	T	T
2/19/2015	718.68	0	-0.001797991	0	T	T	T	T
2/20/2015	715.36	-0.00463029	-0.003830319	-46302.94807	T	T	T	T
2/23/2015	718.39	0.004226726	0.005052368	42267.26432	T	T	T	T
2/24/2015	720.43	0.002835628	0.002628749	28356.283	T	T	T	T
2/25/2015	727.44	0.009683278	0.009242558	96832.77917	T	T	T	T
2/26/2015	727.37	-9.6242E-05	0.000485088	-962.4212124	T	T	T	T
2/27/2015	722.1	-0.00727168	-0.006969216	-72716.81825	T	T	T	T
3/2/2015	728.61	0.008974989	0.010038447	89749.88624	T	T	T	T
3/3/2015	730.2	0.002179897	0.002235712	21798.9681	T	T	T	T
3/4/2015	723.39	-0.00936997	-0.010171854	-93699.69108	T	T	T	T
3/5/2015	722.09	-0.00179869	-0.00064366	-17986.94292	T	T	T	T
3/6/2015	734.85	0.017516542	0.017773785	175165.4184	T	T	T	T
3/9/2015	724.65	-0.01397755	-0.015147935	-139775.5131	T	T	T	T
3/10/2015	725.85	0.001654536	0.001580476	16545.36055	T	T	T	T
3/11/2015	720.53	-0.00735626	-0.005311187	-73562.5627	T	T	T	T
3/12/2015	723.77	0.004486597	0.002743661	44865.97417	T	T	T	T
3/13/2015	723.68	-0.00012439	5.75E-05	-1243.939332	T	T	T	T
3/16/2015	725.35	0.002304968	0.001693858	23049.67841	T	T	T	T

3/17/2015	724.68	-0.0009241	-0.000608407	-9240.954491	T	T	T	T
3/18/2015	718.32	-0.00881501	-0.008808395	-88150.06491	T	T	T	T
3/19/2015	724.86	0.00906335	0.009258247	90633.50108	T	T	T	T
3/20/2015	721.67	-0.00441056	-0.004480569	-44105.64927	T	T	T	T
3/23/2015	721	-0.00092881	-0.001942313	-9288.09854	T	T	T	T
3/24/2015	721.5	0.000693241	0.001758504	6932.40929	T	T	T	T
3/25/2015	711.03	-0.01461771	-0.015133253	-146177.1442	T	T	T	T
3/26/2015	703.48	-0.01067525	-0.010898729	-106752.4535	T	T	T	T
3/27/2015	709.98	0.009197354	0.009399689	91973.54017	T	T	T	T
3/30/2015	720.5	0.014708643	0.012967396	147086.4298	T	T	T	T
3/31/2015	728.2	0.010630337	0.009376318	106303.3678	T	T	T	T
4/1/2015	718.59	-0.01328476	-0.012203219	-132847.5601	T	T	T	T
4/2/2015	716.8	-0.00249415	-0.00100211	-24941.51289	T	T	T	T
4/6/2015	720.87	0.005661964	0.006740812	56619.64041	T	T	T	T
4/7/2015	727.56	0.009237658	0.007833544	92376.58163	T	T	T	T
4/8/2015	719.99	-0.01045916	-0.010574462	-104591.5799	T	T	T	T
4/9/2015	723.85	0.005346846	0.006122451	53468.46308	T	T	T	T
4/10/2015	722.08	-0.0024482	-0.001546861	-24481.95822	T	T	T	T
4/13/2015	717.43	-0.00646059	-0.007677295	-64605.8748	T	T	T	T
4/14/2015	711.11	-0.00884826	-0.008143809	-88482.63725	T	T	T	T
4/15/2015	711.09	-2.8066E-05	-0.00020605	-280.663758	T	T	T	T
4/16/2015	710.41	-0.00095681	-0.001840169	-9568.118915	T	T	T	T
4/17/2015	709.33	-0.00152134	-0.002458379	-15213.43649	T	T	T	T
4/20/2015	704.25	-0.00718748	-0.007211188	-71874.79744	T	T	T	T
4/21/2015	717.98	0.019308279	0.019096547	193082.7889	T	T	T	T
4/22/2015	716.12	-0.00259394	-0.002876805	-25939.4195	T	T	T	T
4/23/2015	718.85	0.003804936	0.00297521	38049.35781	T	T	T	T
4/24/2015	723.29	0.006157538	0.008354806	61575.38339	T	T	T	T
4/27/2015	698.24	-0.03524735	-0.035578357	-352473.4894	T	T	T	T
4/28/2015	701.08	0.004059159	0.00440149	40591.5857	T	T	T	T
4/29/2015	674.87	-0.03810196	-0.037140643	-381019.5513	T	T	T	T
4/30/2015	664.8	-0.01503385	-0.019127528	-150338.4683	T	T	T	T
5/1/2015	664.8	0	0.00050644	0	T	T	T	T

5/4/2015	679.16	0.021370475	0.017097036	213704.752	T	T	T	T
5/5/2015	686.25	0.010385292	0.00818446	103852.9213	T	T	T	T
5/6/2015	692.3	0.008777378	0.008835649	87773.77527	T	T	T	T
5/7/2015	685.97	-0.00918552	-0.007218316	-91855.17635	T	T	T	T
5/8/2015	696.7	0.015521067	0.016462779	155210.6654	T	T	T	T
5/11/2015	696.16	-0.00077544	0.0002412	-7754.390719	T	T	T	T
5/12/2015	696.95	0.001134209	0.000303662	11342.09206	T	T	T	T
5/13/2015	706.03	0.012944081	0.014838305	129440.8119	T	T	T	T
5/15/2015	708.85	0.003986134	0.004013887	39861.34123	T	T	T	T
5/18/2015	708.51	-0.00047972	-0.000444777	-4797.172347	T	T	T	T
5/19/2015	711.75	0.004562539	0.006269849	45625.38687	T	T	T	T
5/20/2015	714.8	0.00427604	0.004737882	42760.40339	T	T	T	T
5/21/2015	712.28	-0.00353163	-0.00358281	-35316.3325	T	T	T	T
5/22/2015	711.77	-0.00071628	5.13E-06	-7162.79631	T	T	T	T
5/25/2015	711.27	-0.00070272	-0.000157576	-7027.209446	T	T	T	T
5/26/2015	719.3	0.011226368	0.010814126	112263.6752	T	T	T	T
5/27/2015	707.77	-0.01615929	-0.016158699	-161592.8977	T	T	T	T
5/28/2015	707.16	-0.0008623	-0.000880431	-8622.999595	T	T	T	T
5/29/2015	698.07	-0.01293752	-0.011693232	-129375.1616	T	T	T	T
6/1/2015	700.65	0.003689116	0.00182988	36891.15576	T	T	T	T
6/3/2015	692.4	-0.01184465	-0.011945955	-118446.5191	T	T	T	T
6/4/2015	685.29	-0.01032178	-0.011667219	-103217.8373	T	T	T	T
6/5/2015	684.75	-0.00078827	-0.000577718	-7882.660895	T	T	T	T
6/8/2015	672.87	-0.01750167	-0.018876183	-175016.6952	T	T	T	T
6/9/2015	655.7	-0.02584875	-0.027191195	-258487.5305	T	T	T	T
6/10/2015	664.75	0.013707645	0.013641172	137076.4455	T	T	T	T
6/11/2015	666.6	0.0027791	0.000607188	27790.99747	T	T	T	T
6/12/2015	665.66	-0.00141114	-0.004539787	-14111.40756	T	T	T	T
6/15/2015	648.04	-0.0268266	-0.025257033	-268266.0022	T	T	T	T
6/16/2015	653.03	0.007670726	0.00774059	76707.25543	T	T	T	T
6/17/2015	660.82	0.011858384	0.011336032	118583.8425	T	T	T	T
6/18/2015	665.06	0.00639576	0.003489661	63957.60457	T	T	T	T
6/19/2015	666.82	0.002642896	0.003533536	26428.95783	T	T	T	T

6/22/2015	661.64	-0.00779853	-0.006494196	-77985.30881	T	T	T	T
6/23/2015	657.11	-0.00687021	-0.006468691	-68702.147	T	T	T	T
6/24/2015	666.37	0.013993655	0.014400227	139936.5498	T	T	T	T
6/25/2015	659.79	-0.0099235	-0.010670724	-99234.95101	T	T	T	T
6/26/2015	658.85	-0.00142571	-0.002170009	-14257.14664	T	T	T	T
6/29/2015	652.82	-0.0091944	-0.007537499	-91944.03406	T	T	T	T
6/30/2015	656.99	0.006367331	0.005139547	63673.31289	T	T	T	T
7/1/2015	654.81	-0.00332367	-0.003573351	-33236.68283	T	T	T	T
7/2/2015	662.42	0.011554656	0.010687384	115546.5602	T	T	T	T
7/3/2015	670.93	0.012765029	0.01335639	127650.29	T	T	T	T
7/6/2015	661.37	-0.01435137	-0.014762519	-143513.6556	T	T	T	T
7/7/2015	657.72	-0.00553417	-0.004304468	-55341.68874	T	T	T	T
7/8/2015	653.25	-0.00681936	-0.005282561	-68193.60354	T	T	T	T
7/9/2015	645.59	-0.01179524	-0.013493825	-117952.3521	T	T	T	T
7/10/2015	648.74	0.004867335	0.004372059	48673.35498	T	T	T	T
7/13/2015	654.82	0.009328395	0.008720578	93283.94709	T	T	T	T
7/14/2015	655.9	0.001647975	9.54E-05	16479.75493	T	T	T	T
7/15/2015	653.65	-0.0034363	-0.002933245	-34362.98166	T	T	T	T
7/22/2015	658.39	0.007225407	0.008228805	72254.0697	T	T	T	T
7/23/2015	656.34	-0.0031185	-0.003107523	-31184.95198	T	T	T	T
7/24/2015	646.94	-0.01442543	-0.014762933	-144254.3091	T	T	T	T
7/27/2015	632.14	-0.02314265	-0.022195831	-231426.4526	T	T	T	T
7/28/2015	628.63	-0.00556806	-0.005925611	-55680.5605	T	T	T	T
7/29/2015	629.1	0.000747332	-0.000951306	7473.321444	T	T	T	T
7/30/2015	628.9	-0.00031789	-0.002871763	-3178.887149	T	T	T	T
7/31/2015	641.97	0.020569229	0.019887422	205692.2874	T	T	T	T
8/3/2015	636.99	-0.00778759	-0.007897045	-77875.8729	T	T	T	T
8/4/2015	634.22	-0.00435809	-0.004688517	-43580.89488	T	T	T	T
8/5/2015	644.25	0.015690998	0.017979264	156909.9786	T	T	T	T
8/6/2015	634.64	-0.01502892	-0.015937559	-150289.169	T	T	T	T
8/7/2015	631.77	-0.0045325	-0.005071962	-45324.97112	T	T	T	T
8/10/2015	628.83	-0.00466446	-0.002595747	-46644.58582	T	T	T	T
8/11/2015	607.75	-0.03409736	-0.035931155	-340973.6374	T	T	T	T

8/12/2015	585.32	-0.0376049	-0.03818848	-376048.9501	T	T	T	T
8/13/2015	605.3	0.033565465	0.033266796	335654.6489	T	T	T	T
8/14/2015	606.41	0.001832097	-0.002302177	18320.9736	T	T	T	T
8/18/2015	597.19	-0.01532096	-0.01971496	-153209.5637	T	T	T	T
8/19/2015	592.13	-0.00850911	-0.0046814	-85091.10249	T	T	T	T
8/20/2015	587.99	-0.00701629	-0.007281181	-70162.89871	T	T	T	T
8/21/2015	572.01	-0.02755343	-0.029821856	-275534.3272	T	T	T	T
8/24/2015	544.39	-0.04949056	-0.050029208	-494905.6191	T	T	T	T
8/25/2015	554.87	0.019067914	0.018230134	190679.1375	T	T	T	T
8/26/2015	553.09	-0.00321306	-0.006644389	-32130.57323	T	T	T	T
8/27/2015	585.17	0.056381589	0.050625179	563815.8851	T	T	T	T
8/28/2015	586.09	0.001571033	0.00366861	15710.33214	T	T	T	T
8/31/2015	598.28	0.020585513	0.019821003	205855.1279	T	T	T	T
9/1/2015	584.1	-0.02398676	-0.018161777	-239867.6031	T	T	T	T
9/2/2015	582.66	-0.00246838	-0.002046266	-24683.80462	T	T	T	T
9/3/2015	590.89	0.014026121	0.016306745	140261.2076	T	T	T	T
9/4/2015	589.14	-0.00296603	-0.00505574	-29660.28386	T	T	T	T
9/7/2015	565.33	-0.04125421	-0.041489655	-412542.1036	T	T	T	T
9/8/2015	567.34	0.003549157	0.005425427	35491.57357	T	T	T	T
9/9/2015	574.99	0.013393813	0.012812095	133938.1308	T	T	T	T
9/10/2015	577.06	0.003593612	-0.001180229	35936.11821	T	T	T	T
9/11/2015	584.9	0.01349469	0.014118945	134946.8971	T	T	T	T
9/14/2015	591.68	0.011525003	0.012999175	115250.0289	T	T	T	T
9/15/2015	580.28	-0.01945514	-0.019590939	-194551.4072	T	T	T	T
9/16/2015	577.07	-0.00554721	-0.003922667	-55472.07209	T	T	T	T
9/17/2015	584.43	0.012673413	0.014169111	126734.1285	T	T	T	T
9/18/2015	584.84	0.00070135	-0.001552803	7013.50432	T	T	T	T
9/21/2015	583.28	-0.00267096	-0.003122302	-26709.56499	T	T	T	T
9/22/2015	576.16	-0.01228204	-0.01065173	-122820.4218	T	T	T	T
9/23/2015	561.53	-0.0257201	-0.025898767	-257201.0033	T	T	T	T
9/25/2015	557.23	-0.00768721	-0.008046463	-76872.07517	T	T	T	T
9/28/2015	542	-0.02771204	-0.028937643	-277120.4376	T	T	T	T
9/29/2015	554.43	0.022674545	0.019694607	226745.449	T	T	T	T

9/30/2015	556.09	0.002989654	0.00206382	29896.53868	T	T	T	T
10/1/2015	563.06	0.012455991	0.009126397	124559.9064	T	T	T	T
10/2/2015	553.87	-0.0164562	-0.014190117	-164561.977	T	T	T	T
10/5/2015	576.34	0.039767818	0.040005283	397678.1803	T	T	T	T
10/6/2015	596.68	0.034683133	0.035733225	346831.3338	T	T	T	T
10/7/2015	602.55	0.009789685	0.008156956	97896.85004	T	T	T	T
10/8/2015	601.15	-0.0023261	0.002276945	-23261.02214	T	T	T	T
10/9/2015	615.43	0.023476672	0.027588172	234766.7176	T	T	T	T
10/12/2015	619.08	0.005913333	0.00685188	59133.33398	T	T	T	T
10/13/2015	592.98	-0.04307389	-0.042811907	-430738.9462	T	T	T	T
10/15/2015	599.48	0.010901942	0.014076264	109019.4153	T	T	T	T
10/16/2015	602.01	0.004211494	0.004999878	42114.93663	T	T	T	T
10/19/2015	612.11	0.016637907	0.011711927	166379.0734	T	T	T	T
10/20/2015	612.84	0.001191954	0.002811583	11919.54087	T	T	T	T
10/21/2015	616.93	0.006651619	0.00722691	66516.1943	T	T	T	T
10/22/2015	611.34	-0.00910224	-0.007754655	-91022.40555	T	T	T	T
10/23/2015	620.24	0.01445317	0.014776673	144531.7041	T	T	T	T
10/26/2015	623.61	0.005418665	0.0062502	54186.65134	T	T	T	T
10/27/2015	620.94	-0.00429069	-0.005182945	-42906.86793	T	T	T	T
10/28/2015	610.9	-0.01630114	-0.014600924	-163011.4319	T	T	T	T
10/29/2015	586.97	-0.03995966	-0.039240503	-399596.5715	T	T	T	T
10/30/2015	586.1	-0.00148328	-0.002079634	-14832.79257	T	T	T	T
11/2/2015	593.58	0.012681645	0.011001648	126816.4467	T	T	T	T
11/3/2015	599.47	0.009873856	0.005358805	98738.55935	T	T	T	T
11/4/2015	610.47	0.018183222	0.017943937	181832.2165	T	T	T	T
11/5/2015	605.23	-0.00862059	-0.007354727	-86205.8676	T	T	T	T
11/6/2015	603.79	-0.0023821	-0.00176551	-23820.99107	T	T	T	T
11/9/2015	591.37	-0.02078455	-0.018719901	-207845.4834	T	T	T	T
11/10/2015	582.21	-0.01561063	-0.016456867	-156106.2541	T	T	T	T
11/11/2015	584.88	0.004575461	0.00437232	45754.61355	T	T	T	T
11/12/2015	582.48	-0.00411189	-0.006265821	-41118.90783	T	T	T	T
11/13/2015	587.55	0.008666513	0.00677297	86665.12606	T	T	T	T
11/16/2015	581.53	-0.01029872	-0.009795634	-102987.1715	T	T	T	T

11/17/2015	589.3	0.01327276	0.012551808	132727.6027	T	T	T	T
11/18/2015	593.79	0.007590313	0.008369618	75903.1297	T	T	T	T
11/19/2015	596.86	0.00515687	0.004029775	51568.70447	T	T	T	T
11/20/2015	604.54	0.012785247	0.01422947	127852.4697	T	T	T	T
11/23/2015	595.6	-0.01489854	-0.013935525	-148985.4135	T	T	T	T
11/24/2015	594.88	-0.00120955	-0.000745878	-12095.47576	T	T	T	T
11/25/2015	599.28	0.00736927	0.009006527	73692.70093	T	T	T	T
11/26/2015	601.79	0.004179528	0.002576093	41795.27653	T	T	T	T
11/27/2015	601.04	-0.00124706	-0.00133288	-12470.59226	T	T	T	T
11/30/2015	579.8	-0.03597826	-0.034941956	-359782.5567	T	T	T	T
12/1/2015	598.03	0.030957773	0.031254181	309577.7262	T	T	T	T
12/2/2015	596.9	-0.00189133	-0.002044696	-18913.33027	T	T	T	T
12/3/2015	596.57	-0.00055304	-0.004573494	-5530.377803	T	T	T	T
12/4/2015	592.9	-0.00617081	-0.002574669	-61708.0641	T	T	T	T
12/7/2015	595.72	0.004744918	0.004509653	47449.18145	T	T	T	T
12/8/2015	582.21	-0.02293946	-0.023465695	-229394.6416	T	T	T	T
12/10/2015	578.3	-0.0067385	-0.007034745	-67385.00765	T	T	T	T
12/11/2015	565.09	-0.02310769	-0.022588801	-231076.8614	T	T	T	T
12/14/2015	565.63	0.000955105	-0.001744881	9551.047576	T	T	T	T
12/15/2015	573.18	0.013259628	0.012450203	132596.2826	T	T	T	T
12/16/2015	583.17	0.017278919	0.014679829	172789.1859	T	T	T	T
12/17/2015	600.52	0.02931727	0.029116502	293172.6996	T	T	T	T
12/18/2015	588.22	-0.020695	-0.019262469	-206950.0157	T	T	T	T
12/21/2015	591.69	0.005881874	0.00757095	58818.74183	T	T	T	T
12/22/2015	595.6	0.006586408	0.009936581	65864.08051	T	T	T	T
12/23/2015	593.25	-0.00395337	-0.006169724	-39533.65198	T	T	T	T
12/28/2015	597.28	0.006770168	0.007641289	67701.68404	T	T	T	T
12/29/2015	599.44	0.003609826	0.004753139	36098.25673	T	T	T	T
12/30/2015	603.35	0.00650153	0.005791636	65015.30349	T	T	T	T
1/4/2016	592.11	-0.01880502	-0.017925803	-188050.1664	T	T	T	T
1/5/2016	597.26	0.008660143	0.009207044	86601.43115	T	T	T	T
1/6/2016	612.22	0.024739101	0.025405492	247391.0146	T	T	T	T
1/7/2016	599.38	-0.02119585	-0.023258413	-211958.517	T	T	T	T

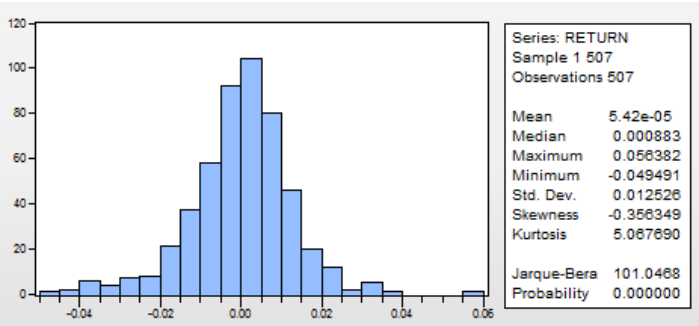
1/8/2016	600.48	0.001833506	0.002892878	18335.06112	T	T	T	T
1/11/2016	586.71	-0.0231986	-0.020275423	-231986.0431	T	T	T	T
1/12/2016	596.04	0.015777044	0.013100908	157770.4423	T	T	T	T
1/13/2016	601.86	0.009717093	0.01004995	97170.93204	T	T	T	T
1/14/2016	594.12	-0.01294352	-0.015276434	-129435.2446	T	T	T	T
1/15/2016	594.64	0.000874895	0.002382298	8748.948969	T	T	T	T
1/18/2016	587.5	-0.01207996	-0.010923603	-120799.5962	T	T	T	T
1/19/2016	592.4	0.008305877	0.006548155	83058.76888	T	T	T	T
1/20/2016	582.8	-0.01633807	-0.016063959	-163380.6918	T	T	T	T
1/21/2016	581.78	-0.00175163	-0.003008514	-17516.34488	T	T	T	T
1/22/2016	590.67	0.015165038	0.015918475	151650.378	T	T	T	T
1/25/2016	595.41	0.007992741	0.006144406	79927.41484	T	T	T	T
1/26/2016	594.95	-0.00077281	-0.001118973	-7728.099544	T	T	T	T
1/27/2016	605.23	0.017131129	0.018962724	171311.2946	T	T	T	T
1/28/2016	607.75	0.004155095	0.004862076	41550.95166	T	T	T	T
1/29/2016	612.75	0.008193409	0.008064659	81934.09212	T	T	T	T

LAMPIRAN 2: Deskriptif, Uji Normalitas, dan Uji Stasioneritas data

1. Deskriptif data *return* indeks saham *JII*

	RETURN
Mean	5.42E-05
Median	0.000883
Maximum	0.056382
Minimum	-0.049491
Std. Dev.	0.012526
Skewness	-0.356349
Kurtosis	5.067690
Jarque-Bera	101.0468
Probability	0.000000
Sum	0.027465
Sum Sq. Dev.	0.079392
Observations	507

2. Uji Normalitas data *return* indeks saham *JII*



3. Uji Stasioneritas data *return* indeks saham *JII*

Augmented Dickey-Fuller Unit Root Test on RETURN

Null Hypothesis: RETURN has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=18)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-22.49231	0.0000
Test critical values:	1% level	-3.443046	
	5% level	-2.867032	
	10% level	-2.569757	

LAMPIRAN 3: Estimasi Model ARIMA

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

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 15:55
Sample (adjusted): 2 507
Included observations: 506 after adjustments
Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.002290	0.044518	-0.051444	0.9590

R-squared	-0.000014	Mean dependent var	5.43E-05
Adjusted R-squared	-0.000014	S.D. dependent var	0.012538
S.E. of regression	0.012539	Akaike info criterion	-5.918047
Sum squared resid	0.079393	Schwarz criterion	-5.909694
Log likelihood	1498.266	Hannan-Quinn criter.	-5.914771
Durbin-Watson stat	1.995406		

Inverted AR Roots -.00

2. Model ARIMA (1,0,0) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 15:57
Sample (adjusted): 2 507
Included observations: 506 after adjustments
Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.42E-05	0.000557	0.097438	0.9224
AR(1)	-0.002303	0.044562	-0.051690	0.9588

R-squared	0.000005	Mean dependent var	5.43E-05
Adjusted R-squared	-0.001979	S.D. dependent var	0.012538
S.E. of regression	0.012551	Akaike info criterion	-5.914114
Sum squared resid	0.079392	Schwarz criterion	-5.897408
Log likelihood	1498.271	Hannan-Quinn criter.	-5.907562
F-statistic	0.002672	Durbin-Watson stat	1.995418
Prob(F-statistic)	0.958796		

Inverted AR Roots -.00

3. Model ARIMA (2,0,0) Tanpa Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 15:58
Sample (adjusted): 3 507
Included observations: 505 after adjustments
Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(2)	-0.052081	0.044418	-1.172517	0.2415

R-squared	0.002669	Mean dependent var	8.96E-05
Adjusted R-squared	0.002669	S.D. dependent var	0.012526
S.E. of regression	0.012509	Akaike info criterion	-5.922773
Sum squared resid	0.078862	Schwarz criterion	-5.914407
Log likelihood	1496.500	Hannan-Quinn criter.	-5.919492
Durbin-Watson stat	2.017656		

4. Model ARIMA (2,0,0) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 15:59
Sample (adjusted): 3 507
Included observations: 505 after adjustments
Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.67E-05	0.000530	0.163621	0.8701
AR(2)	-0.052098	0.044461	-1.171772	0.2418

R-squared	0.002722	Mean dependent var	8.96E-05
Adjusted R-squared	0.000740	S.D. dependent var	0.012526
S.E. of regression	0.012521	Akaike info criterion	-5.918866
Sum squared resid	0.078858	Schwarz criterion	-5.902135
Log likelihood	1496.514	Hannan-Quinn criter.	-5.912303
F-statistic	1.373049	Durbin-Watson stat	2.017767
Prob(F-statistic)	0.241844		

5. Model ARIMA (3,0,0) Tanpa Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:01
Sample (adjusted): 4 507
Included observations: 504 after adjustments
Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(3)	-0.101452	0.044348	-2.287634	0.0226

R-squared	0.010222	Mean dependent var	0.000109
Adjusted R-squared	0.010222	S.D. dependent var	0.012530
S.E. of regression	0.012466	Akaike info criterion	-5.929624
Sum squared resid	0.078168	Schwarz criterion	-5.921246
Log likelihood	1495.265	Hannan-Quinn criter.	-5.926337
Durbin-Watson stat	2.020808		

Inverted AR Roots	.23-.40i	.23+.40i	-.47

6. Model ARIMA (3,0,0) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:02
Sample (adjusted): 4 507
Included observations: 504 after adjustments
Convergence achieved after 3 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.88E-05	0.000505	0.195777	0.8449
AR(3)	-0.101449	0.044390	-2.285383	0.0227

R-squared	0.010297	Mean dependent var	0.000109
Adjusted R-squared	0.008326	S.D. dependent var	0.012530
S.E. of regression	0.012478	Akaike info criterion	-5.925732
Sum squared resid	0.078162	Schwarz criterion	-5.908976
Log likelihood	1495.284	Hannan-Quinn criter.	-5.919159
F-statistic	5.222976	Durbin-Watson stat	2.020962
Prob(F-statistic)	0.022706		

Inverted AR Roots	.23+.40i	.23-.40i	-.47

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

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:03
Sample: 1 507
Included observations: 507
Convergence achieved after 7 iterations
MA Backcast: 0

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(1)	-0.002559	0.044474	-0.057531	0.9541

R-squared	-0.000013	Mean dependent var	5.42E-05
Adjusted R-squared	-0.000013	S.D. dependent var	0.012526
S.E. of regression	0.012526	Akaike info criterion	-5.920030
Sum squared resid	0.079393	Schwarz criterion	-5.911690
Log likelihood	1501.728	Hannan-Quinn criter.	-5.916759
Durbin-Watson stat	1.998883		

Inverted MA Roots	.00

8. Model ARIMA (0,0,1) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:03
Sample: 1 507
Included observations: 507
Convergence achieved after 6 iterations
MA Backcast: 0

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.41E-05	0.000555	0.097458	0.9224
MA(1)	-0.002574	0.044518	-0.057810	0.9539

R-squared	0.000006	Mean dependent var	5.42E-05
Adjusted R-squared	-0.001974	S.D. dependent var	0.012526
S.E. of regression	0.012538	Akaike info criterion	-5.916104
Sum squared resid	0.079392	Schwarz criterion	-5.899424
Log likelihood	1501.732	Hannan-Quinn criter.	-5.909563
F-statistic	0.002990	Durbin-Watson stat	1.998893
Prob(F-statistic)	0.956412		

Inverted MA Roots	.00

9. Model ARIMA (0,0,2) Tanpa Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:04
Sample: 1 507
Included observations: 507
Convergence achieved after 5 iterations
MA Backcast: -1 0

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(2)	-0.053296	0.044425	-1.199689	0.2308

R-squared	0.002745	Mean dependent var	5.42E-05
Adjusted R-squared	0.002745	S.D. dependent var	0.012526
S.E. of regression	0.012509	Akaike info criterion	-5.922792
Sum squared resid	0.079174	Schwarz criterion	-5.914452
Log likelihood	1502.428	Hannan-Quinn criter.	-5.919521
Durbin-Watson stat	2.015649		

Inverted MA Roots	.23	-.23

10. Model ARIMA (0,0,2) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:08
Sample: 1 507
Included observations: 507
Convergence achieved after 5 iterations
MA Backcast: -1 0

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.49E-05	0.000527	0.104260	0.9170
MA(2)	-0.053325	0.044468	-1.199184	0.2310

R-squared	0.002767	Mean dependent var	5.42E-05
Adjusted R-squared	0.000792	S.D. dependent var	0.012526
S.E. of regression	0.012521	Akaike info criterion	-5.918869
Sum squared resid	0.079173	Schwarz criterion	-5.902188
Log likelihood	1502.433	Hannan-Quinn criter.	-5.912327
F-statistic	1.401088	Durbin-Watson stat	2.015699
Prob(F-statistic)	0.237098		

Inverted MA Roots	.23	-.23

11. Model ARIMA (0,0,3) tanpa Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:09
Sample: 1 507
Included observations: 507
Convergence achieved after 6 iterations
MA Backcast: -2 0

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MA(3)	-0.115061	0.044304	-2.597104	0.0097

R-squared	0.011583	Mean dependent var	5.42E-05
Adjusted R-squared	0.011583	S.D. dependent var	0.012526
S.E. of regression	0.012453	Akaike info criterion	-5.931694
Sum squared resid	0.078473	Schwarz criterion	-5.923354
Log likelihood	1504.684	Hannan-Quinn criter.	-5.928423
Durbin-Watson stat	2.019051		

Inverted MA Roots	.49	-.24-.42i	-.24+.42i

12. Model ARIMA (0,0,3) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:09
Sample: 1 507
Included observations: 507
Convergence achieved after 6 iterations
MA Backcast: -2 0

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.40E-05	0.000490	0.110141	0.9123
MA(3)	-0.115090	0.044347	-2.595242	0.0097

R-squared	0.011607	Mean dependent var	5.42E-05
Adjusted R-squared	0.009650	S.D. dependent var	0.012526
S.E. of regression	0.012465	Akaike info criterion	-5.927773
Sum squared resid	0.078471	Schwarz criterion	-5.911093
Log likelihood	1504.691	Hannan-Quinn criter.	-5.921232
F-statistic	5.930479	Durbin-Watson stat	2.019104
Prob(F-statistic)	0.015226		

Inverted MA Roots	.49	-.24-.42i	-.24+.42i

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

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:12
Sample (adjusted): 2 507
Included observations: 506 after adjustments
Convergence achieved after 10 iterations
MA Backcast: 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.993735	0.005243	-189.5523	0.0000
MA(1)	0.994727	0.002803	354.8954	0.0000

R-squared	0.004311	Mean dependent var	5.43E-05
Adjusted R-squared	0.002335	S.D. dependent var	0.012538
S.E. of regression	0.012524	Akaike info criterion	-5.918428
Sum squared resid	0.079050	Schwarz criterion	-5.901723
Log likelihood	1499.362	Hannan-Quinn criter.	-5.911877
Durbin-Watson stat	1.995260		

Inverted AR Roots	-.99
Inverted MA Roots	-.99

14. Model ARIMA (1,0,1) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:12
Sample (adjusted): 2 507
Included observations: 506 after adjustments
Convergence achieved after 16 iterations
MA Backcast: 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.24E-05	0.000373	0.194364	0.8460
AR(1)	0.780649	0.115020	6.787087	0.0000
MA(1)	-0.854454	0.095316	-8.964437	0.0000

R-squared	0.014142	Mean dependent var	5.43E-05
Adjusted R-squared	0.010222	S.D. dependent var	0.012538
S.E. of regression	0.012474	Akaike info criterion	-5.924398
Sum squared resid	0.078270	Schwarz criterion	-5.899340
Log likelihood	1501.873	Hannan-Quinn criter.	-5.914570
F-statistic	3.607613	Durbin-Watson stat	1.885005
Prob(F-statistic)	0.027820		

Inverted AR Roots	.78
Inverted MA Roots	.85

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

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:13
Sample (adjusted): 2 507
Included observations: 506 after adjustments
Convergence achieved after 7 iterations
MA Backcast: 0 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.008517	0.044570	-0.191081	0.8485
MA(2)	-0.054505	0.044515	-1.224406	0.2214

R-squared	0.002823	Mean dependent var	5.43E-05
Adjusted R-squared	0.000844	S.D. dependent var	0.012538
S.E. of regression	0.012533	Akaike info criterion	-5.916935
Sum squared resid	0.079168	Schwarz criterion	-5.900229
Log likelihood	1498.985	Hannan-Quinn criter.	-5.910383
Durbin-Watson stat	1.994939		

Inverted AR Roots	-.01	
Inverted MA Roots	.23	-.23

16. Model ARIMA (1,0,2) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:13
Sample (adjusted): 2 507
Included observations: 506 after adjustments
Convergence achieved after 7 iterations
MA Backcast: 0 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.59E-05	0.000523	0.106848	0.9150
AR(1)	-0.008537	0.044615	-0.191350	0.8483
MA(2)	-0.054546	0.044559	-1.224129	0.2215

R-squared	0.002845	Mean dependent var	5.43E-05
Adjusted R-squared	-0.001120	S.D. dependent var	0.012538
S.E. of regression	0.012545	Akaike info criterion	-5.913005
Sum squared resid	0.079166	Schwarz criterion	-5.887946
Log likelihood	1498.990	Hannan-Quinn criter.	-5.903177
F-statistic	0.717628	Durbin-Watson stat	1.994953
Prob(F-statistic)	0.488407		

Inverted AR Roots	-.01	
Inverted MA Roots	.23	-.23

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

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:14
Sample (adjusted): 2 507
Included observations: 506 after adjustments
Convergence achieved after 6 iterations
MA Backcast: -1 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(1)	-0.010066	0.044682	-0.225287	0.8218
MA(3)	-0.116326	0.044507	-2.613677	0.0092

R-squared	0.011728	Mean dependent var	5.43E-05
Adjusted R-squared	0.009768	S.D. dependent var	0.012538
S.E. of regression	0.012477	Akaike info criterion	-5.925906
Sum squared resid	0.078461	Schwarz criterion	-5.909200
Log likelihood	1501.254	Hannan-Quinn criter.	-5.919354
Durbin-Watson stat	1.996437		

Inverted AR Roots	-.01		
Inverted MA Roots	.49	-.24-.42i	-.24+.42i

18. Model ARIMA (1,0,3) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:14
Sample (adjusted): 2 507
Included observations: 506 after adjustments
Convergence achieved after 6 iterations
MA Backcast: -1 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.66E-05	0.000486	0.116364	0.9074
AR(1)	-0.010089	0.044726	-0.225564	0.8216
MA(3)	-0.116371	0.044550	-2.612140	0.0093

R-squared	0.011755	Mean dependent var	5.43E-05
Adjusted R-squared	0.007826	S.D. dependent var	0.012538
S.E. of regression	0.012489	Akaike info criterion	-5.921980
Sum squared resid	0.078459	Schwarz criterion	-5.896922
Log likelihood	1501.261	Hannan-Quinn criter.	-5.912152
F-statistic	2.991561	Durbin-Watson stat	1.996452
Prob(F-statistic)	0.051103		

Inverted AR Roots	-.01		
Inverted MA Roots	.49	-.24-.42i	-.24+.42i

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

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:15
Sample (adjusted): 3 507
Included observations: 505 after adjustments
Convergence achieved after 7 iterations
MA Backcast: 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(2)	-0.053039	0.044466	-1.192801	0.2335
MA(1)	-0.010181	0.044616	-0.228186	0.8196

R-squared	0.002770	Mean dependent var	8.96E-05
Adjusted R-squared	0.000788	S.D. dependent var	0.012526
S.E. of regression	0.012521	Akaike info criterion	-5.918914
Sum squared resid	0.078854	Schwarz criterion	-5.902183
Log likelihood	1496.526	Hannan-Quinn criter.	-5.912351
Durbin-Watson stat	1.997577		

Inverted MA Roots	.01

20. Model ARIMA (2,0,1) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:15
Sample (adjusted): 3 507
Included observations: 505 after adjustments
Convergence achieved after 7 iterations
MA Backcast: 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.66E-05	0.000524	0.165246	0.8688
AR(2)	-0.053062	0.044509	-1.192148	0.2338
MA(1)	-0.010240	0.044660	-0.229285	0.8187

R-squared	0.002825	Mean dependent var	8.96E-05
Adjusted R-squared	-0.001148	S.D. dependent var	0.012526
S.E. of regression	0.012533	Akaike info criterion	-5.915008
Sum squared resid	0.078850	Schwarz criterion	-5.889912
Log likelihood	1496.539	Hannan-Quinn criter.	-5.905164
F-statistic	0.710973	Durbin-Watson stat	1.997572

Inverted MA Roots	.01

21. Model ARIMA (2,0,2) tanpa Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 16:16
Sample (adjusted): 3 507
Included observations: 505 after adjustments
Convergence achieved after 13 iterations
MA Backcast: 1 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(2)	0.299700	0.458337	0.653886	0.5135
MA(2)	-0.356109	0.450261	-0.790896	0.4294

R-squared	0.004627	Mean dependent var	8.96E-05
Adjusted R-squared	0.002648	S.D. dependent var	0.012526
S.E. of regression	0.012509	Akaike info criterion	-5.920778
Sum squared resid	0.078707	Schwarz criterion	-5.904047
Log likelihood	1496.996	Hannan-Quinn criter.	-5.914215
Durbin-Watson stat	2.025567		

Inverted AR Roots	.55	-.55
Inverted MA Roots	.60	-.60

22. Model ARIMA (2,0,2) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:08
Sample (adjusted): 3 507
Included observations: 505 after adjustments
Convergence achieved after 14 iterations
MA Backcast: 1 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000113	0.000514	0.219052	0.8267
AR(2)	0.301317	0.456100	0.660639	0.5091
MA(2)	-0.357775	0.448004	-0.798598	0.4249

R-squared	0.004723	Mean dependent var	8.96E-05
Adjusted R-squared	0.000757	S.D. dependent var	0.012526
S.E. of regression	0.012521	Akaike info criterion	-5.916913
Sum squared resid	0.078700	Schwarz criterion	-5.891817
Log likelihood	1497.021	Hannan-Quinn criter.	-5.907069
F-statistic	1.190977	Durbin-Watson stat	2.025788
Prob(F-statistic)	0.304781		

Inverted AR Roots	.55	-.55
Inverted MA Roots	.60	-.60

23. Model ARIMA (2,0,3) tanpa Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:09
Sample (adjusted): 3 507
Included observations: 505 after adjustments
Convergence achieved after 6 iterations
MA Backcast: 0 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(2)	-0.062550	0.044453	-1.407110	0.1600
MA(3)	-0.118562	0.044433	-2.668361	0.0079

R-squared	0.014922	Mean dependent var	8.96E-05
Adjusted R-squared	0.012964	S.D. dependent var	0.012526
S.E. of regression	0.012444	Akaike info criterion	-5.931174
Sum squared resid	0.077893	Schwarz criterion	-5.914443
Log likelihood	1499.621	Hannan-Quinn criter.	-5.924612
Durbin-Watson stat	2.023629		

Inverted MA Roots	.49	-.25-.43i	-.25+.43i

24. Model ARIMA (2,0,3) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:10
Sample (adjusted): 3 507
Included observations: 505 after adjustments
Convergence achieved after 6 iterations
MA Backcast: 0 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.19E-05	0.000460	0.177928	0.8589
AR(2)	-0.062576	0.044496	-1.406347	0.1602
MA(3)	-0.118603	0.044475	-2.666712	0.0079

R-squared	0.014984	Mean dependent var	8.96E-05
Adjusted R-squared	0.011060	S.D. dependent var	0.012526
S.E. of regression	0.012456	Akaike info criterion	-5.927277
Sum squared resid	0.077889	Schwarz criterion	-5.902180
Log likelihood	1499.637	Hannan-Quinn criter.	-5.917433
F-statistic	3.818224	Durbin-Watson stat	2.023763
Prob(F-statistic)	0.022607		

Inverted MA Roots	.49	-.25+.43i	-.25-.43i

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

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:10
Sample (adjusted): 4 507
Included observations: 504 after adjustments
Convergence achieved after 6 iterations
MA Backcast: 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(3)	-0.102242	0.044453	-2.300007	0.0219
MA(1)	-0.013807	0.044714	-0.308776	0.7576

R-squared	0.010385	Mean dependent var	0.000109
Adjusted R-squared	0.008414	S.D. dependent var	0.012530
S.E. of regression	0.012477	Akaike info criterion	-5.925821
Sum squared resid	0.078155	Schwarz criterion	-5.909064
Log likelihood	1495.307	Hannan-Quinn criter.	-5.919248
Durbin-Watson stat	1.995033		

Inverted AR Roots	.23+.40i	.23-.40i	-.47
Inverted MA Roots	.01		

26. Model ARIMA (3,0,1) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:11
Sample (adjusted): 4 507
Included observations: 504 after adjustments
Convergence achieved after 6 iterations
MA Backcast: 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.89E-05	0.000498	0.198617	0.8426
AR(3)	-0.102245	0.044495	-2.297876	0.0220
MA(1)	-0.013907	0.044758	-0.310726	0.7561

R-squared	0.010463	Mean dependent var	0.000109
Adjusted R-squared	0.006513	S.D. dependent var	0.012530
S.E. of regression	0.012489	Akaike info criterion	-5.921931
Sum squared resid	0.078149	Schwarz criterion	-5.896797
Log likelihood	1495.327	Hannan-Quinn criter.	-5.912072
F-statistic	2.648650	Durbin-Watson stat	1.995001
Prob(F-statistic)	0.071737		

Inverted AR Roots	.23+.40i	.23-.40i	-.47
Inverted MA Roots	.01		

27. Model ARIMA (3,0,2) tanpa Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:11
Sample (adjusted): 4 507
Included observations: 504 after adjustments
Convergence achieved after 6 iterations
MA Backcast: 2 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(3)	-0.106856	0.044376	-2.407975	0.0164
MA(2)	-0.064873	0.044581	-1.455166	0.1462

R-squared	0.014232	Mean dependent var	0.000109
Adjusted R-squared	0.012268	S.D. dependent var	0.012530
S.E. of regression	0.012453	Akaike info criterion	-5.929716
Sum squared resid	0.077851	Schwarz criterion	-5.912959
Log likelihood	1496.288	Hannan-Quinn criter.	-5.923143
Durbin-Watson stat	2.023661		

Inverted AR Roots	.24+.41i	.24-.41i	-.47
Inverted MA Roots	.25	-.25	

28. Model ARIMA (3,0,2) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:12
Sample (adjusted): 4 507
Included observations: 504 after adjustments
Convergence achieved after 6 iterations
MA Backcast: 2 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.76E-05	0.000469	0.207964	0.8353
AR(3)	-0.106861	0.044418	-2.405795	0.0165
MA(2)	-0.064955	0.044625	-1.455595	0.1461

R-squared	0.014317	Mean dependent var	0.000109
Adjusted R-squared	0.010382	S.D. dependent var	0.012530
S.E. of regression	0.012465	Akaike info criterion	-5.925834
Sum squared resid	0.077845	Schwarz criterion	-5.900699
Log likelihood	1496.310	Hannan-Quinn criter.	-5.915974
F-statistic	3.638510	Durbin-Watson stat	2.023842
Prob(F-statistic)	0.026989		

Inverted AR Roots	.24+.41i	.24-.41i	-.47
Inverted MA Roots	.25	-.25	

29. Model ARIMA (3,0,3) tanpa Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:13
Sample (adjusted): 4 507
Included observations: 504 after adjustments
Convergence achieved after 10 iterations
MA Backcast: 1 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AR(3)	0.502342	0.246156	2.040746	0.0418
MA(3)	-0.605615	0.225269	-2.688409	0.0074

R-squared	0.012770	Mean dependent var	0.000109
Adjusted R-squared	0.010804	S.D. dependent var	0.012530
S.E. of regression	0.012462	Akaike info criterion	-5.928234
Sum squared resid	0.077967	Schwarz criterion	-5.911478
Log likelihood	1495.915	Hannan-Quinn criter.	-5.921661
Durbin-Watson stat	2.028975		

Inverted AR Roots	.79	-.40+.69i	-.40-.69i
Inverted MA Roots	.85	-.42+.73i	-.42-.73i

30. Model ARIMA (3,0,3) dengan Konstanta

Dependent Variable: RETURN
Method: Least Squares
Date: 06/11/16 Time: 17:13
Sample (adjusted): 4 507
Included observations: 504 after adjustments
Convergence achieved after 11 iterations
MA Backcast: 1 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.02E-05	0.000445	0.135078	0.8926
AR(3)	0.499136	0.247952	2.013035	0.0446
MA(3)	-0.602717	0.227079	-2.654217	0.0082

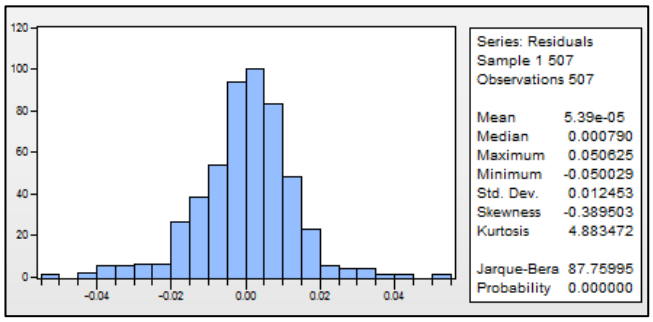
R-squared	0.012806	Mean dependent var	0.000109
Adjusted R-squared	0.008865	S.D. dependent var	0.012530
S.E. of regression	0.012475	Akaike info criterion	-5.924302
Sum squared resid	0.077964	Schwarz criterion	-5.899167
Log likelihood	1495.924	Hannan-Quinn criter.	-5.914442
F-statistic	3.249443	Durbin-Watson stat	2.029046
Prob(F-statistic)	0.039615		

Inverted AR Roots	.79	-.40+.69i	-.40-.69i
Inverted MA Roots	.84	-.42+.73i	-.42-.73i

LAMPIRAN 4: Pemeriksaan Diagnosa Model

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

   - Uji normalitas



   - Uji autokorelasi

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.131	0.131	8.8063	
		2	0.073	0.056	11.501	0.001
		3	0.115	0.100	18.235	0.000
		4	0.090	0.062	22.410	0.000
		5	0.085	0.057	26.094	0.000
		6	0.134	0.104	35.412	0.000
		7	0.224	0.186	61.213	0.000
		8	0.053	-0.014	62.690	0.000
		9	0.040	-0.008	63.539	0.000
		10	0.095	0.042	68.267	0.000
		11	0.208	0.169	90.749	0.000
		12	0.037	-0.041	91.462	0.000
		13	0.018	-0.054	91.640	0.000
		14	0.043	-0.034	92.614	0.000
		15	0.027	0.003	93.006	0.000
		16	0.021	-0.012	93.245	0.000
		17	0.042	-0.021	94.183	0.000
		18	0.050	-0.028	95.490	0.000
		19	0.088	0.098	99.578	0.000
		20	0.006	-0.010	99.595	0.000
		21	0.031	0.001	100.11	0.000
		22	0.098	0.052	105.23	0.000
		23	0.048	0.042	106.45	0.000
		24	0.038	0.026	107.24	0.000
		25	0.080	0.048	110.66	0.000
		26	0.043	-0.013	111.67	0.000
		27	0.016	0.000	111.80	0.000
		28	0.009	-0.029	111.85	0.000
		29	0.077	0.031	115.07	0.000
		30	0.174	0.129	131.46	0.000

- Uji homokedastisitas

Heteroskedasticity Test: ARCH

F-statistic	8.861541	Prob. F(1,504)	0.0031
Obs*R-squared	8.742983	Prob. Chi-Square(1)	0.0031

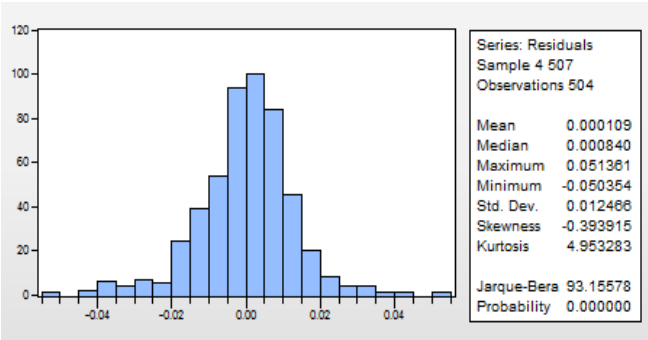
Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/27/16 Time: 19:33
Sample (adjusted): 2 507
Included observations: 506 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000135	1.51E-05	8.919039	0.0000
RESID^2(-1)	0.131426	0.044150	2.976834	0.0031

R-squared	0.017279	Mean dependent var	0.000155
Adjusted R-squared	0.015329	S.D. dependent var	0.000305
S.E. of regression	0.000303	Akaike info criterion	-13.36224
Sum squared resid	4.62E-05	Schwarz criterion	-13.34554
Log likelihood	3382.647	Hannan-Quinn criter.	-13.35569
F-statistic	8.861541	Durbin-Watson stat	2.012886
Prob(F-statistic)	0.003052		

2. Model ARIMA (3,0,0) tanpa Konstanta

- Uji normalitas



- Uji autokorelasi

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.127	0.127	8.2312	
		2	0.071	0.056	10.812	0.001
		3	0.118	0.104	17.897	0.000
		4	0.085	0.057	21.590	0.000
		5	0.085	0.059	25.317	0.000
		6	0.128	0.097	33.741	0.000
		7	0.222	0.187	59.111	0.000
		8	0.051	-0.014	60.461	0.000
		9	0.041	-0.006	61.341	0.000
		10	0.096	0.043	66.146	0.000
		11	0.206	0.170	88.103	0.000
		12	0.035	-0.041	88.750	0.000
		13	0.018	-0.052	88.911	0.000
		14	0.041	-0.037	89.802	0.000
		15	0.024	0.003	90.111	0.000
		16	0.024	-0.010	90.412	0.000
		17	0.039	-0.023	91.215	0.000
		18	0.051	-0.026	92.587	0.000
		19	0.088	0.097	96.614	0.000
		20	0.006	-0.009	96.635	0.000
		21	0.033	0.003	97.200	0.000
		22	0.098	0.052	102.30	0.000
		23	0.046	0.041	103.42	0.000
		24	0.040	0.028	104.27	0.000
		25	0.083	0.051	107.90	0.000
		26	0.042	-0.014	108.85	0.000
		27	0.018	0.002	109.02	0.000
		28	0.009	-0.030	109.07	0.000
		29	0.076	0.030	112.21	0.000
		30	0.171	0.126	127.98	0.000

- Uji homokedastisitas

Heteroskedasticity Test: ARCH

F-statistic	8.269447	Prob. F(1,501)	0.0042
Obs*R-squared	8.167644	Prob. Chi-Square(1)	0.0043

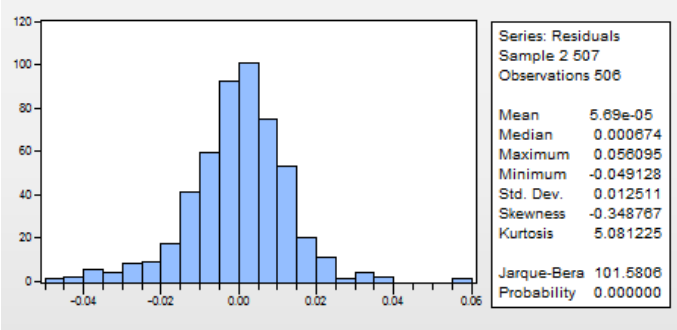
Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/27/16 Time: 19:37
Sample (adjusted): 5 507
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000135	1.53E-05	8.846796	0.0000
RESID^2(-1)	0.127438	0.044316	2.875665	0.0042

R-squared	0.016238	Mean dependent var	0.000155
Adjusted R-squared	0.014274	S.D. dependent var	0.000308
S.E. of regression	0.000306	Akaike info criterion	-13.34052
Sum squared resid	4.70E-05	Schwarz criterion	-13.32374
Log likelihood	3357.141	Hannan-Quinn criter.	-13.33394
F-statistic	8.269447	Durbin-Watson stat	2.013688
Prob(F-statistic)	0.004203		

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

- Uji normalitas



- Uji autokorelasi

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.103	0.103	5.4397	
		2	0.066	0.056	7.6429	
		3	0.146	0.136	18.518	0.000
		4	0.076	0.048	21.509	0.000
		5	0.077	0.053	24.551	0.000
		6	0.132	0.100	33.501	0.000
		7	0.205	0.173	55.219	0.000
		8	0.034	-0.022	55.798	0.000
		9	0.060	0.013	57.652	0.000
		10	0.108	0.047	63.686	0.000
		11	0.186	0.157	81.612	0.000
		12	0.029	-0.039	82.036	0.000
		13	0.031	-0.039	82.527	0.000
		14	0.033	-0.049	83.102	0.000
		15	0.013	-0.004	83.184	0.000
		16	0.023	-0.018	83.462	0.000
		17	0.036	-0.022	84.156	0.000
		18	0.060	0.000	86.025	0.000
		19	0.089	0.099	90.210	0.000
		20	0.007	-0.017	90.238	0.000
		21	0.040	0.012	91.083	0.000
		22	0.102	0.061	96.609	0.000
		23	0.049	0.049	97.885	0.000
		24	0.046	0.027	99.030	0.000
		25	0.093	0.055	103.66	0.000
		26	0.045	-0.003	104.76	0.000
		27	0.024	0.008	105.06	0.000
		28	0.024	-0.033	105.36	0.000
		29	0.083	0.024	109.08	0.000
		30	0.139	0.091	119.49	0.000

- Uji homokedastisitas

Heteroskedasticity Test: ARCH

F-statistic	5.435020	Prob. F(1,503)	0.0201
Obs*R-squared	5.398301	Prob. Chi-Square(1)	0.0202

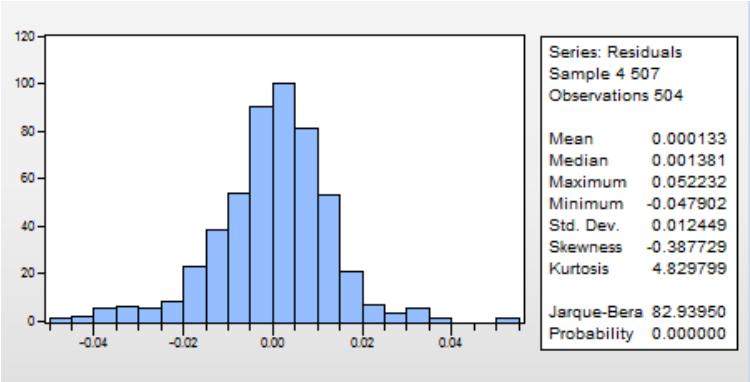
Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/27/16 Time: 19:35
Sample (adjusted): 3 507
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000140	1.56E-05	8.955376	0.0000
RESID^2(-1)	0.103394	0.044350	2.331313	0.0201

R-squared	0.010690	Mean dependent var	0.000156
Adjusted R-squared	0.008723	S.D. dependent var	0.000316
S.E. of regression	0.000315	Akaike info criterion	-13.28668
Sum squared resid	4.98E-05	Schwarz criterion	-13.26995
Log likelihood	3356.886	Hannan-Quinn criter.	-13.28012
F-statistic	5.435020	Durbin-Watson stat	2.011372
Prob(F-statistic)	0.020131		

4. Model ARIMA (3,0,3) tanpa Konstanta

- Uji normalitas



- Uji autokorelasi

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.135	0.135	9.2396	
		2	0.072	0.055	11.867	
		3	0.123	0.109	19.564	0.000
		4	0.102	0.072	24.844	0.000
		5	0.075	0.044	27.751	0.000
		6	0.138	0.108	37.564	0.000
		7	0.244	0.204	68.184	0.000
		8	0.049	-0.024	69.411	0.000
		9	0.043	-0.007	70.350	0.000
		10	0.097	0.036	75.201	0.000
		11	0.207	0.167	97.421	0.000
		12	0.037	-0.039	98.114	0.000
		13	0.030	-0.046	98.584	0.000
		14	0.047	-0.042	99.715	0.000
		15	0.015	-0.010	99.833	0.000
		16	0.026	-0.002	100.18	0.000
		17	0.043	-0.022	101.17	0.000
		18	0.058	-0.024	102.94	0.000
		19	0.092	0.103	107.43	0.000
		20	-0.000	-0.022	107.43	0.000
		21	0.026	0.001	107.80	0.000
		22	0.096	0.055	112.66	0.000
		23	0.051	0.042	114.06	0.000
		24	0.035	0.020	114.72	0.000
		25	0.071	0.037	117.44	0.000
		26	0.055	0.003	119.08	0.000
		27	0.012	-0.000	119.15	0.000
		28	0.018	-0.019	119.33	0.000
		29	0.073	0.017	122.21	0.000
		30	0.172	0.129	138.12	0.000

- Uji homokedastisitas

Heteroskedasticity Test: ARCH

F-statistic	9.301439	Prob. F(1,501)	0.0024
Obs*R-squared	9.168353	Prob. Chi-Square(1)	0.0025

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/27/16 Time: 19:39
Sample (adjusted): 5 507
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000134	1.50E-05	8.898856	0.0000
RESID^2(-1)	0.135020	0.044271	3.049826	0.0024

R-squared	0.018227	Mean dependent var	0.000155
Adjusted R-squared	0.016268	S.D. dependent var	0.000303
S.E. of regression	0.000300	Akaike info criterion	-13.38031
Sum squared resid	4.51E-05	Schwarz criterion	-13.36353
Log likelihood	3367.149	Hannan-Quinn criter.	-13.37373
F-statistic	9.301439	Durbin-Watson stat	2.014536
Prob(F-statistic)	0.002411		

LAMPIRAN 5: *Fuzzy Time Series Average Based*

1. Fuzzifikasi Data Historis dan Defuzzifikasi

DATE	RES_KUADRAT	FUZZIFIKASI	DEFUZZIFIKASI
1/2/2014	3.18606E-10	A1	0.00094
1/3/2014	0.00030864	A4	0.00031
1/6/2014	9.34134E-05	A1	0.00094
1/7/2014	0.000175815	A2	0.00051
1/8/2014	2.65425E-05	A1	0.00094
1/9/2014	2.31756E-05	A1	0.00094
1/10/2014	0.00015576	A2	0.00051
1/13/2014	0.001116322	A12	0.00015
1/15/2014	0.000163823	A2	0.00051
1/16/2014	1.31539E-05	A1	0.00094
1/17/2014	5.62249E-06	A1	0.00094
1/20/2014	0.000103166	A2	0.00051
1/21/2014	7.75234E-07	A1	0.00094
1/22/2014	7.04044E-05	A1	0.00094
1/23/2014	4.32519E-06	A1	0.00094
1/24/2014	0.00029879	A3	0.00076
1/27/2014	0.001123969	A12	0.00015
1/28/2014	5.97508E-05	A1	0.00094
1/29/2014	0.000412823	A5	0.00015
1/30/2014	2.71892E-06	A1	0.00094
2/3/2014	0.000125648	A2	0.00051
2/4/2014	0.000130093	A2	0.00051
2/5/2014	0.000136231	A2	0.00051
2/6/2014	9.37855E-05	A1	0.00094
2/7/2014	5.23565E-05	A1	0.00094
2/10/2014	1.18034E-05	A1	0.00094
2/11/2014	1.14408E-05	A1	0.00094
2/12/2014	6.4798E-05	A1	0.00094
2/13/2014	1.1929E-05	A1	0.00094
2/14/2014	1.06735E-05	A1	0.00094
2/17/2014	0.000138553	A2	0.00051
2/18/2014	1.50358E-06	A1	0.00094
2/19/2014	0.000123143	A2	0.00051
2/20/2014	4.18504E-06	A1	0.00094
2/21/2014	5.71582E-05	A1	0.00094

2/24/2014	4.59439E-05	A1	0.00094
2/25/2014	0.000139994	A2	0.00051
2/26/2014	0.0001684	A2	0.00051
2/27/2014	0.000108045	A2	0.00051
2/28/2014	0.000451898	A5	0.00015
3/3/2014	0.000200036	A3	0.00076
3/4/2014	8.54493E-06	A1	0.00094
3/5/2014	0.000230615	A3	0.00076
3/6/2014	9.84918E-06	A1	0.00094
3/7/2014	2.27522E-06	A1	0.00094
3/10/2014	1.29428E-05	A1	0.00094
3/11/2014	1.77149E-05	A1	0.00094
3/12/2014	1.06505E-05	A1	0.00094
3/13/2014	0.000173923	A2	0.00051
3/14/2014	0.001014043	A11	0.00005
3/17/2014	7.96958E-06	A1	0.00094
3/18/2014	0.000308099	A4	0.00031
3/19/2014	9.96995E-05	A1	0.00094
3/20/2014	0.001067995	A11	0.00005
3/21/2014	2.98005E-06	A1	0.00094
3/24/2014	9.57884E-06	A1	0.00094
3/25/2014	0.000148447	A2	0.00051
3/26/2014	4.31154E-05	A1	0.00094
3/27/2014	3.76487E-06	A1	0.00094
3/28/2014	4.97044E-05	A1	0.00094
4/1/2014	0.000700555	A8	0.0001
4/2/2014	8.9814E-06	A1	0.00094
4/3/2014	3.33382E-05	A1	0.00094
4/4/2014	2.4742E-05	A1	0.00094
4/7/2014	0.000431992	A5	0.00015
4/8/2014	1.4842E-07	A1	0.00094
4/9/2014	3.27561E-07	A1	0.00094
4/10/2014	0.001108936	A12	0.00015
4/11/2014	0.000242846	A3	0.00076
4/14/2014	9.46467E-05	A1	0.00094
4/15/2014	1.38793E-05	A1	0.00094
4/16/2014	1.25734E-06	A1	0.00094
4/17/2014	9.58793E-05	A1	0.00094
4/21/2014	2.8533E-07	A1	0.00094
4/22/2014	6.23902E-07	A1	0.00094

4/23/2014	1.30354E-06	A1	0.00094
4/24/2014	2.27412E-06	A1	0.00094
4/25/2014	1.85404E-08	A1	0.00094
4/28/2014	0.000380086	A4	0.00031
4/29/2014	6.40038E-05	A1	0.00094
4/30/2014	1.41309E-05	A1	0.00094
5/2/2014	1.96964E-05	A1	0.00094
5/5/2014	4.70666E-06	A1	0.00094
5/6/2014	2.06156E-06	A1	0.00094
5/7/2014	4.50456E-05	A1	0.00094
5/8/2014	3.57238E-06	A1	0.00094
5/9/2014	2.16094E-05	A1	0.00094
5/12/2014	0.000113697	A2	0.00051
5/13/2014	3.71832E-06	A1	0.00094
5/14/2014	0.000318843	A4	0.00031
5/16/2014	0.000171478	A2	0.00051
5/19/2014	1.5804E-05	A1	0.00094
5/20/2014	0.000617507	A7	0.0003
5/21/2014	7.39919E-05	A1	0.00094
5/22/2014	0.000123285	A2	0.00051
5/23/2014	1.19317E-05	A1	0.00094
5/26/2014	3.11588E-07	A1	0.00094
5/28/2014	1.98729E-05	A1	0.00094
5/30/2014	0.000683456	A7	0.0003
6/2/2014	1.03091E-05	A1	0.00094
6/3/2014	3.75484E-05	A1	0.00094
6/4/2014	2.02791E-05	A1	0.00094
6/5/2014	6.24176E-06	A1	0.00094
6/6/2014	3.33495E-05	A1	0.00094
6/9/2014	0.000136888	A2	0.00051
6/10/2014	0.000244365	A3	0.00076
6/11/2014	4.02191E-05	A1	0.00094
6/12/2014	0.000116888	A2	0.00051
6/13/2014	7.48284E-08	A1	0.00094
6/16/2014	0.000181035	A2	0.00051
6/17/2014	5.28931E-05	A1	0.00094
6/18/2014	2.78329E-05	A1	0.00094
6/19/2014	5.1429E-05	A1	0.00094
6/20/2014	1.66328E-06	A1	0.00094
6/23/2014	1.26676E-08	A1	0.00094

6/24/2014	1.05044E-06	A1	0.00094
6/25/2014	2.27743E-05	A1	0.00094
6/26/2014	6.0033E-05	A1	0.00094
6/27/2014	5.21036E-05	A1	0.00094
6/30/2014	1.77264E-05	A1	0.00094
7/1/2014	8.70495E-06	A1	0.00094
7/2/2014	0.00011123	A2	0.00051
7/3/2014	6.96205E-06	A1	0.00094
7/4/2014	9.70945E-06	A1	0.00094
7/7/2014	0.000610755	A7	0.0003
7/8/2014	2.90629E-05	A1	0.00094
7/10/2014	0.000203139	A3	0.00076
7/11/2014	0.000259139	A3	0.00076
7/14/2014	1.71738E-07	A1	0.00094
7/15/2014	0.000197492	A2	0.00051
7/16/2014	5.25047E-05	A1	0.00094
7/17/2014	0.000152634	A2	0.00051
7/18/2014	5.22522E-05	A1	0.00094
7/21/2014	0.000129727	A2	0.00051
7/22/2014	6.89227E-05	A1	0.00094
7/23/2014	3.10528E-07	A1	0.00094
7/24/2014	3.14266E-06	A1	0.00094
7/25/2014	1.54808E-05	A1	0.00094
8/4/2014	0.000244261	A3	0.00076
8/5/2014	3.17116E-05	A1	0.00094
8/6/2014	0.000191516	A2	0.00051
8/7/2014	2.95994E-05	A1	0.00094
8/8/2014	3.55627E-05	A1	0.00094
8/11/2014	0.00018917	A2	0.00051
8/12/2014	2.19991E-05	A1	0.00094
8/13/2014	9.08232E-05	A1	0.00094
8/14/2014	1.20898E-05	A1	0.00094
8/15/2014	8.0281E-06	A1	0.00094
8/18/2014	6.57323E-06	A1	0.00094
8/19/2014	3.86975E-06	A1	0.00094
8/20/2014	4.31018E-05	A1	0.00094
8/21/2014	4.08467E-06	A1	0.00094
8/22/2014	2.30643E-05	A1	0.00094
8/25/2014	1.35787E-05	A1	0.00094
8/26/2014	4.97603E-05	A1	0.00094

8/27/2014	1.31022E-05	A1	0.00094
8/28/2014	1.09131E-05	A1	0.00094
8/29/2014	0.000247532	A3	0.00076
9/1/2014	0.00015511	A2	0.00051
9/2/2014	2.96187E-05	A1	0.00094
9/3/2014	1.68386E-05	A1	0.00094
9/4/2014	3.18975E-05	A1	0.00094
9/5/2014	2.27619E-06	A1	0.00094
9/8/2014	5.99773E-05	A1	0.00094
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9/10/2014	0.000185318	A2	0.00051
9/11/2014	4.73182E-05	A1	0.00094
9/12/2014	3.7697E-05	A1	0.00094
9/15/2014	7.10043E-06	A1	0.00094
9/16/2014	2.75354E-06	A1	0.00094
9/17/2014	0.000152428	A2	0.00051
9/18/2014	3.00912E-05	A1	0.00094
9/19/2014	6.95374E-06	A1	0.00094
9/22/2014	3.36484E-06	A1	0.00094
9/23/2014	6.85204E-05	A1	0.00094
9/24/2014	2.4677E-05	A1	0.00094
9/25/2014	1.1217E-05	A1	0.00094
9/26/2014	0.000134871	A2	0.00051
9/29/2014	4.47396E-06	A1	0.00094
9/30/2014	5.36362E-06	A1	0.00094
10/1/2014	8.04831E-05	A1	0.00094
10/2/2014	0.000933039	A10	0.00005
10/3/2014	1.91007E-05	A1	0.00094
10/6/2014	6.76816E-05	A1	0.00094
10/7/2014	2.81109E-05	A1	0.00094
10/8/2014	0.000325169	A4	0.00031
10/9/2014	3.83855E-05	A1	0.00094
10/10/2014	9.50214E-05	A1	0.00094
10/13/2014	0.000240349	A3	0.00076
10/14/2014	3.01518E-05	A1	0.00094
10/15/2014	6.8013E-06	A1	0.00094
10/16/2014	8.96904E-06	A1	0.00094
10/17/2014	0.000333147	A4	0.00031
10/20/2014	1.28283E-06	A1	0.00094
10/21/2014	2.13738E-06	A1	0.00094

10/22/2014	0.000132218	A2	0.00051
10/23/2014	1.81508E-05	A1	0.00094
10/24/2014	5.09314E-05	A1	0.00094
10/27/2014	0.000106374	A2	0.00051
10/28/2014	7.71409E-05	A1	0.00094
10/29/2014	0.000491622	A5	0.00015
10/30/2014	7.1304E-06	A1	0.00094
10/31/2014	1.95231E-05	A1	0.00094
11/3/2014	4.74471E-06	A1	0.00094
11/4/2014	7.93677E-05	A1	0.00094
11/5/2014	3.92906E-06	A1	0.00094
11/6/2014	2.21443E-05	A1	0.00094
11/7/2014	0.0001786	A2	0.00051
11/10/2014	4.19398E-05	A1	0.00094
11/11/2014	0.000317082	A4	0.00031
11/12/2014	3.39259E-06	A1	0.00094
11/13/2014	3.734E-06	A1	0.00094
11/14/2014	5.10386E-06	A1	0.00094
11/17/2014	1.77566E-05	A1	0.00094
11/18/2014	0.000121197	A2	0.00051
11/19/2014	2.0365E-05	A1	0.00094
11/20/2014	7.17408E-05	A1	0.00094
11/21/2014	7.3442E-05	A1	0.00094
11/24/2014	0.000186918	A2	0.00051
11/25/2014	0.000106635	A2	0.00051
11/26/2014	1.01709E-05	A1	0.00094
11/27/2014	3.75226E-05	A1	0.00094
11/28/2014	1.33913E-05	A1	0.00094
12/1/2014	1.47873E-05	A1	0.00094
12/2/2014	2.1408E-06	A1	0.00094
12/3/2014	4.26892E-05	A1	0.00094
12/4/2014	5.89375E-05	A1	0.00094
12/5/2014	6.1562E-06	A1	0.00094
12/8/2014	0.000137429	A2	0.00051
12/9/2014	4.61063E-06	A1	0.00094
12/10/2014	3.81466E-05	A1	0.00094
12/11/2014	3.41173E-05	A1	0.00094
12/12/2014	6.83084E-07	A1	0.00094
12/15/2014	6.90567E-05	A1	0.00094
12/16/2014	0.000287455	A3	0.00076

12/17/2014	6.79578E-06	A1	0.00094
12/18/2014	0.000392875	A4	0.00031
12/19/2014	1.22293E-05	A1	0.00094
12/29/2014	8.9459E-05	A1	0.00094
12/30/2014	9.67057E-05	A1	0.00094
12/31/2014	1.61904E-07	A1	0.00094
1/2/2015	3.64759E-05	A1	0.00094
1/5/2015	4.41626E-05	A1	0.00094
1/6/2015	0.000135968	A2	0.00051
1/7/2015	0.000102135	A2	0.00051
1/8/2015	2.28918E-08	A1	0.00094
1/9/2015	2.73184E-08	A1	0.00094
1/12/2015	4.0572E-05	A1	0.00094
1/13/2015	0.000148447	A2	0.00051
1/14/2015	0.000233808	A3	0.00076
1/15/2015	6.24068E-05	A1	0.00094
1/16/2015	5.16494E-05	A1	0.00094
1/19/2015	3.3588E-06	A1	0.00094
1/20/2015	0.00012314	A2	0.00051
1/21/2015	0.000344448	A4	0.00031
1/22/2015	8.72951E-05	A1	0.00094
1/23/2015	0.000152427	A2	0.00051
1/26/2015	0.000189233	A2	0.00051
1/27/2015	1.85067E-05	A1	0.00094
1/28/2015	7.58873E-07	A1	0.00094
1/29/2015	3.39475E-05	A1	0.00094
1/30/2015	3.10675E-05	A1	0.00094
2/2/2015	5.56109E-05	A1	0.00094
2/3/2015	1.44078E-05	A1	0.00094
2/4/2015	4.11491E-05	A1	0.00094
2/5/2015	0.00016045	A2	0.00051
2/6/2015	0.000262073	A3	0.00076
2/9/2015	2.18269E-08	A1	0.00094
2/10/2015	4.803E-05	A1	0.00094
2/11/2015	8.26718E-05	A1	0.00094
2/12/2015	6.57092E-06	A1	0.00094
2/13/2015	9.45107E-05	A1	0.00094
2/16/2015	0.000244185	A3	0.00076
2/17/2015	4.8339E-05	A1	0.00094
2/18/2015	5.14906E-05	A1	0.00094

2/19/2015	3.23277E-06	A1	0.00094
2/20/2015	1.46713E-05	A1	0.00094
2/23/2015	2.55264E-05	A1	0.00094
2/24/2015	6.91032E-06	A1	0.00094
2/25/2015	8.54249E-05	A1	0.00094
2/26/2015	2.35311E-07	A1	0.00094
2/27/2015	4.857E-05	A1	0.00094
3/2/2015	0.00010077	A2	0.00051
3/3/2015	4.99841E-06	A1	0.00094
3/4/2015	0.000103467	A2	0.00051
3/5/2015	4.14299E-07	A1	0.00094
3/6/2015	0.000315907	A4	0.00031
3/9/2015	0.00022946	A3	0.00076
3/10/2015	2.4979E-06	A1	0.00094
3/11/2015	2.82087E-05	A1	0.00094
3/12/2015	7.52767E-06	A1	0.00094
3/13/2015	3.30132E-09	A1	0.00094
3/16/2015	2.86915E-06	A1	0.00094
3/17/2015	3.70159E-07	A1	0.00094
3/18/2015	7.75878E-05	A1	0.00094
3/19/2015	8.57151E-05	A1	0.00094
3/20/2015	2.00755E-05	A1	0.00094
3/23/2015	3.77258E-06	A1	0.00094
3/24/2015	3.09234E-06	A1	0.00094
3/25/2015	0.000229015	A3	0.00076
3/26/2015	0.000118782	A2	0.00051
3/27/2015	8.83542E-05	A1	0.00094
3/30/2015	0.000168153	A2	0.00051
3/31/2015	8.79153E-05	A1	0.00094
4/1/2015	0.000148919	A2	0.00051
4/2/2015	1.00422E-06	A1	0.00094
4/6/2015	4.54386E-05	A1	0.00094
4/7/2015	6.13644E-05	A1	0.00094
4/8/2015	0.000111819	A2	0.00051
4/9/2015	3.74844E-05	A1	0.00094
4/10/2015	2.39278E-06	A1	0.00094
4/13/2015	5.89409E-05	A1	0.00094
4/14/2015	6.63216E-05	A1	0.00094
4/15/2015	4.24565E-08	A1	0.00094
4/16/2015	3.38622E-06	A1	0.00094

4/17/2015	6.04363E-06	A1	0.00094
4/20/2015	5.20012E-05	A1	0.00094
4/21/2015	0.000364678	A4	0.00031
4/22/2015	8.27601E-06	A1	0.00094
4/23/2015	8.85187E-06	A1	0.00094
4/24/2015	6.98028E-05	A1	0.00094
4/27/2015	0.001265819	A13	0.00082
4/28/2015	1.93731E-05	A1	0.00094
4/29/2015	0.001379427	A14	0.00035
4/30/2015	0.000365862	A4	0.00031
5/1/2015	2.56481E-07	A1	0.00094
5/4/2015	0.000292309	A3	0.00076
5/5/2015	6.69854E-05	A1	0.00094
5/6/2015	7.80687E-05	A1	0.00094
5/7/2015	5.21041E-05	A1	0.00094
5/8/2015	0.000271023	A3	0.00076
5/11/2015	5.81772E-08	A1	0.00094
5/12/2015	9.22109E-08	A1	0.00094
5/13/2015	0.000220175	A3	0.00076
5/15/2015	1.61113E-05	A1	0.00094
5/18/2015	1.97827E-07	A1	0.00094
5/19/2015	3.9311E-05	A1	0.00094
5/20/2015	2.24475E-05	A1	0.00094
5/21/2015	1.28365E-05	A1	0.00094
5/22/2015	2.63681E-11	A1	0.00094
5/25/2015	2.48301E-08	A1	0.00094
5/26/2015	0.000116945	A2	0.00051
5/27/2015	0.000261104	A3	0.00076
5/28/2015	7.75158E-07	A1	0.00094
5/29/2015	0.000136732	A2	0.00051
6/1/2015	3.34846E-06	A1	0.00094
6/3/2015	0.000142706	A2	0.00051
6/4/2015	0.000136124	A2	0.00051
6/5/2015	3.33758E-07	A1	0.00094
6/8/2015	0.00035631	A4	0.00031
6/9/2015	0.000739361	A8	0.0001
6/10/2015	0.000186082	A2	0.00051
6/11/2015	3.68677E-07	A1	0.00094
6/12/2015	2.06097E-05	A1	0.00094
6/15/2015	0.000637918	A7	0.0003

6/16/2015	5.99167E-05	A1	0.00094
6/17/2015	0.000128506	A2	0.00051
6/18/2015	1.21777E-05	A1	0.00094
6/19/2015	1.24859E-05	A1	0.00094
6/22/2015	4.21746E-05	A1	0.00094
6/23/2015	4.1844E-05	A1	0.00094
6/24/2015	0.000207367	A3	0.00076
6/25/2015	0.000113864	A2	0.00051
6/26/2015	4.70894E-06	A1	0.00094
6/29/2015	5.68139E-05	A1	0.00094
6/30/2015	2.64149E-05	A1	0.00094
7/1/2015	1.27688E-05	A1	0.00094
7/2/2015	0.00011422	A2	0.00051
7/3/2015	0.000178393	A2	0.00051
7/6/2015	0.000217932	A3	0.00076
7/7/2015	1.85284E-05	A1	0.00094
7/8/2015	2.79054E-05	A1	0.00094
7/9/2015	0.000182083	A2	0.00051
7/10/2015	1.91149E-05	A1	0.00094
7/13/2015	7.60485E-05	A1	0.00094
7/14/2015	9.09395E-09	A1	0.00094
7/15/2015	8.60392E-06	A1	0.00094
7/22/2015	6.77132E-05	A1	0.00094
7/23/2015	9.6567E-06	A1	0.00094
7/24/2015	0.000217944	A3	0.00076
7/27/2015	0.000492655	A5	0.00015
7/28/2015	3.51129E-05	A1	0.00094
7/29/2015	9.04982E-07	A1	0.00094
7/30/2015	8.24702E-06	A1	0.00094
7/31/2015	0.00039551	A4	0.00031
8/3/2015	6.23633E-05	A1	0.00094
8/4/2015	2.19822E-05	A1	0.00094
8/5/2015	0.000323254	A4	0.00031
8/6/2015	0.000254006	A3	0.00076
8/7/2015	2.57248E-05	A1	0.00094
8/10/2015	6.7379E-06	A1	0.00094
8/11/2015	0.001291048	A13	0.00082
8/12/2015	0.00145836	A15	0.00115
8/13/2015	0.00110668	A12	0.00015
8/14/2015	5.30002E-06	A1	0.00094

8/18/2015	0.00038868	A4	0.00031
8/19/2015	2.19155E-05	A1	0.00094
8/20/2015	5.30156E-05	A1	0.00094
8/21/2015	0.000889343	A9	0.00145
8/24/2015	0.002502922	A26	0.0002
8/25/2015	0.000332338	A4	0.00031
8/26/2015	4.41479E-05	A1	0.00094
8/27/2015	0.002562909	A26	0.0002
8/28/2015	1.34587E-05	A1	0.00094
8/31/2015	0.000392872	A4	0.00031
9/1/2015	0.00032985	A4	0.00031
9/2/2015	4.1872E-06	A1	0.00094
9/3/2015	0.00026591	A3	0.00076
9/4/2015	2.55605E-05	A1	0.00094
9/7/2015	0.001721392	A18	0.00005
9/8/2015	2.94353E-05	A1	0.00094
9/9/2015	0.00016415	A2	0.00051
9/10/2015	1.39294E-06	A1	0.00094
9/11/2015	0.000199345	A2	0.00051
9/14/2015	0.000168979	A2	0.00051
9/15/2015	0.000383805	A4	0.00031
9/16/2015	1.53873E-05	A1	0.00094
9/17/2015	0.000200764	A3	0.00076
9/18/2015	2.4112E-06	A1	0.00094
9/21/2015	9.74877E-06	A1	0.00094
9/22/2015	0.000113459	A2	0.00051
9/23/2015	0.000670746	A7	0.0003
9/25/2015	6.47456E-05	A1	0.00094
9/28/2015	0.000837387	A9	0.00145
9/29/2015	0.000387878	A4	0.00031
9/30/2015	4.25935E-06	A1	0.00094
10/1/2015	8.32911E-05	A1	0.00094
10/2/2015	0.000201359	A3	0.00076
10/5/2015	0.001600423	A17	0.00125
10/6/2015	0.001276863	A13	0.00082
10/7/2015	6.65359E-05	A1	0.00094
10/8/2015	5.18448E-06	A1	0.00094
10/9/2015	0.000761107	A8	0.0001
10/12/2015	4.69483E-05	A1	0.00094
10/13/2015	0.001832859	A19	0.00015

10/15/2015	0.000198141	A2	0.00051
10/16/2015	2.49988E-05	A1	0.00094
10/19/2015	0.000137169	A2	0.00051
10/20/2015	7.905E-06	A1	0.00094
10/21/2015	5.22282E-05	A1	0.00094
10/22/2015	6.01347E-05	A1	0.00094
10/23/2015	0.00021835	A3	0.00076
10/26/2015	3.9065E-05	A1	0.00094
10/27/2015	2.68629E-05	A1	0.00094
10/28/2015	0.000213187	A3	0.00076
10/29/2015	0.001539817	A16	0.00005
10/30/2015	4.32488E-06	A1	0.00094
11/2/2015	0.000121036	A2	0.00051
11/3/2015	2.87168E-05	A1	0.00094
11/4/2015	0.000321985	A4	0.00031
11/5/2015	5.4092E-05	A1	0.00094
11/6/2015	3.11702E-06	A1	0.00094
11/9/2015	0.000350435	A4	0.00031
11/10/2015	0.000270828	A3	0.00076
11/11/2015	1.91172E-05	A1	0.00094
11/12/2015	3.92605E-05	A1	0.00094
11/13/2015	4.58731E-05	A1	0.00094
11/16/2015	9.59544E-05	A1	0.00094
11/17/2015	0.000157548	A2	0.00051
11/18/2015	7.00505E-05	A1	0.00094
11/19/2015	1.62391E-05	A1	0.00094
11/20/2015	0.000202478	A3	0.00076
11/23/2015	0.000194199	A2	0.00051
11/24/2015	5.56334E-07	A1	0.00094
11/25/2015	8.11175E-05	A1	0.00094
11/26/2015	6.63625E-06	A1	0.00094
11/27/2015	1.77657E-06	A1	0.00094
11/30/2015	0.00122094	A13	0.00082
12/1/2015	0.000976824	A10	0.00005
12/2/2015	4.18078E-06	A1	0.00094
12/3/2015	2.09168E-05	A1	0.00094
12/4/2015	6.62892E-06	A1	0.00094
12/7/2015	2.0337E-05	A1	0.00094
12/8/2015	0.000550639	A6	0.00005
12/10/2015	4.94876E-05	A1	0.00094

12/11/2015	0.000510254	A6	0.00005
12/14/2015	3.04461E-06	A1	0.00094
12/15/2015	0.000155008	A2	0.00051
12/16/2015	0.000215497	A3	0.00076
12/17/2015	0.000847771	A9	0.00145
12/18/2015	0.000371043	A4	0.00031
12/21/2015	5.73193E-05	A1	0.00094
12/22/2015	9.87356E-05	A1	0.00094
12/23/2015	3.80655E-05	A1	0.00094
12/28/2015	5.83893E-05	A1	0.00094
12/29/2015	2.25923E-05	A1	0.00094
12/30/2015	3.3543E-05	A1	0.00094
1/4/2016	0.000321334	A4	0.00031
1/5/2016	8.47697E-05	A1	0.00094
1/6/2016	0.000645439	A7	0.0003
1/7/2016	0.000540954	A6	0.00005
1/8/2016	8.36874E-06	A1	0.00094
1/11/2016	0.000411093	A5	0.00015
1/12/2016	0.000171634	A2	0.00051
1/13/2016	0.000101002	A2	0.00051
1/14/2016	0.000233369	A3	0.00076
1/15/2016	5.67535E-06	A1	0.00094
1/18/2016	0.000119325	A2	0.00051
1/19/2016	4.28783E-05	A1	0.00094
1/20/2016	0.000258051	A3	0.00076
1/21/2016	9.05116E-06	A1	0.00094
1/22/2016	0.000253398	A3	0.00076
1/25/2016	3.77537E-05	A1	0.00094
1/26/2016	1.2521E-06	A1	0.00094
1/27/2016	0.000359585	A4	0.00031
1/28/2016	2.36398E-05	A1	0.00094
1/29/2016	6.50387E-05	A1	0.00094

LAMPIRAN 6: Tabel Chi-Square

DF	Alfa (α)					
	0.005	0.010	0.025	0.050	0.100	0.250
1	7.879	6.635	5.024	3.841	2.706	1.323
2	10.597	9.210	7.378	5.991	4.605	2.773
3	12.838	11.345	9.348	7.815	6.251	4.108
4	14.860	13.277	11.143	9.488	7.779	5.385
5	16.750	15.086	12.833	11.070	9.236	6.626
6	18.548	16.812	14.449	12.592	10.645	7.841
7	20.278	18.475	16.013	14.067	12.017	9.037
8	21.955	20.090	17.535	15.507	13.362	10.219
9	23.589	21.666	19.023	16.919	14.684	11.389
10	25.188	23.209	20.483	18.307	15.987	12.549
11	26.757	24.725	21.920	19.675	17.275	13.701
12	28.300	26.217	23.337	21.026	18.549	14.845
13	29.819	27.688	24.736	22.362	19.812	15.984
14	31.319	29.141	26.119	23.685	21.064	17.117
15	32.801	30.578	27.488	24.996	22.307	18.245
16	34.267	32.000	28.845	26.296	23.542	19.369
17	35.718	33.409	30.191	27.587	24.769	20.489
18	37.156	34.805	31.526	28.869	25.989	21.605
19	38.582	36.191	32.852	30.144	27.204	22.718
20	39.997	37.566	34.170	31.410	28.412	23.828
21	41.401	38.932	35.479	32.671	29.615	24.935
22	42.796	40.289	36.781	33.924	30.813	26.039
23	44.181	41.638	38.076	35.172	32.007	27.141
24	45.559	42.980	39.364	36.415	33.196	28.241
25	46.928	44.314	40.646	37.652	34.382	29.339
26	48.290	45.642	41.923	38.885	35.563	30.435
27	49.645	46.963	43.195	40.113	36.741	31.528
28	50.993	48.278	44.461	41.337	37.916	32.620
29	52.336	49.588	45.722	42.557	39.087	33.711
30	53.672	50.892	46.979	43.773	40.256	34.800
31	55.003	52.191	48.232	44.985	41.422	35.887
32	56.328	53.486	49.480	46.194	42.585	36.973
33	57.648	54.776	50.725	47.400	43.745	38.058
34	58.964	56.061	51.966	48.602	44.903	39.141
35	60.275	57.342	53.203	49.802	46.059	40.223
36	61.581	58.619	54.437	50.998	47.212	41.304
37	62.883	59.893	55.668	52.192	48.363	42.383

38	64.181	61.162	56.896	53.384	49.513	43.462
39	65.476	62.428	58.120	54.572	50.660	44.539
40	66.766	63.691	59.342	55.758	51.805	45.616
41	68.053	64.950	60.561	56.942	52.949	46.692
42	69.336	66.206	61.777	58.124	54.090	47.766
43	70.616	67.459	62.990	59.304	55.230	48.840
44	71.893	68.710	64.201	60.481	56.369	49.913
45	73.166	69.957	65.410	61.656	57.505	50.985
46	74.437	71.201	66.617	62.830	58.641	52.056
47	75.704	72.443	67.821	64.001	59.774	53.127
48	76.969	73.683	69.023	65.171	60.907	54.196
49	78.231	74.919	70.222	66.339	62.038	55.265
50	79.490	76.154	71.420	67.505	63.167	56.334
51	80.747	77.386	72.616	68.669	64.295	57.401
52	82.001	78.616	73.810	69.832	65.422	58.468
53	83.253	79.843	75.002	70.993	66.548	59.534
54	84.502	81.069	76.192	72.153	67.673	60.600
55	85.749	82.292	77.380	73.311	68.796	61.665
56	86.994	83.513	78.567	74.468	69.919	62.729
57	88.236	84.733	79.752	75.624	71.040	63.793
58	89.477	85.950	80.936	76.778	72.160	64.857
59	90.715	87.166	82.117	77.931	73.279	65.919
60	91.952	88.379	83.298	79.082	74.397	66.981
61	93.186	89.591	84.476	80.232	75.514	68.043
62	94.419	90.802	85.654	81.381	76.630	69.104
63	95.649	92.010	86.830	82.529	77.745	70.165
64	96.878	93.217	88.004	83.675	78.860	71.225
65	98.105	94.422	89.177	84.821	79.973	72.285
66	99.330	95.626	90.349	85.965	81.085	73.344
67	100.554	96.828	91.519	87.108	82.197	74.403
68	101.776	98.028	92.689	88.250	83.308	75.461
69	102.996	99.228	93.856	89.391	84.418	76.519
70	104.215	100.425	95.023	90.531	85.527	77.577
71	105.432	101.621	96.189	91.670	86.635	78.634
72	106.648	102.816	97.353	92.808	87.743	79.690
73	107.862	104.010	98.516	93.945	88.850	80.747
74	109.074	105.202	99.678	95.081	89.956	81.803
75	110.286	106.393	100.839	96.217	91.061	82.858
76	111.495	107.583	101.999	97.351	92.166	83.913
77	112.704	108.771	103.158	98.484	93.270	84.968
78	113.911	109.958	104.316	99.617	94.374	86.022

79	115.117	111.144	105.473	100.749	95.476	87.077
80	116.321	112.329	106.629	101.879	96.578	88.130
81	117.524	113.512	107.783	103.010	97.680	89.184
82	118.726	114.695	108.937	104.139	98.780	90.237
83	119.927	115.876	110.090	105.267	99.880	91.289
84	121.126	117.057	111.242	106.395	100.980	92.342
85	122.325	118.236	112.393	107.522	102.079	93.394
86	123.522	119.414	113.544	108.648	103.177	94.446
87	124.718	120.591	114.693	109.773	104.275	95.497
88	125.913	121.767	115.841	110.898	105.372	96.548
89	127.106	122.942	116.989	112.022	106.469	97.599
90	128.299	124.116	118.136	113.145	107.565	98.650
91	129.491	125.289	119.282	114.268	108.661	99.700
92	130.681	126.462	120.427	115.390	109.756	100.750
93	131.871	127.633	121.571	116.511	110.850	101.800
94	133.059	128.803	122.715	117.632	111.944	102.850
95	134.247	129.973	123.858	118.752	113.038	103.899
96	135.433	131.141	125.000	119.871	114.131	104.948
97	136.619	132.309	126.141	120.990	115.223	105.997
98	137.803	133.476	127.282	122.108	116.315	107.045
99	138.987	134.642	128.422	123.225	117.407	108.093
100	140.169	135.807	129.561	124.342	118.498	109.141
200	255.264	249.445	241.058	233.994	226.021	213.102
300	366.844	359.906	349.874	341.395	331.789	316.138
400	476.606	468.724	457.305	447.632	436.649	418.697
500	585.207	576.493	563.852	553.127	540.930	520.950
501	586.288	577.566	564.914	554.178823	541.971	521.972
502	587.369	578.640	565.975	555.2307852	543.011	522.993
503	588.451	579.713	567.037	556.2826956	544.052	524.014
504	589.532	580.787	568.099	557.3345544	545.092	525.036
505	590.613	581.860	569.161	558.3863617	546.133	526.057
506	591.694	582.933	570.222	559.4381177	547.173	527.078
507	592.775	584.006	571.284	560.4898225	548.213	528.099
508	593.856	585.079	572.346	561.5414763	549.253	529.121
509	594.936	586.152	573.407	562.5930792	550.294	530.142
510	596.017	587.225	574.468	563.6446314	551.334	531.163

CURRICULUM VITAE

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