# Summer 2012 Regression Analysis Project The Influence of Oil Prices on the Public Transportation Habits

Hui-Fang Yu hfyu.mail@gmail.com

In recent years the rising price of oil, but also indirectly affect the price of raw materials. Fuel-efficient money, many people began to change the weekday traffic habits by own car to public transportation so the increase in the number of people taking the MRT or cyclists. This study will use a simple linear regression to analyze the relationship between oil prices with the ridership counts of Taipei MRT.

### Data selection

In this project, the data used the price of 95 unleaded gasoline from website of Bureau of Energy, Ministry of Economic Affairs in Taiwan<sup>1</sup>. And the ridership counts of Taipei MRT from Taipei Rapid Transit Corporation website<sup>2</sup>. Those data are monthly sample from January 2007 to August 2012, total 63 data. The study uses Excel software to analyze.

#### **Methodology**

The study use sample regression analysis to analyze the relationship between oil prices with the ridership counts of Taipei MRT. The sample regression model is as follow :

 $\mathbf{Y} = \alpha + \beta_1 \mathbf{X}$ 

Where Y is response variable (ridership counts of Taipei MRT), X is predictor variable (oil price),  $\alpha$  is intercept,  $\beta_1$  is regression coefficient.

#### **Results**

First, I should to check that the oil price is a normal distribution then I can do the regression analysis. I use Q-Q plot (Figure 1) to simulate the distribution of ridership counts of Taipei MRT. It shows that the ridership counts of Taipei MRT is normal distribution.

<sup>&</sup>lt;sup>1</sup> The website of Bureau of Energy, Ministry of Economic Affairs in Taiwan is <u>http://www.moeaboe.gov.tw/</u>

<sup>&</sup>lt;sup>2</sup> Taipei Rapid Transit Corporation website is <u>http://www.trtc.com.tw</u>.

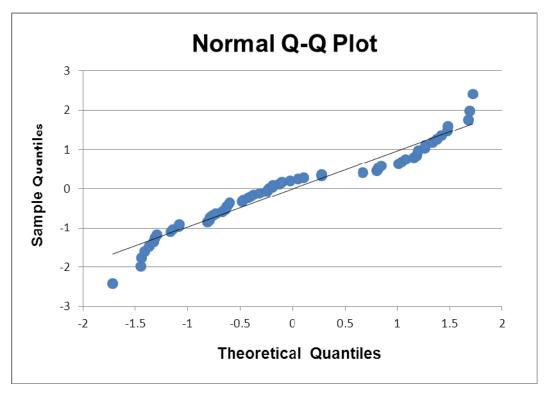


Figure 1. normal Q-Q plot of oil price

Second, I used F-test to test the null hypothesis:

 $H_0:\beta_1=0$ 

 $H_1: \beta_1 \neq 0$ 

I use Excel to do regression analysis for oil price (X) and the ridership counts of Taipei MRT (Y), then I can get following analysis tables:

ANOVA

	df	SS	MS	F	significance
Regression	1	6891.077	6891.077	31.81632	4.65E-07
Residual	61	13211.95	216.5894		
Total	62	20103.03			

	Coefficient	Standard Err	t Stat	P-value
Intercept	36.42441	17.75822	2.051129	0.044556
X variable	3.324871	0.589454	5.640595	4.65E-07

Regression Statistics	
Multiple R	0.585481
R Square	0.342788
Adjusted R square	0.332014
Standard Error	14.71698
Observation	63

The F statistic from ANOVA table is 31.816, more than  $F_{0.05}(1,61) = 3.998$  with p-value is less than 0.05, so that it can reject the null hypothesis  $H_0$ . The regression function is

Y = 36.4244 + 3.3249 X.

This model can be seen that when oil prices rose one NTD per liter, the ridership counts of MRT increase 33.249 thousand people.

#### **Conclusion**

According to the results of the regression statistics seen by the Adjusted R square explain the ability of this simple regression equation was 33.2%. Apparently in addition to the rise in oil prices, there are other factors that can affect the MRT patronage, may be influenced by increasing of a new route or some thing else, perhaps this is another research direction.

## Appendix: raw data

Price of 95 average price of 95 average   month/year unleaded ridership month/year unleaded ridership   gasoline everyday (NTD/Liter) (10 thousand unleaded ridership   Jan-07 25.92 110.6247 Jan-10 30.63 131.9886   Feb-07 26.93 116.6321 Mar-10 29.24 138.0331   Apr-07 27.63 111.4348 Apr-10 30.28 134.1728   May-07 27.55 112.6612 May-10 29.82 133.7869   Jun-07 28.20 109.9468 Jun-10 29.48 131.5997   Jul-07 29.45 115.5379 Jul-10 29.52 135.6201   Sep-07 28.50 110.0351 Sep-10 29.50 132.6350   Oct-07 29.80 115.9948 Oct-10 31.20 162.6351   May-08 33.46 122.8911 Jan-11 31.60 150.8687   Jul-08 36.10						
month/year unleaded gasoline ridership everyday month/year unleaded gasoline ridership everyday   Jan-07 25.92 110.6247 Jan-10 30.63 131.9886   Feb-07 26.83 105.1291 Feb-10 29.37 124.4220   Mar-07 27.63 111.4348 Apr-10 30.63 131.9886   Jan-07 27.63 111.4348 Apr-10 30.28 133.1728   May-07 27.55 112.6612 May-10 29.82 133.7869   Jun-07 28.20 109.9468 Jun-10 29.48 131.5997   Jul-07 29.45 115.5379 Jul-10 29.52 135.6201   Sep-07 28.50 110.0351 Sep-10 29.50 132.5350   Oct-07 29.80 115.0948 Oct-10 30.10 141.0568   Nov-07 30.70 121.4728 Nov-10 30.54 150.7771   Aug-08 34.60 122.8911 Jan-11 31.60 150.8687			Taipei MRT			Taipei MRT
month/year gasoline everyday month/year gasoline everyday   (NTD/Liter) (10 thousand (NTD/Liter) (10 thousand people)   Jan-07 25.92 110.6247 Jan-10 30.63 131.9886   Feb-07 26.83 105.1291 Feb-10 29.37 124.4220   Mar-07 26.93 116.6321 Mar-10 29.24 138.0331   Apr-07 27.55 112.6612 May-10 29.82 133.7869   Jun-07 28.20 109.9468 Jun-10 29.48 131.5997   Jul-07 29.45 115.5379 Jul-10 29.52 135.6201   Sep-07 28.50 110.0351 Sep-10 29.50 132.6350   Oct-07 29.80 115.0948 Oct-10 30.10 141.0568   Nov-07 30.70 121.4728 Nov-10 30.54 150.7771   Aug-08 33.46 122.8911 Jan-11 32.73 157.4786   Sep-08 31.10 <td rowspan="3">month/year</td> <td>price of 95</td> <td>average</td> <td></td> <td>price of 95</td> <td>average</td>	month/year	price of 95	average		price of 95	average
gasoline everyday gasoline everyday   (NTD/Liter) (10 thousand (NTD/Liter) (10 thousand   people) (NTD/Liter) (10 thousand   Jan-07 25.92 110.6247 Jan-10 30.63 131.9886   Feb-07 26.83 105.1291 Feb-10 29.37 124.4220   Mar-07 26.93 116.6321 Mar-10 29.24 138.0331   Apr-07 27.63 111.4348 Apr-10 30.28 134.1728   May-07 27.55 112.6612 May-10 29.82 133.7869   Jun-07 28.20 109.9468 Jun-10 29.48 131.5997   Jul-07 29.45 115.5379 Jul-10 29.52 135.6201   Sep-07 28.50 110.0351 Sep-10 29.50 132.6350   Oct-07 29.80 115.0948 Oct-10 30.10 141.0568   Nov-07 30.70 121.4728 Nov-10 30.54 157.5920   Mar-08 <td>unleaded</td> <td>ridership</td> <td rowspan="3">month/year</td> <td>unleaded</td> <td>ridership</td>		unleaded	ridership	month/year	unleaded	ridership
Jan-0725.92110.6247Jan-1030.63131.9886Feb-0726.83105.1291Feb-1029.37124.4220Mar-0726.93116.6321Mar-1029.24138.0331Apr-0727.63111.4348Apr-1030.28134.1728May-0727.55112.6612May-1029.82133.7869Jun-0728.20109.9468Jun-1029.48131.5997Jul-0729.45115.5379Jul-1029.52137.0680Aug-0729.10112.3485Aug-1029.52135.6201Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1131.98155.4978Jan-0922.48112.1652Aug-1131.90154.8007Mar-0926.34121.7863Dec-1131.90154.8077Jan-0924.15125.1877Oct-1131.66158.7907Mar-09 <td>gasoline</td> <td>everyday</td> <td>gasoline</td> <td>everyday</td>		gasoline	everyday		gasoline	everyday
Jan-07 25.92 110.6247 Jan-10 30.63 131.9886   Feb-07 26.83 105.1291 Feb-10 29.37 124.4220   Mar-07 26.93 116.6321 Mar-10 29.24 138.0331   Apr-07 27.63 111.4348 Apr-10 30.28 134.1728   May-07 27.55 112.6612 May-10 29.82 133.7869   Jun-07 28.20 109.9468 Jun-10 29.25 137.0680   Aug-07 29.10 112.3485 Aug-10 29.52 135.6201   Sep-07 28.50 110.0351 Sep-10 29.50 132.5350   Oct-07 29.80 115.0948 Oct-10 30.10 141.0568   Nov-07 30.70 121.4728 Nov-10 30.54 157.5920   Mar-08 33.50 123.9761 Dec-10 31.20 162.6351   May-08 34.60 122.8911 Jan-11 31.60 150.8687   Jul-08 36.10		(NTD/Liter)	(10 thousand		(NTD/Liter)	(10 thousand
Jan-07 25.92 110.6247 Jan-10 30.63 131.9886   Feb-07 26.83 105.1291 Feb-10 29.37 124.4220   Mar-07 26.93 116.6321 Mar-10 29.24 138.0331   Apr-07 27.63 111.4348 Apr-10 30.28 134.1728   May-07 27.55 112.6612 May-10 29.82 133.7869   Jun-07 28.20 109.9468 Jun-10 29.25 137.0680   Aug-07 29.10 112.3485 Aug-10 29.52 135.6201   Sep-07 28.50 110.0351 Sep-10 29.50 132.5350   Oct-07 29.80 115.0948 Oct-10 30.10 141.0568   Nov-07 30.70 121.4728 Nov-10 30.54 157.5920   Mar-08 33.50 123.9761 Dec-10 31.20 162.6351   May-08 34.60 122.8911 Jan-11 31.60 150.8687   Jul-08 36.10			people)		·	people)
Feb-0726.83105.1291Feb-1029.37124.4220Mar-0726.93116.6321Mar-1029.24138.0331Apr-0727.63111.4348Apr-1030.28134.1728May-0727.55112.6612May-1029.82133.7869Jun-0728.20109.9468Jun-1029.82133.7660Jul-0729.45115.5379Jul-1029.25137.0680Aug-0729.10112.3485Aug-1029.52135.6201Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78166.2837Aug-09 <td>Jan-07</td> <td>25.92</td> <td></td> <td>Jan-10</td> <td>30.63</td> <td> ,</td>	Jan-07	25.92		Jan-10	30.63	,
Mar-0726.93116.6321Mar-1029.24138.0331Apr-0727.63111.4348Apr-1030.28134.1728May-0727.55112.6612May-1029.82133.7869Jun-0728.20109.9468Jun-1029.48131.5997Jul-0729.45115.5379Jul-1029.25137.0680Aug-0729.10112.3485Aug-1029.52135.6201Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.03157.3507Oct-0827.13127.6434May-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.64156.8150Mar-0924.15125.1877Oct-1131.64156.8150Mar-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-09 <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td>	-					
Apr-0727.63111.4348Apr-1030.28134.1728May-0727.55112.6612May-1029.82133.7869Jun-0728.20109.9468Jun-1029.48131.5997Jul-0729.45115.5379Jul-1029.25137.0680Aug-0729.10112.3485Aug-1029.52135.6201Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.30154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-09 <td>·</td> <td></td> <td></td> <td></td> <td></td> <td></td>	·					
May-0727.55112.6612May-1029.82133.7869Jun-0728.20109.9468Jun-1029.48131.5997Jul-0729.45115.5379Jul-1029.25137.0680Aug-0729.10112.3485Aug-1029.52135.6201Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1131.90154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78166.2837Aug-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-09 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Jun-0728.20109.9468Jun-1029.48131.5997Jul-0729.45115.5379Jul-1029.25137.0680Aug-0729.10112.3485Aug-1029.52135.6201Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78156.2837Aug-0929.08127.4332Apr-1235.10160.9292Oct-09 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Jul-0729.45115.5379Jul-1029.25137.0680Aug-0729.10112.3485Aug-1029.52135.6201Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.70151.3243Jul-0928.35132.6558Feb-1231.70160.2837Aug-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-09 <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td></td> <td></td> <td></td> <td></td>	· · · · · · · · · · · · · · · · · · ·					
Aug-0729.10112.3485Aug-1029.52135.6201Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.90154.2037Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78166.2837Aug-0928.35132.6558Feb-1231.30151.3243Jul-0928.35132.6558Feb-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-09 <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td>	-					
Sep-0728.50110.0351Sep-1029.50132.5350Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-09 <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td>	-					
Oct-0729.80115.0948Oct-1030.10141.0568Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631						
Nov-0730.70121.4728Nov-1030.54157.5920Mar-0833.50123.9761Dec-1031.20162.6351May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631						
May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1233.56162.7631	Nov-07	30.70				
May-0834.60122.8911Jan-1131.60150.8687Jul-0836.10124.6494Feb-1132.15150.7771Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1233.56162.7631	Mar-08	33.50	123.9761	Dec-10	31.20	162.6351
Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	May-08	34.60	122.8911	Jan-11	31.60	150.8687
Aug-0833.45128.4092Mar-1132.73157.4786Sep-0831.10116.4832Apr-1133.03157.3507Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Jul-08	36.10	124.6494	Feb-11	32.15	150.7771
Oct-0827.13127.6434May-1132.44150.4946Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631		33.45	128.4092	Mar-11	32.73	157.4786
Nov-0822.50125.0324Jun-1132.10148.1293Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Sep-08	31.10	116.4832	Apr-11	33.03	157.3507
Dec-0821.15128.8707Jul-1131.98155.4978Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Oct-08	27.13	127.6434	May-11	32.44	150.4946
Jan-0922.48112.1652Aug-1131.70154.2135Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Nov-08	22.50	125.0324	Jun-11	32.10	148.1293
Feb-0923.30129.4176Sep-1131.90154.8007Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Dec-08	21.15	128.8707	Jul-11	31.98	155.4978
Mar-0924.15125.1877Oct-1131.64156.8150Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Jan-09	22.48	112.1652	Aug-11	31.70	154.2135
Apr-0925.33124.7014Nov-1131.78158.7907May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Feb-09	23.30	129.4176	Sep-11	31.90	154.8007
May-0926.34121.7863Dec-1131.48166.4559Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Mar-09	24.15	125.1877	Oct-11	31.64	156.8150
Jun-0928.35121.8395Jan-1231.30151.3243Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Apr-09	25.33	124.7014	Nov-11	31.78	158.7907
Jul-0928.35132.6558Feb-1231.78166.2837Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	May-09	26.34	121.7863	Dec-11	31.48	166.4559
Aug-0929.28122.2445Mar-1232.40166.9721Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Jun-09	28.35	121.8395	Jan-12	31.30	151.3243
Sep-0929.08127.4332Apr-1235.10160.9292Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Jul-09	28.35	132.6558	Feb-12		166.2837
Oct-0929.44130.4073May-1234.10161.7133Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Aug-09	29.28	122.2445	Mar-12	32.40	166.9721
Nov-0930.80131.8288Jun-1232.98158.8700Dec-0930.30141.0195Jul-1233.56162.7631	Sep-09	29.08	127.4332	Apr-12	35.10	160.9292
Dec-09 30.30 141.0195 Jul-12 33.56 162.7631	Oct-09	29.44	130.4073	May-12	34.10	161.7133
	Nov-09	30.80	131.8288	Jun-12	32.98	158.8700
Aug-12 35.58 160.1655	Dec-09	30.30	141.0195	Jul-12	33.56	162.7631
				Aug-12	35.58	160.1655