ภาคผนวก

ภาคผนวก ก

การทดสอบ t - test ของค่าประมาณที่ได้มาจากวิธีกำลังสองน้อยที่สุด (t - test of the least square estimates)

การทดสอบโดยใช้ t - test เพื่อช่วยในการตัดสินใจว่าค่าที่เราประมาณค่าขึ้นมานั้นแตกต่างจากศูย์อย่างมีนัยสำคัญหรือไม่

โดยจะมี null hypothesis $H_0 : b = 0$

และ alternative hypothesis $H_1 : b \neq 0$

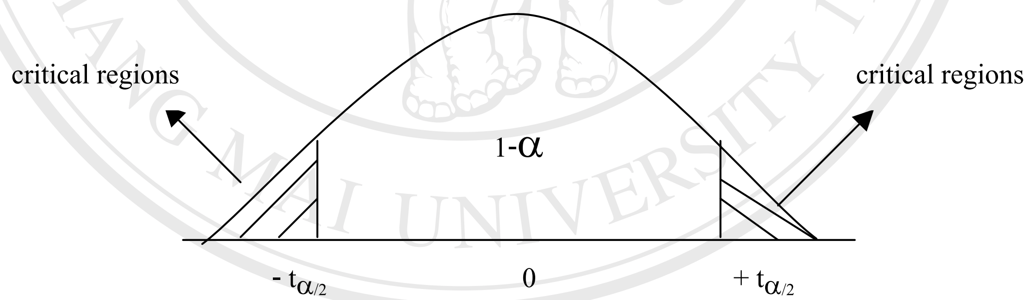
การทดสอบ H_0 ค่าทางสถิติที่จะนำมาใช้คือ

$$t = \frac{b - \hat{b}}{S_b}$$ มี n-k-1 เป็นจำนวนความเป็นอิสระ (degree of freedom)

โดยที่ k เป็นจำนวนตัวแปรอิสระ (independent variables) ในสมการ

และ $$S_b = \sqrt{\sigma_u^2 \frac{1}{\sum x_i^2}} = \sqrt{Var(b)}$$

การยอมรับ (acceptance) และอาณาเขตวิกฤติ (critical regions) สามารถอธิบายได้ดังรูป



ถ้าหากค่า t ตกอยู่ในช่วงอาณาเขตวิกฤติ จะปฏิเสธ (reject) H_0 และยอมรับ (accept) H_1 นั่นคือจะยอมรับว่า b มีนัยสำคัญทางสถิติ (statistically significant) โดยค่า t ที่คำนวณได้มีค่ามากกว่าค่า $t_{\alpha/2\,,\,n-k-1}$ ที่เปิดจากตาราง

ถ้าหากค่า t ตกอยู่ในช่วงอาณาเขตที่ยอมรับได้ (acceptance regions) คือ $-t_{\alpha/2} < t < +t_{\alpha/2}$ จะยอมรับ H_0 นั่นคือจะยอมรับว่า b ไม่มีนัยสำคัญทางสถิติ (non - statistically significant) ที่ระดับความเชื่อมั่น $\alpha/2$ เปอร์เซ็นต์ (level of significance) โดยค่า t ที่คำนวณได้มีค่าน้อยกว่าค่า $t_{\alpha/2\,,\,n-k-1}$ ที่เปิดจากตาราง

ภาคผนวก ข

การทดสอบความแปรปรวนของตัวแปรคลาดเคลื่อนที่ไม่คงที่ (Heteroscedasticity)

ในข้อเท็จจริงแล้วยังไม่มีข้อตกลงร่วมกันที่เป็นมาตรฐานสำหรับวิธีการทดสอบดังกล่าวนี้ว่าจะต้องใช้วิธีการใดวิธีการหนึ่งเท่านั้นเป็นมาตรฐาน (ไพฑูรย์ ไกรพรศักดิ์, 2546 : 6-5) ในที่นี้จะเสนอวิธีการ ดังต่อไปนี้

The White test

การทดสอบเพื่อวิเคราะห์ว่าสมการประมาณการนั้นมีปัญหา heteroscedasticity หรือไม่ด้วยวิธีของ White นั้นจะอาศัยการประมาณการสมการถดถอยที่มีค่ากำลังสองเป็นตัวแปรอิสระของสมการที่จะทำการทดสอบ ที่จัดให้เป็นฟังก์ชั่นของตัวแปรอธิบายต่างๆที่ใช้อยู่ทั้งหมด ประกอบกับเพิ่มชุดของตัวแปรอธิบายเหล่านั้นที่อยู่ในรูปกำลังสองและค่าปฏิสัมพันธ์ของตัวแปรอธิบายเหล่านั้นกล่าวคือ

1. คำนวณหาค่าตัวแปรคลาดเคลื่อนจากสมการประมาณการที่ได้จากสมการตัวแบบ
2. ใช้ค่าตัวแปรคลาดเคลื่อนประมาณการนั้น มาสร้างสมการทดสอบโดยให้ค่ากำลังสองของตัวแปรคลาดเคลื่อนประมาณการที่ได้นั้นเป็นตัวแปรอิสระและใช้ตัวแปรอธิบายทั้งหมดรวมถึงค่ากำลังสองและค่าของพจน์ที่เป็นค่าปฏิสัมพันธ์ของตัวแปรอธิบายเหล่านั้นมาเป็นตัวแปรอธิบายในสมการทดสอบดังกล่าว คือ

$$(e_i)^2 = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{1i}^2 + \beta_5 X_{2i}^2 + \beta_6 X_{3i}^2 + \beta_7 X_{1i} X_{2i} + \beta_8 X_{1i} X_{3i} + \beta_9 X_{2i} X_{3i} + \mu_I$$

ภายใต้ข้อสมมติฐาน null hypothesis การมีความแปรปรวนของตัวแปรคลาดเคลื่อนที่มีค่าคงที่ (homoscedasticity) แล้วตัวสถิติที่ใช้ในที่นี้สามารถคำนวณได้มีค่าเท่ากับ $n*R^2$ เมื่อค่า R^2 ในที่นี้เป็นค่าที่ยังไม่ได้มีการปรับอันเนื่องมาจากค่าองศาความเป็นอิสระ (unadjusted R^2) และคำนวณได้จากสมการ โดยมีองศาของความเป็นอิสระเท่ากับจำนวนสัมประสิทธิ์ของตัวแปรอธิบายทั้งหมด (สัมประสิทธิ์ที่เป็นความชัน) ยกตัวอย่างในกรณีสมการข้างต้นจะมีองศาความเป็นอิสระเท่ากับ 9

การแก้ปัญหา Heteroscedasticity โดยวิธีการกำลังสองถ่วงน้ำหนัก (Weighted least square)

วิธีการ WLS นี้ สามารถดำเนินการตามขั้นตอนดังนี้ หารสมการตัวแบบตลอดด้วยค่าของตัวแปร proportional factor (Z) ซึ่งเป็นตัวแปรอิสระที่ปรากฏว่ามีความสัมพันธ์ที่จะมีผลต่อการเกิดความแปรปรวนของตัวแปรคลาดเคลื่อนไม่คงที่นั้น จากนั้นประมาณการสมการที่หารตลอดด้วย Z นั้น ด้วยวิธีกำลังสองน้อยที่สุด (OLS) เมื่อได้ค่าสัมประสิทธิ์ของตัวแปรที่ถูกหารด้วยตัวแปร Z เหล่านั้นแล้ว ก็สามารถเทียบนำเอาสัมประสิทธิ์เหล่านี้ไปใช้เขียนสมการดังเดิมที่เราต้องการได้ เนื่องจากจากข้อเท็จจริงแล้วการหารด้วยตัวแปรใดๆ ก็ตามจะไม่ก่อให้เกิดการเปลี่ยนแปลงสัมประสิทธิ์ของสมการแต่อย่างใด

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon_i \quad (1.1)$$

ในที่นี้ สมมติให้ค่าความแปรปรวนของตัวแปรคลาดเคลื่อนมีค่าไม่คงที่ ดังแสดงในสมการที่ (1.2)

$$Var(\varepsilon_i) = \sigma^2 = \sigma^2 Z_i^2 \quad (1.2)$$

จากนั้น ทำการหารตลอดด้วยค่าตัวแปร Z

$$Y_i / Z_i = \beta_0 / Z_i + \beta_1 X_{1i} / Z_i + \beta_2 X_{2i} / Z_i + u_i \quad (1.3)$$

ด้วยวิธีการดังกล่าวข้างต้นนี้ เราสามารถจะทำการประมาณการสมการ (1.3) ได้ด้วยวิธีการกำลังสองน้อยที่สุด (OLS) แต่อย่างไรก็ตาม จะพบว่า สมการที่ (1.3) ที่ได้มาดังกล่าว ไม่มีตัวค่าคงที่รวมอยู่ในสมการด้วย ซึ่งโดยหลักการประมาณการด้วยวิธีการกำลังสองน้อยที่สุดนี้ หากไม่มีตัวคงที่รวมอยู่ในสมการด้วยแล้ว จะก่อให้เกิดปัญหาหรือผลเสียคือ อาจก่อให้เกิดการเอนเอียง (bias) หรือเกิดการคลาดเคลื่อนจากการวัด (measurement error) เกิดขึ้น

ในทางปฏิบัติ เรามักจะใส่เพิ่มตัวคงที่ในสมการที่จะประมาณการด้วยวิธี WLS เสมอ (ดังสมการที่ 1.4) จะเป็นการปลอดภัยกว่า และหากว่าตัวคงที่นั้นๆ ไม่มีอยู่จริงแล้ว ก็จะไม่ก่อให้เกิดปัญหาเอนเอียงหรือการวัดคลาดเคลื่อน แต่อย่างไรอีกด้วย

$$Y_i / Z_i = \alpha_0 + \beta_0 / Z_i + \beta_1 X_{1i} / Z_i + \beta_2 X_{2i} / Z_i + u_i \quad (1.4)$$

อย่างไรก็ตาม ยังมีปัญหาบางประการเกี่ยวกับการประมาณการด้วยวิธี WLS ดังนี้

1. ปัญหาว่าจะใช้ตัวแปรอะไรเป็น Z ในที่นี้ ซึ่งเป็นปัญหาที่ไม่ง่ายนักในการประมาณการแต่ละครั้ง
2. ปัญหาด้านรูปแบบของความสัมพันธ์ระหว่างความแปรปรวนของตัวแปรคลาดเคลื่อนกับตัวแปร Z ดังกล่าวว่าแท้จริงเป็นอย่างไร เป็นแบบยกกำลังสองตามสมการที่ (1.2) ข้างต้นหรือไม่

ภาคผนวก ค

การทดสอบอัตสหสัมพันธ์ข้ามเวลาของตัวแปรความคลาดเคลื่อน (Autocorrelation)

เมื่อข้อมูลเก็บรวบรวมตามเวลา ควรทำการศึกษาดูผลกระทบของเวลาว่าจะถูกรวมเข้าไปในความคลาดเคลื่อนหรือไม่ ซึ่งผลกระทบอาจจะมีมากขึ้น ลดลง หรือหมดไปก็ได้ การศึกษาความสัมพันธ์ระหว่างเวลาภายในข้อมูลชุดนั้นจะเรียกความสัมพันธ์นั้นว่า อัตสหสัมพันธ์ ความสัมพันธ์นี้เกิดขึ้นตามระดับต่างๆ ของตัวแปรตามในช่วงเวลาหนึ่งกับเวลาถัดไป ดังนั้นส่วนที่เหลือในช่วงเวลาหนึ่งจะสัมพันธ์กับส่วนที่เหลือในช่วงเวลาหนึ่งกับเวลาถัดไป ดังนั้นอัตสหสัมพันธ์จะเกิดขึ้นระหว่างคู่ของส่วนที่เหลือและคำนวณสัมประสิทธิ์ของส่วนที่เหลือคู่นั้นๆ อัตสหสัมพันธ์จะมีค่าเป็นได้ทั้ง “บวก” และ “ลบ”

จากสมการ $X_t = \rho X_{t-1} + e_t$ โดยที่ $-1 < \rho < 1$

กำหนดโครงสร้างของ X_t ให้เป็นฟังก์ชันของ e_t โดยอาศัยการแทนซ้ำเนื่องจากอิทธิพลของ X มีต่อกันและกัน โดยการย้อนกาลเวลาไปในอดีต 1 วาระ จะพบว่า

$$X_{t-1} = \rho X_{t-2} + e_{t-1}$$

$$r_{t,t-1} = \frac{\sum_{t=2}^{n} e_t e_{t-1}}{\sum_{t=2}^{n} e_{t-1}^2}$$

เมื่อ $r_{t,t-1}$ เป็นสหสัมพันธ์ของส่วนที่เหลือตามช่วงเวลา t และ $t-1$

การทดสอบสมมติฐาน

ดังได้กล่าวมาแล้วว่าอาจจะเกิดความสัมพันธ์ระหว่างส่วนที่เหลือ ดังนั้นเมื่อนำข้อมูลมาสร้างสมการถดถอยย่อมจะเกิดความสัมพันธ์ระหว่างส่วนที่เหลือรวมอยู่ด้วย ดังนั้นจึงจำเป็นต้องทดสอบดูความสัมพันธ์นั้นว่าจะกระทบข้อมูลตามช่วงเวลานั้นหรือไม่ การทดสอบวิธีดังกล่าวนี้จะใช้วิธีของเดอร์บิน-วัตสัน (Durbin-Watson) สถิติที่ใช้คือ “d” การทดสอบสมมติฐานจะทดสอบอัตสหสัมพันธ์ที่เป็นทั้ง “บวก” และ “ลบ”

ให้ $\rho_{t,t-1}$ เป็นสัมประสิทธิ์อัตสหสัมพันธ์ของประชากรที่ช่วงเวลา t และ t-1 ดังนั้นการทดสอบสมมติฐานเมื่อเป็นอัตสหสัมพันธ์เชิงบวก การตั้งสมมติฐานดังนี้ (Gujarati, 1995)

$H_0 : \rho_{t,t-1} = 0$ $\quad\quad$ $H_1 : \rho_{t,t-1} > 0$

สถิติที่ใช้ทดสอบคือ

$$d = \frac{\sum_{t=2}^{n}(e_t - e_{t-1})^2}{\sum_{t=1}^{n} e_t^2}$$

เมื่อเป็นอัตสหสัมพันธ์เชิงลบ การตั้งสมมติฐานจะเป็น

$$H_0 : \rho_{t,t-1} = 0 \qquad\qquad H_1 : \rho_{t,t-1} < 0$$

สถิติที่ใช้ทดสอบคือ

$$\bar{d} = 4 - d$$

การยอมรับหรือปฏิเสธสมมติฐานจะใช้ตารางเดอร์บิน-วัตสัน (Durbin-Watson table)

ภายใต้คำว่า “ρ” ดังกล่าวจะมีค่า d_L และ d_u ในตารางซึ่งค่านี้จะหมายถึงขอบเขตต่ำสุด (lower limit) และขอบเขตสูงสุด (upper limit) ตามลำดับ ดังนั้นถ้าตั้งสมมติฐานเป็น อัตสหสัมพันธ์เชิงบวก การสรุปผลจะพิจารณาดังนี้

1. ปฏิเสธ (reject) H_0 : ถ้า $d < d_L$
2. ยอมรับ (accept) H_0 : ถ้า $d > d_u$
3. ถ้า $d_L \le d \le d_u$ จะสรุปผลไม่ได้

และถ้าตั้งสมมติฐานเป็นอัตสหสัมพันธ์เชิงลบ การสรุปผลจะพิจารณาดังนี้

4. ปฏิเสธ (reject) H_0 : ถ้า $\bar{d} < d_L$
5. ยอมรับ (accept) H_0 : ถ้า $\bar{d} > d_u$
6. ถ้า $d_L \le \bar{d} \le d_u$ จะสรุปผลไม่ได้

การแก้ปัญหา Autocorrelation โดยวิธีการกำลังสองน้อยที่สุดแบบทั่วไป (Generalized least squares)

วิธีการ generalized least squares (GLS) เป็นวิธีการที่นิยมกันวิธีหนึ่งที่สามารถแก้ปัญหาผลเสียที่เกิดขึ้นจากการประมาณการสมการที่เกิดปัญหาสหสัมพันธ์ข้ามเวลาของตัวแปรความคลาดเคลื่อนได้ ซึ่งวิธีการนี้จะพยายามไปแก้ไข matrix variance - covariance matrix ของตัวความคลาดเคลื่อนในสมการนั้นให้กลายเป็น matrix ที่มีคุณสมบัติถูกต้องตามข้อสมมติฐานแบบดั่งเดิม (ไพฑูรย์ ไกรพรศักดิ์, 2546 : 8-13) ดังนี้

$$Y_t = \beta_0 + \beta_1 X_{1t} + \varepsilon_t \quad (2.1)$$

ในที่นี้สมมติให้เกิดปัญหาสหสัมพันธ์ข้ามเวลา

$$\varepsilon_t = \rho\varepsilon_{t-1} + u_t$$

ดังนั้นสมการที่ 2.1 สามารถจะเขียนได้ ดังสมการที่ 2.2 ดังนี้

$$Y_t = \beta_0 + \beta_1 X_{1t} + \rho\varepsilon_{t-1} + \mu_t \quad (2.2)$$

ในสมการที่ 2.2 ข้างต้นนั้นจะพบว่า ε เป็นตัวแปรความคลาดเคลื่อนที่เกิดปัญหาสหสัมพันธ์ข้ามเวลา และ μ เป็นตัวแปรความคลาดเคลื่อนที่ไม่มีปัญหาสหสัมพันธ์ข้ามเวลาแล้ว คูณสมการที่ 2.1 ข้างต้นด้วยค่า ρ (ค่าสัมประสิทธิ์สหสัมพันธ์ของตัวแปรความคลาดเคลื่อน) ตลอดทั้งสองข้าง จากนั้นทำการเลื่อนเวลา (lag) ถอยหลังไปหนึ่งช่วงเวลา จะได้สมการที่ 2.3

$$\rho Y_{t-1} = \rho\beta_0 + \rho\beta_1 X_{1t-1} + \rho\varepsilon_{t-1} \quad (2.3)$$

ดำเนินการโดยลบสมการที่ 2.2 ด้วยสมการที่ 2.3 ผลลัพธ์ที่ได้ แสดงดังสมการที่ 2.4

$$Y_t - \rho Y_{t-1} = \beta_0(1-\rho) + \beta_1(X_{1t} - \rho X_{1t-1}) + \mu_t \quad (2.4)$$

มีข้อสังเกตว่าตัวแปรความคลาดเคลื่อนในสมการที่ 2.4 นั้น ไม่มีปัญหาสหสัมพันธ์ข้ามเวลาอีกต่อไป สมการที่ 2.4 ข้างต้นนั้น เขียนใหม่ให้อยู่ในรูปอย่างง่ายที่สามารถจะนำไปใช้ในการประมาณการด้วยวิธีกำลังสองน้อยที่สุด (OLS) ได้ดี เนื่องจากในสมการนี้นั้น ไม่มีปัญหาสหสัมพันธ์ข้ามเวลาของตัวแปรความคลาดเคลื่อนแล้ว ดังนี้

$$Y_t^* = \beta_0^* + \beta_1 X^*_{1t} + \mu_t \quad (2.5)$$

สมการที่ 2.5 นี้ใช้เป็นสมการประมาณการด้วยวิธีการกำลังสองน้อยที่สุด (OLS) โดยที่สมการที่ 2.5 นี้ก็คือการประมาณการตามวิธีการ GLS นั่นเอง การใช้วิธีการประมาณการแบบกำลังสองน้อยที่สุด (OLS) สำหรับสมการที่ 2.5 นี้ไม่เกิดปัญหาสหสัมพันธ์ข้ามเวลาของตัวแปรความคลาดเคลื่อนแต่อย่างไร และจะให้ค่าประมาณการที่มีคุณสมบัติที่พึงประสงค์ทุกประการ

ภาคผนวก ง

ตารางที่ 1.1 อัตราผลตอบแทนของตลาดและอัตราผลตอบแทนของหลักทรัพย์กลุ่มพลังงาน วันที่ 2 กรกฎาคม 2540 ถึง วันที่ 31 ธันวาคม 2547 เป็นรายสัปดาห์

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
1	2/7/1997	24.2411	43.7830	135.2782	4.1543	31.9788	46.3148	0.1654
2	11/7/1997	-4.5088	-11.6049	92.7631	4.1543	-4.2789	46.3148	0.1654
3	18/7/1997	3.7834	-4.5122	63.0819	4.1543	11.3075	46.3015	0.1654
4	25/7/1997	-1.2575	2.0757	60.2135	4.1015	2.5933	45.3593	0.2183
5	1/8/1997	0.6262	4.2919	75.6118	4.1015	2.7082	45.3593	0.2183
6	8/8/1997	-2.5479	2.4665	85.0314	4.1015	3.5280	32.2727	0.2183
7	15/8/1997	-2.3538	1.3408	84.5318	4.1015	2.8644	52.2220	0.2183
8	22/8/1997	-10.4325	-2.4513	109.2428	4.1015	-6.4015	52.2220	0.2183
9	29/8/1997	-10.4686	-8.6389	142.5659	4.1015	-1.5286	52.2220	0.2183
10	5/9/1997	7.3798	1.8815	161.6081	4.1015	18.1556	52.2220	0.2183
11	12/9/1997	-1.3674	3.7742	139.8213	4.1015	-0.9349	52.2220	0.2183
12	19/9/1997	-2.2550	-0.0520	151.2518	4.1015	6.1567	52.2220	0.2183
13	26/9/1997	6.4089	2.5313	151.2518	3.9364	14.5674	52.2220	0.2183
14	3/10/1997	-1.9405	2.4478	151.2518	4.2665	6.7162	52.2220	0.2183
15	10/10/1997	-2.7385	1.2415	154.1270	4.2471	7.2817	52.2220	0.2183
16	17/10/1997	-1.8851	-6.1958	162.7167	4.0335	0.2699	52.2220	0.2183
17	24/10/1997	-6.2376	2.2384	150.2698	4.0917	-0.2017	52.2220	0.2183
18	31/10/1997	-9.6899	-22.4507	74.4136	4.6354	1.0098	52.2220	0.2183
19	7/11/1997	10.0297	23.8611	104.7737	4.0723	17.9484	52.2220	0.2183
20	14/11/1997	-7.5544	-4.5730	66.8451	4.1500	-0.9786	52.2220	0.2183
21	21/11/1997	-7.9404	-4.6764	77.6305	3.9947	10.2065	52.2220	0.2183
22	28/11/1997	-6.4139	-2.8661	106.2345	4.0335	0.7478	52.2148	0.2183
23	5/12/1997	-1.9197	-4.5008	127.5587	4.0845	-0.4933	52.2148	0.2255
24	12/12/1997	-5.4676	-12.2255	149.5725	4.0457	7.1784	52.2148	0.2255
25	19/12/1997	4.3512	15.4189	157.4075	3.9875	24.2938	52.2148	0.2255
26	26/12/1997	-7.5246	-7.8401	146.5600	4.0263	3.5306	52.2148	0.2255
27	2/1/1998	4.1315	12.0018	188.8047	4.1816	10.7332	52.2148	0.2255
28	9/1/1998	-6.4022	2.0245	203.2568	3.6962	-1.2724	52.2148	0.2255
29	16/1/1998	9.3092	27.3838	233.2569	3.2691	22.0079	52.2148	0.2255
30	23/1/1998	10.1816	44.5375	196.6911	3.0556	13.3632	51.4951	0.2255
31	30/1/1998	16.8934	24.3664	131.8266	2.8880	14.3753	51.4951	0.2183
32	6/2/1998	8.0102	49.1681	114.4328	3.7229	-1.4784	51.4951	0.2183
33	13/2/1998	-6.9368	-15.0204	62.9343	3.7229	-4.9050	51.4915	0.2183
34	20/2/1998	4.1504	2.1569	88.4938	7.8012	11.4252	51.4915	0.2219
35	27/2/1998	1.0410	6.0878	91.3333	1.0642	0.9227	51.4915	0.2219
36	6/3/1998	-4.0730	2.7900	76.7467	6.8151	2.7843	51.4915	0.2219
37	13/3/1998	0.9925	8.0128	149.4818	1.0168	4.5757	49.4147	0.2219
38	20/3/1998	-3.0396	-3.7910	141.3628	2.7383	-8.3905	49.4147	0.2219
39	27/3/1998	-6.2049	-7.6663	120.8025	0.3966	1.5196	49.4147	0.2219
40	3/4/1998	-5.9450	-7.3813	122.6091	-1.9115	-9.2497	49.4147	0.2219
41	10/4/1998	0.4938	-2.4799	137.0374	3.5266	5.8850	49.4147	0.2219
42	17/4/1998	-1.8223	6.7310	131.7649	4.4872	-3.0996	49.4147	0.2219

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
43	24/4/1998	-3.4566	3.6894	132.5126	-2.5384	-3.9256	40.5881	0.2219
44	1/5/1998	-3.2022	-8.6047	143.2327	-4.1051	-4.8373	17.4319	0.2219
45	8/5/1998	-6.4602	-0.0888	-5.2724	9.6787	-9.8993	22.6711	0.2219
46	15/5/1998	-4.6187	-9.9110	-4.4772	6.1335	0.6710	24.4934	0.2219
47	22/5/1998	-3.9059	-12.9523	-11.3331	-1.8774	-2.8767	20.1654	0.2219
48	29/5/1998	-8.7177	-3.0311	-3.9718	7.3786	-8.4037	28.9353	0.2219
49	5/6/1998	-2.5003	-21.2492	-1.5171	8.4778	3.7421	29.7362	0.2183
50	12/6/1998	-12.4102	-0.2183	-26.5340	7.2139	-4.0278	17.0938	0.2183
51	19/6/1998	1.5536	-1.8306	6.9246	5.0747	4.7322	30.0007	0.2183
52	26/6/1998	-7.0205	17.0266	-3.5517	15.3151	-4.9353	44.7113	0.2183
53	3/7/1998	3.0876	51.6896	-0.2183	32.4654	14.6332	79.9417	0.2183
54	10/7/1998	-0.0283	54.9116	-0.2183	-9.2716	2.3679	74.7817	0.2183
55	17/7/1998	7.4316	58.5210	27.3536	-0.3909	10.6917	68.3243	0.2327
56	24/7/1998	-6.9553	33.3807	-2.9389	11.9958	-7.0545	80.4194	0.2363
57	31/7/1998	-3.3937	19.6857	-5.7835	5.2703	-2.6669	53.6293	0.2279
58	7/8/1998	-7.4141	17.5103	-0.2231	5.2751	-4.3897	51.9251	0.2231
59	14/8/1998	-1.8043	25.4043	-0.2207	3.3920	-0.2207	37.5393	0.2207
60	21/8/1998	-2.1499	29.0404	-7.5736	3.5827	-4.5685	55.9309	0.2207
61	28/8/1998	-8.6150	20.2743	-9.7386	5.7512	-3.8510	56.0530	0.2147
62	4/9/1998	-5.4769	41.3984	-14.2390	4.7920	-3.9774	60.5702	0.2038
63	11/9/1998	2.4033	22.8136	5.9259	10.8541	3.7249	64.4272	0.1966
64	18/9/1998	4.1172	34.7719	-0.1846	3.4281	-0.1846	55.5609	0.1846
65	25/9/1998	12.0423	37.2961	7.5281	5.5631	13.9868	81.9383	0.1642
66	2/10/1998	0.8996	-26.7159	3.4143	-4.9295	-1.8099	41.4091	0.1570
67	9/10/1998	16.1211	10.5385	11.9157	12.9885	17.4937	75.4399	0.1534
68	16/10/1998	8.9817	10.3580	7.5389	11.8604	-0.8677	48.6026	0.1534
69	23/10/1998	0.5911	13.7367	2.7122	6.5325	-5.9005	51.6455	0.1451
70	30/10/1998	2.8873	-24.5146	10.9756	2.6195	3.6815	40.3502	0.1353
71	6/11/1998	13.5475	53.3035	7.3708	6.3335	3.5471	36.4625	0.1293
72	13/11/1998	-11.5463	10.1856	-16.4048	-4.3831	-12.1825	42.7169	0.1257
73	20/11/1998	11.3722	-1.7082	12.3791	7.8393	6.3307	54.1648	0.1209
74	27/11/1998	0.1910	9.0189	-5.0592	-1.2652	-3.9088	67.9767	0.1209
75	4/12/1998	-9.6205	-18.6711	-13.1032	13.4718	-0.1161	23.3492	0.1161
76	11/12/1998	6.6007	4.1202	2.8715	3.5350	10.1225	58.1112	0.1137
77	18/12/1998	-5.2150	-6.8835	-0.1137	3.6093	-5.8280	41.2767	0.1137
78	25/12/1998	4.0510	-0.1137	-3.0124	15.4406	-3.9016	38.6906	0.1137
79	1/1/1999	-0.2108	-0.1125	-1.6050	10.1170	-0.1125	48.1161	0.1125
80	8/1/1999	12.1468	9.6385	4.4330	19.1640	0.6749	50.9490	0.1125
81	15/1/1999	-4.5213	-5.7836	-1.5617	3.5935	-3.2375	37.9928	0.1125
82	22/1/1999	-1.5111	-1.9161	-0.1125	10.7139	-1.7254	42.9668	0.1125
83	29/1/1999	-3.6882	-1.1281	-1.5784	7.1849	-1.7470	44.5638	0.1077
84	5/2/1999	-7.0010	-4.4328	-3.0879	10.5236	-6.7696	27.8971	0.1029
85	12/2/1999	2.6992	-1.3960	-6.2567	15.6800	-2.7815	57.5019	0.1029
86	19/2/1999	-3.2203	-0.7495	-1.7338	13.8100	-1.9293	46.3158	0.0945
87	26/2/1999	1.2039	1.8836	-0.0945	12.3803	0.8401	56.2569	0.0945

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
88	5/3/1999	-1.4818	-2.0341	-1.7611	10.7073	-1.0204	53.8140	0.0945
89	12/3/1999	2.7561	-1.4120	-0.0933	11.4359	0.8413	47.5383	0.0933
90	19/3/1999	6.2401	3.9156	1.6016	20.7673	1.7586	59.2123	0.0933
91	26/3/1999	-0.3054	-2.0205	4.9068	13.6137	-2.8205	50.5108	0.0933
92	2/4/1999	-2.7669	-5.3334	-4.8552	11.5839	-0.0933	43.2401	0.0933
93	9/4/1999	4.0652	0.5980	-0.0933	13.1907	10.6170	62.1290	0.0933
94	16/4/1999	8.1310	5.3987	3.2400	18.8414	12.2752	67.9712	0.0933
95	23/4/1999	-0.4585	6.1974	4.7455	6.8846	-1.4642	62.7192	0.0933
96	30/4/1999	14.4379	6.6414	29.1374	16.7597	1.9237	70.5317	0.0933
97	7/5/1999	6.2200	24.1897	-0.0933	14.3521	7.0102	84.2546	0.0933
98	14/5/1999	-2.8474	-0.0933	-3.6646	44.3067	-1.3766	44.3895	0.0933
99	21/5/1999	0.8396	1.7529	4.8450	-1.7111	1.2927	49.2635	0.0933
100	28/5/1999	-5.4612	-12.1779	-2.4463	11.7270	1.4383	45.2782	0.0933
101	4/6/1999	4.9486	3.5150	23.4008	7.5427	3.3697	43.8148	0.0933
102	11/6/1999	6.3269	1.8968	19.4188	1.7521	1.6637	53.0832	0.0933
103	18/6/1999	2.2240	1.6953	-4.1749	2.2646	2.7721	44.0178	0.0933
104	25/6/1999	4.7332	8.5329	29.6940	11.1027	7.5930	44.8229	0.0933
105	2/7/1999	-2.0276	-6.2697	-8.2900	7.4767	6.3258	40.3537	0.0933
106	9/7/1999	-4.5464	4.6089	-0.0933	2.9838	5.2338	66.2225	0.0933
107	16/7/1999	-4.2280	-4.5843	-9.0219	5.6634	-0.1488	31.4754	0.0933
108	23/7/1999	-2.7094	-1.9741	-2.0540	8.2398	1.4601	36.2897	0.0933
109	30/7/1999	-4.0703	-6.1636	-4.0933	7.2679	1.7158	44.4522	0.0933
110	6/8/1999	-4.4199	-7.5751	-8.4255	4.3399	2.4704	34.6218	0.0921
111	13/8/1999	-3.1249	-10.5688	-4.6363	5.2080	4.2747	47.5715	0.0909
112	20/8/1999	3.8569	6.6853	11.8139	14.0045	2.4009	62.7663	0.0909
113	27/8/1999	3.7751	15.8707	2.0368	9.8369	9.6591	47.3317	0.0909
114	3/9/1999	-5.8640	-9.8741	-12.5897	8.3675	2.9653	46.9233	0.0897
115	10/9/1999	-0.1384	5.7927	7.0532	13.3288	8.0694	58.4035	0.0897
116	17/9/1999	1.5933	0.4317	-2.3115	11.1994	6.7712	51.8309	0.0892
117	24/9/1999	-12.9022	-9.7591	-14.6326	8.3561	-2.0873	45.8200	0.0873
118	1/10/1999	6.5171	2.7832	11.6172	10.5416	9.1590	75.3896	0.0849
119	8/10/1999	-3.5743	6.4207	-4.8467	15.0638	5.5439	57.6651	0.0849
120	15/10/1999	-2.0237	10.2118	-0.0849	12.1449	4.1103	44.3337	0.0849
121	22/10/1999	-2.2229	-3.7241	-0.0849	8.7553	3.9911	43.0116	0.0849
122	29/10/1999	4.7935	2.7090	2.4176	12.9721	7.0169	52.6688	0.0825
123	5/11/1999	5.7144	15.8305	-3.4947	18.6343	11.6497	55.6517	0.0800
124	12/11/1999	3.1579	22.2589	11.0310	17.1523	10.5252	42.4342	0.0800
125	19/11/1999	-4.8183	19.4413	-6.8981	16.0034	3.0941	26.1921	0.0800
126	26/11/1999	0.1046	23.9200	-2.5191	13.1552	2.6871	62.6267	0.0800
127	3/12/1999	0.4341	26.7001	2.4224	17.1547	9.1075	56.0988	0.0776
128	10/12/1999	1.2133	23.2868	-2.5167	15.3372	14.9527	57.8011	0.0776
129	17/12/1999	4.5797	33.2824	-2.0777	0.2488	4.3019	56.4849	0.0776
130	24/12/1999	4.9233	34.1576	1.9632	29.9193	19.4814	60.2557	0.0776
131	31/12/1999	4.3946	29.9037	2.4224	18.2636	12.7107	76.1736	0.0776
132	7/1/2000	-6.0107	21.1623	-4.4644	12.1208	1.4402	38.3863	0.0740

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
133	14/1/2000	4.5718	31.3769	-0.0740	21.9129	15.5133	54.7349	0.0740
134	21/1/2000	0.8851	49.2463	9.6200	38.6414	25.7413	65.9478	0.0740
135	28/1/2000	-0.3786	11.2462	-4.7228	19.0489	5.3417	42.4062	0.0716
136	4/2/2000	-1.5608	18.5835	-3.4863	18.6179	2.2895	55.2682	0.0716
137	11/2/2000	-3.0950	23.4098	-3.1020	28.7254	6.2920	54.8303	0.0716
138	18/2/2000	-10.5448	21.8499	-11.5299	21.7289	2.1864	39.9284	0.0716
139	25/2/2000	-0.4855	35.7465	-4.7775	31.8767	11.3358	75.5381	0.0716
140	3/3/2000	-5.8578	51.2195	-17.3557	31.5776	18.6484	60.3935	0.0716
141	10/3/2000	4.9580	50.0043	5.8985	31.1666	26.8263	78.6784	0.0716
142	17/3/2000	-0.7327	55.1491	11.1960	17.9560	25.4903	70.5166	0.0716
143	24/3/2000	1.0341	58.8651	-0.0716	25.8542	26.9108	89.1250	0.0716
144	31/3/2000	-1.0205	38.1073	-6.3995	21.6043	10.1001	68.5894	0.0704
145	7/4/2000	0.7114	38.6568	2.6322	25.7045	20.7232	66.8046	0.0704
146	14/4/2000	2.6561	53.8819	14.4033	24.0175	26.8587	63.6409	0.0704
147	21/4/2000	-4.7489	35.3462	-2.3692	16.8782	12.5672	56.7296	0.0704
148	28/4/2000	-1.2500	33.2492	-0.0704	18.2859	19.1967	56.8683	0.0704
149	5/5/2000	-2.7420	33.3046	-2.4235	24.9773	14.6265	62.8769	0.0704
150	12/5/2000	-9.0975	28.6955	-8.5042	17.9573	12.0883	55.9712	0.0704
151	19/5/2000	-0.7271	45.1003	-2.7019	28.1232	24.9915	56.8526	0.0704
152	26/5/2000	-8.8998	45.8270	-12.2326	16.8843	21.7349	66.3581	0.0704
153	2/6/2000	8.2980	82.0883	4.5450	24.3729	31.4851	74.9913	0.0704
154	9/6/2000	0.5397	74.9146	4.3412	26.1682	29.9647	75.5922	0.0704
155	16/6/2000	0.8494	58.9566	-1.4788	24.4486	23.3722	66.3663	0.0704
156	23/6/2000	-3.3158	53.3162	-4.3562	20.0409	13.5936	70.6272	0.0704
157	30/6/2000	-2.3566	73.6354	1.4223	20.7232	26.5611	69.0205	0.0704
158	7/7/2000	-0.9363	53.1401	-0.0704	19.6635	25.9467	60.8185	0.0704
159	14/7/2000	-2.3271	60.6530	-4.4811	23.9633	21.7820	72.9540	0.0692
160	21/7/2000	-3.2126	64.2736	-4.6847	21.8835	28.3936	69.7085	0.0692
161	28/7/2000	-4.6691	68.6955	-6.5209	10.8543	18.5873	57.1648	0.0692
162	4/8/2000	6.7278	73.1845	3.3792	16.9902	19.8392	67.1218	0.0692
163	11/8/2000	1.5941	63.4237	-1.7358	18.3045	18.0360	65.2641	0.0692
164	18/8/2000	0.7583	65.6772	-0.0692	20.0440	22.3669	72.8197	0.0692
165	25/8/2000	-3.9474	56.2508	-3.4592	16.2317	14.4736	72.2035	0.0692
166	1/9/2000	1.1985	61.4443	1.6851	21.8029	15.1716	82.7879	0.0692
167	8/9/2000	-4.4653	49.4498	-10.4140	21.0976	13.5129	76.2098	0.0692
168	15/9/2000	-1.3347	55.3554	-5.8349	19.7162	19.1470	81.6010	0.0656
169	22/9/2000	-6.5970	22.0935	-6.1867	17.9955	18.1895	62.2885	0.0644
170	29/9/2000	1.0846	32.5641	4.2833	19.0133	20.4559	68.2283	0.0644
171	6/10/2000	-3.5301	31.6499	-4.2310	19.0133	16.3946	82.8624	0.0644
172	13/10/2000	-5.0779	30.7182	2.1094	19.7174	24.5672	73.3398	0.0644
173	20/10/2000	8.7219	38.6022	-0.0644	20.0897	29.2689	62.1786	0.0644
174	27/10/2000	-0.8815	35.5238	-0.0644	16.0113	23.7372	61.8224	0.0644
175	3/11/2000	4.8565	36.5153	-0.0644	20.4215	21.3872	67.8202	0.0644
176	10/11/2000	1.8081	32.7689	2.0632	15.6108	20.4156	73.3935	0.0644
177	17/11/2000	0.4403	30.0977	-2.1477	18.9933	19.7756	58.0712	0.0644

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
178	24/11/2000	-3.2167	24.6289	-0.0644	19.3242	18.8388	67.6667	0.0644
179	1/12/2000	-4.1146	30.6961	-8.5751	20.3901	19.2414	54.1780	0.0644
180	8/12/2000	-0.1265	31.6499	-0.0644	20.3901	23.9698	41.5532	0.0644
181	15/12/2000	-0.2544	32.5733	-0.0644	20.3901	24.2407	50.0156	0.0644
182	22/12/2000	-2.2901	33.5826	-4.7158	22.5369	20.8689	56.2689	0.0644
183	29/12/2000	0.7218	36.5326	2.3749	21.4692	24.2407	56.2689	0.0644
184	5/1/2001	6.4626	37.4650	-0.0644	13.6120	22.1689	68.7689	0.0644
185	12/1/2001	8.4758	33.6257	4.6973	20.7808	25.4356	42.6022	0.0644
186	19/1/2001	1.7380	29.9630	4.4812	22.2111	22.9756	54.8156	0.0644
187	26/1/2001	4.7547	30.9493	12.9789	17.9192	16.0596	53.5864	0.0644
188	2/2/2001	0.5287	29.1788	-3.9105	19.7352	20.0969	62.1578	0.0644
189	9/2/2001	-2.8720	26.3140	-4.0646	21.9538	21.7242	62.3549	0.0644
190	16/2/2001	-2.7498	45.0623	-4.2310	21.1975	22.0324	66.3819	0.0644
191	23/2/2001	2.5432	29.2213	2.1094	23.0941	22.6340	82.0843	0.0644
192	2/3/2001	-5.6745	76.7268	-4.3199	19.0561	20.7663	48.7927	0.0644
193	9/3/2001	0.2460	123.7689	2.1580	20.7607	18.6423	57.2793	0.0644
194	16/3/2001	-4.6247	126.5271	-4.4124	24.0977	17.1595	65.5554	0.0644
195	23/3/2001	-1.0030	123.7689	-0.0644	23.7189	17.4093	82.6022	0.0644
196	30/3/2001	0.5178	126.9215	-0.0644	39.2578	17.0568	57.9356	0.0644
197	6/4/2001	-3.4624	126.5271	-2.3371	16.6955	12.7663	54.3018	0.0644
198	13/4/2001	3.2190	123.1022	4.5866	21.0801	26.1022	57.2213	0.0644
199	20/4/2001	0.3819	120.3191	-6.7309	31.1139	18.8245	55.3966	0.0644
200	27/4/2001	1.5181	122.6022	4.6973	37.1356	20.0969	56.5070	0.0644
201	4/5/2001	3.0546	113.2689	-0.0644	19.3842	21.0738	58.0784	0.0644
202	11/5/2001	1.3875	97.4664	68.1175	31.9982	19.1876	56.2476	0.0644
203	18/5/2001	-3.3738	98.8492	-13.5779	23.8056	22.8022	65.9452	0.0644
204	25/5/2001	3.4278	81.4119	-3.1799	22.0556	23.7468	54.1557	0.0548
205	1/6/2001	0.2506	65.6187	1.5583	16.2859	23.9775	62.5426	0.0548
206	8/6/2001	0.0189	73.3768	1.5324	26.5414	20.4413	46.6511	0.0548
207	15/6/2001	3.6853	62.6511	32.7577	20.2374	23.6398	54.0280	0.0548
208	22/6/2001	-1.6908	58.3833	-5.9373	22.4686	18.9092	42.3896	0.0548
209	29/6/2001	1.1627	57.3037	9.9452	25.6920	14.4067	52.4452	0.0548
210	6/7/2001	0.6676	56.2443	-3.4638	20.2177	16.6260	42.7111	0.0548
211	13/7/2001	-3.3083	52.8341	-8.2902	15.5747	21.8043	38.4558	0.0548
212	20/7/2001	-0.7039	59.9064	5.0734	17.7212	11.5505	45.7230	0.0548
213	27/7/2001	-3.6350	-2.0156	-8.5915	24.3035	11.1074	44.1210	0.0548
214	3/8/2001	4.8806	-0.0548	1.2785	24.8640	15.8043	40.8243	0.0548
215	10/8/2001	-0.0801	3.9452	2.5769	16.9938	18.7903	41.6497	0.0548
216	17/8/2001	2.2816	3.7913	2.5092	19.3482	14.7479	48.7026	0.0548
217	24/8/2001	2.7047	4.5748	2.4453	17.6091	14.7479	51.2902	0.0548
218	31/8/2001	0.9688	-2.7097	-3.7134	21.8265	14.7479	56.4512	0.0548
219	7/9/2001	1.9567	1.7634	2.4769	9.7830	22.1493	55.5141	0.0548
220	14/9/2001	-15.8938	-15.2334	-28.4500	24.6088	13.9860	34.5560	0.0548
221	21/9/2001	-4.7407	-2.1601	-8.6755	28.9176	25.7467	76.3088	0.0548
222	28/9/2001	0.8338	74.5258	1.8319	18.9886	33.6775	86.9452	0.0548

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
223	5/10/2001	1.3313	70.5557	3.6490	23.3860	29.4377	56.6316	0.0548
224	12/10/2001	1.4013	73.0090	5.3024	21.6913	27.5135	57.3871	0.0548
225	19/10/2001	-0.1425	69.6952	-1.7499	21.2926	20.9730	50.9564	0.0548
226	26/10/2001	-1.5018	67.9452	-6.9514	18.2866	23.8880	52.6725	0.0548
227	2/11/2001	-2.3285	67.6565	-3.7584	17.1868	21.0675	49.8316	0.0548
228	9/11/2001	-2.2829	68.3619	-7.7471	19.5367	26.9452	50.1206	0.0548
229	16/11/2001	2.7165	74.7937	3.6952	26.5319	28.4643	63.8476	0.0548
230	23/11/2001	7.6501	77.5974	10.3871	24.2096	31.3997	53.8088	0.0548
231	30/11/2001	1.9164	67.3842	19.0360	21.5512	26.4200	53.2048	0.0548
232	7/12/2001	0.4213	60.7331	-8.4481	21.5548	24.2868	58.7266	0.0512
233	14/12/2001	-3.3566	62.9888	-9.2178	20.6373	21.2915	51.6586	0.0512
234	21/12/2001	0.8638	67.8089	0.8662	24.7447	25.8769	62.3488	0.0512
235	28/12/2001	2.3621	67.9816	6.3122	16.2895	24.6296	18.3971	0.0512
236	4/1/2002	3.8586	65.4688	2.5131	26.9999	27.5544	53.6851	0.0512
237	11/1/2002	2.1089	58.7180	-3.3847	23.6864	19.4924	49.0397	0.0512
238	18/1/2002	-1.6107	59.5216	-3.4994	27.5193	24.3902	47.1531	0.0512
239	25/1/2002	6.7106	64.2656	2.6273	26.0565	21.8677	52.8770	0.0512
240	1/2/2002	-0.7415	62.4631	-5.2684	33.6037	22.9218	47.1227	0.0512
241	8/2/2002	4.9807	54.7314	1.7836	24.2505	22.3221	55.4544	0.0512
242	15/2/2002	5.4439	47.1675	8.0569	20.0278	26.5541	49.8401	0.0512
243	22/2/2002	-5.8650	26.1746	-10.0477	21.6225	14.0383	46.2912	0.0476
244	1/3/2002	8.3009	45.8927	5.5080	24.6720	22.5330	58.6953	0.0476
245	8/3/2002	2.5795	41.4849	-2.6791	17.7965	23.8524	58.2227	0.0476
246	15/3/2002	-3.4419	15.9961	-9.9574	24.1944	15.5759	49.3524	0.0476
247	22/3/2002	3.1109	18.8160	2.9523	24.1944	18.4524	45.0009	0.0476
248	29/3/2002	-3.9930	18.4408	-37.9118	24.1944	9.7068	31.4087	0.0476
249	5/4/2002	-1.1066	18.4736	9.3275	25.1035	9.8801	54.8962	0.0476
250	12/4/2002	2.5579	33.7706	-3.4763	23.7696	15.6274	53.3950	0.0476
251	19/4/2002	1.7647	19.0000	3.5028	22.8687	12.9831	49.3141	0.0476
252	26/4/2002	-2.6530	23.1024	-19.4761	24.1944	14.7425	46.6545	0.0476
253	3/5/2002	-0.6825	27.2088	-0.0476	25.1035	12.2939	52.3021	0.0476
254	10/5/2002	2.1019	23.7246	-2.1751	25.5714	13.1376	48.2320	0.0476
255	17/5/2002	-1.0578	25.0693	26.0393	27.3268	15.4555	46.8376	0.0476
256	24/5/2002	3.6168	30.8057	-7.5189	20.9977	14.9280	54.9524	0.0476
257	31/5/2002	3.9999	34.9201	2.4370	23.5401	16.5273	50.3968	0.0476
258	7/6/2002	2.2492	23.4175	2.9826	21.6366	7.3087	52.0872	0.0476
259	14/6/2002	1.1769	21.9751	7.5995	20.1357	15.8069	55.4580	0.0476
260	21/6/2002	-6.4343	14.6563	-6.0586	16.5993	9.8348	42.2350	0.0476
261	28/6/2002	-1.6558	19.7129	1.6965	21.6366	12.6554	51.3134	0.0476
262	5/7/2002	3.0364	27.3274	6.8094	18.5097	13.8548	55.6579	0.0476
263	12/7/2002	-0.1573	23.9282	7.4393	19.6692	10.5463	54.4866	0.0476
264	19/7/2002	-1.6425	21.3500	10.4000	14.7512	13.4774	59.4396	0.0476
265	26/7/2002	-7.0986	15.0141	-9.7435	21.7555	5.7134	59.4396	0.0476
266	2/8/2002	1.0412	31.6687	-3.3809	24.3418	18.1342	60.7216	0.0476
267	9/8/2002	-0.9627	32.6095	6.8490	23.1878	20.2024	59.3195	0.0476

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
268	16/8/2002	1.5761	38.6095	3.1782	18.0299	15.6034	58.9461	0.0476
269	23/8/2002	-1.6614	25.7682	-0.0476	20.3033	17.5200	57.9524	0.0476
270	30/8/2002	-1.6416	29.1686	-3.1726	20.3015	17.1791	56.7024	0.0476
271	6/9/2002	-2.1547	28.6821	-3.2734	21.1399	13.0799	57.4208	0.0476
272	13/9/2002	0.9706	25.3674	3.2857	19.9835	22.6381	60.0806	0.0476
273	20/9/2002	-1.6240	29.8365	-0.0476	19.1542	19.8135	57.7868	0.0476
274	27/9/2002	-3.6889	37.3370	-3.2734	21.9723	17.8559	57.8879	0.0476
275	4/10/2002	0.6019	37.9369	9.9524	18.0280	18.9454	66.2682	0.0476
276	11/10/2002	-3.1304	36.7024	-0.0476	21.4873	20.3468	56.7024	0.0476
277	18/10/2002	3.5994	42.7166	-3.0779	20.8581	20.0643	56.7951	0.0476
278	25/10/2002	1.7116	32.5080	-0.0404	19.5858	19.8207	64.9919	0.0404
279	1/11/2002	2.6104	27.9334	-3.1606	19.5906	18.4196	50.1485	0.0356
280	8/11/2002	-0.7848	25.8413	-0.0356	18.6560	19.2422	62.3328	0.0356
281	15/11/2002	0.3137	28.9332	-3.2614	21.8135	21.5200	60.8735	0.0356
282	22/11/2002	1.7469	28.0875	-0.0356	20.9274	19.8833	57.8999	0.0356
283	29/11/2002	0.6015	25.5705	3.2978	20.2553	16.9710	62.9907	0.0356
284	6/12/2002	0.0165	25.9797	-0.0356	18.7144	18.2844	59.8354	0.0356
285	13/12/2002	-2.4706	27.5029	-3.2614	17.5219	15.8850	58.5451	0.0356
286	20/12/2002	-1.7734	25.9797	3.2978	17.5219	18.2347	57.3500	0.0356
287	27/12/2002	1.8129	28.0875	-3.2614	20.4600	18.7752	62.6671	0.0356
288	3/1/2003	0.1748	25.0250	-0.0356	19.2627	19.0785	62.6671	0.0356
289	10/1/2003	0.8434	32.1183	3.2978	17.5083	15.8850	65.3698	0.0356
290	17/1/2003	1.8486	22.4680	-0.0356	20.9287	19.3428	61.6749	0.0356
291	24/1/2003	2.4538	24.2564	-3.2614	19.7166	17.7511	57.3500	0.0356
292	31/1/2003	-1.7071	24.8111	3.2978	20.4600	16.0978	60.6401	0.0356
293	7/2/2003	2.3806	30.1094	3.1902	13.9995	19.5835	66.0334	0.0356
294	14/2/2003	-2.7378	21.0382	-0.0356	23.3348	25.8168	62.6671	0.0356
295	21/2/2003	-2.5253	19.6978	-0.0356	20.7281	15.5472	61.3158	0.0356
296	28/2/2003	0.4623	22.1121	-0.0356	23.4553	11.7449	65.5809	0.0356
297	7/3/2003	-0.8204	18.6498	-6.2844	18.6913	14.3960	60.9076	0.0344
298	14/3/2003	-0.0989	19.7014	-0.0320	21.8252	15.0132	66.4986	0.0320
299	21/3/2003	1.4698	20.1828	-0.0320	19.2663	15.6522	55.0996	0.0320
300	28/3/2003	1.5934	23.4238	3.3014	18.3891	20.7466	66.2617	0.0320
301	4/4/2003	0.6175	19.3814	-0.0320	21.3486	15.7602	62.5887	0.0320
302	11/4/2003	3.0412	23.4238	6.4196	25.0115	20.5733	66.9610	0.0320
303	18/4/2003	0.2654	25.7547	2.9983	15.1811	17.0566	65.5845	0.0320
304	25/4/2003	-4.1854	13.6032	-2.9731	17.3680	15.5930	62.2499	0.0320
305	2/5/2003	1.7888	26.0620	2.9983	17.3680	23.6180	63.1895	0.0320
306	9/5/2003	2.3878	18.3731	5.8504	16.5347	15.5337	62.2021	0.0320
307	16/5/2003	-0.3754	19.1273	8.3014	20.2705	11.8347	62.9310	0.0320
308	23/5/2003	3.2370	18.5922	5.0962	18.4598	18.3814	59.8639	0.0320
309	30/5/2003	2.0665	25.1475	2.4071	18.7422	13.7481	60.1775	0.0320
310	6/6/2003	3.5315	17.3812	-0.0320	21.0074	13.4706	66.8101	0.0320
311	13/6/2003	2.3066	17.6871	-0.0272	13.9430	7.8160	58.1842	0.0272
312	20/6/2003	5.7479	18.2847	23.7884	13.9490	25.5188	63.3452	0.0212

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
313	27/6/2003	1.0503	18.5076	9.5942	19.1729	1.7737	52.3153	0.0212
314	4/7/2003	8.3330	19.8257	19.2795	11.9529	12.4358	59.0301	0.0188
315	11/7/2003	-2.3031	9.7416	-4.4293	14.9825	6.7477	49.5237	0.0175
316	18/7/2003	1.7682	20.5477	-0.0175	12.2622	9.2982	54.2682	0.0175
317	25/7/2003	-1.6766	7.1744	-4.6329	15.0594	4.2238	56.2325	0.0175
318	1/8/2003	1.3602	17.2017	-24.2111	14.3770	9.6075	54.0494	0.0175
319	8/8/2003	2.3546	21.0286	8.4931	12.3268	9.2982	57.7494	0.0175
320	15/8/2003	3.1303	16.2068	1.9432	14.6491	15.4480	53.5710	0.0175
321	22/8/2003	3.0208	4.2982	1.9055	17.4919	2.5698	42.1776	0.0175
322	29/8/2003	0.5247	11.4269	-1.9043	4.4737	6.0486	46.6008	0.0175
323	5/9/2003	3.7205	8.4149	1.9055	11.7629	5.3825	36.7404	0.0175
324	12/9/2003	1.8756	15.8924	15.0768	9.5063	6.3723	87.1918	0.0175
325	19/9/2003	-0.2216	10.2991	-8.2143	8.7635	6.4953	14.0283	0.0175
326	26/9/2003	2.3907	6.7405	3.5539	8.1718	7.4135	66.3825	0.0175
327	3/10/2003	-3.8962	5.2405	-8.6382	8.8634	2.6549	41.9825	0.0175
328	10/10/2003	4.2469	21.6054	1.8692	17.2444	12.4370	36.5954	0.0175
329	17/10/2003	1.0916	18.0688	1.8355	3.7419	4.3315	57.2194	0.0163
330	24/10/2003	3.4920	13.0712	-3.6527	13.9265	17.2810	45.8340	0.0163
331	31/10/2003	4.9406	2.2808	28.2855	3.5512	8.2296	25.8170	0.0163
332	7/11/2003	4.9176	15.2206	42.6307	10.1634	14.0643	27.4988	0.0163
333	14/11/2003	-2.0462	-4.7483	12.3548	7.5880	18.3269	18.5202	0.0163
334	21/11/2003	-6.7020	-2.6979	-11.0255	7.5880	-2.5821	23.9026	0.0163
335	28/11/2003	5.2980	12.8765	8.2311	8.1375	5.6858	39.6917	0.0163
336	5/12/2003	2.0362	12.5597	-1.9211	4.7487	9.6456	41.6388	0.0163
337	12/12/2003	2.2831	11.2312	-6.8125	6.7926	7.7018	28.5371	0.0163
338	19/12/2003	5.1286	5.6927	32.2753	12.0518	3.5811	24.2875	0.0163
339	26/12/2003	3.6133	3.7030	-0.8037	13.2643	4.2582	18.2503	0.0163
340	2/1/2004	5.0538	12.0785	-0.2533	5.9694	21.2647	42.2737	0.0163
341	9/1/2004	1.4458	16.9837	14.5408	6.7561	-4.9830	30.9837	0.0163
342	16/1/2004	-0.6546	-10.1650	-6.2663	12.7965	0.1534	36.7720	0.0163
343	23/1/2004	-3.0994	5.2585	-12.6089	0.1265	12.4239	30.0546	0.0163
344	30/1/2004	-7.3781	-3.6781	13.5430	6.2474	-7.2418	25.0931	0.0163
345	6/2/2004	1.7364	4.5961	2.9687	7.1072	5.4512	38.7037	0.0163
346	13/2/2004	6.1750	15.5551	0.7083	9.1265	8.4067	43.6057	0.0163
347	20/2/2004	-3.5307	-2.1413	-2.1746	9.1265	2.5726	31.1601	0.0163
348	27/2/2004	-1.7099	-1.4993	-3.6928	9.1265	-2.1157	36.8018	0.0163
349	5/3/2004	-2.2096	-7.7087	-6.1232	9.6979	-1.9369	35.3325	0.0163
350	12/3/2004	-0.8028	3.0375	0.7967	8.4155	6.3666	43.5609	0.0163
351	19/3/2004	-2.0032	0.7261	-9.6938	6.8408	5.5361	37.2637	0.0163
352	26/3/2004	-2.3678	0.0753	-10.7306	11.8667	-3.1830	25.1503	0.0163
353	2/4/2004	4.1731	8.5305	13.9837	5.6979	7.5837	32.2250	0.0163
354	9/4/2004	-0.2659	-0.7296	7.0012	10.9186	0.9340	27.1503	0.0163
355	16/4/2004	2.9935	1.5367	7.3607	8.4515	9.4619	31.0761	0.0163
356	23/4/2004	-4.2736	2.3119	-7.6499	12.5990	-2.5197	26.1625	0.0163
357	30/4/2004	-4.9630	-2.8942	-4.1486	6.0066	0.3002	27.9175	0.0163

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
358	7/5/2004	-1.7675	-0.5567	7.7423	8.3646	3.2725	27.3607	0.0163
359	14/5/2004	-4.2689	-4.5163	-4.0163	15.4535	3.2725	28.4134	0.0163
360	21/5/2004	0.9169	-3.7281	-0.8497	8.4637	7.5837	28.0509	0.0163
361	28/5/2004	3.7503	22.5565	5.0257	5.1860	3.3595	43.1769	0.0163
362	4/6/2004	-1.9143	-2.9025	-3.2163	10.9234	8.4362	23.9837	0.0163
363	11/6/2004	-2.1457	-0.3870	-2.4957	10.0075	2.0979	29.2830	0.0163
364	18/6/2004	1.5461	9.2337	-0.8638	7.5313	8.7598	19.3207	0.0163
365	25/6/2004	3.4026	6.8996	-0.0163	10.7641	6.3778	8.0449	0.0163
366	2/7/2004	0.5380	8.0885	2.5478	9.7049	5.6917	36.5462	0.0163
367	9/7/2004	2.9208	8.2890	37.4837	9.0812	14.0719	23.5948	0.0163
368	16/7/2004	-3.0887	4.8757	-6.6830	9.8849	0.4190	14.6683	0.0163
369	23/7/2004	0.3489	1.9417	-2.6137	6.3687	5.5232	27.2652	0.0163
370	30/7/2004	-1.8314	-0.1142	-2.6830	8.6850	11.7373	15.3540	0.0163
371	6/8/2004	-4.0622	-2.1663	-2.7561	12.7837	1.7508	17.2701	0.0163
372	13/8/2004	-3.6288	3.6702	-1.4248	11.6393	5.4408	33.8820	0.0163
373	20/8/2004	1.6275	3.5866	0.6979	11.6370	5.5232	32.0716	0.0163
374	27/8/2004	3.5874	5.3097	1.4021	11.7957	9.0126	42.0157	0.0163
375	3/9/2004	1.4285	4.4062	1.3823	13.3080	1.9696	27.0029	0.0163
376	10/9/2004	1.8149	0.8940	-0.0163	11.2857	5.7778	26.8769	0.0163
377	17/9/2004	4.3748	9.1445	2.0526	12.0381	8.6503	30.0827	0.0163
378	24/9/2004	-2.1293	9.0686	0.6593	6.1754	5.6068	26.0621	0.0163
379	1/10/2004	0.9965	1.1483	10.0508	16.1013	4.3340	31.2081	0.0163
380	8/10/2004	2.2401	6.5972	9.1300	9.1895	5.2822	31.9224	0.0163
381	15/10/2004	-4.1086	-5.8585	-12.8655	25.9997	1.2564	25.2362	0.0163
382	22/10/2004	1.6136	4.9900	4.4708	13.8643	9.2740	39.7639	0.0163
383	29/10/2004	-4.7034	-8.4519	-12.8998	15.6372	11.9678	28.1087	0.0163
384	5/11/2004	1.0869	4.8946	2.8006	20.4715	6.1655	38.5311	0.0163
385	12/11/2004	0.7158	2.7503	-2.0711	18.6828	8.3959	36.2474	0.0163
386	19/11/2004	1.8094	4.0101	-2.1142	26.6503	9.5776	37.6760	0.0163
387	26/11/2004	-0.4262	-1.1917	-0.7306	19.5710	8.4362	32.8869	0.0163
388	3/12/2004	2.3097	5.4065	-0.0163	23.6933	8.1265	37.0002	0.0163
389	10/12/2004	-2.2850	-2.4644	-1.4552	24.0462	5.2004	35.4782	0.0163
390	17/12/2004	3.1712	6.1741	1.4435	18.7806	4.6175	39.5392	0.0163
391	24/12/2004	0.1166	2.6503	-1.4552	27.8634	11.4837	29.2350	0.0163
392	31/12/2004	-0.3520	0.7109	-2.9361	17.8467	5.4566	27.9644	0.0163

ตารางที่ 1.1 (ต่อ) อัตราผลตอบแทนของตลาดและอัตราผลตอบแทนของหลักทรัพย์กลุ่มพลังงาน วันที่ 2 กรกฎาคม 2540 ถึง วันที่ 31 ธันวาคม 2547 เป็นรายสัปดาห์

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
1	2/7/1997	-0.1654		23.6770	22.9115	8.5524	42.3589	0.1654
2	11/7/1997	-0.1654		0.0013	-18.9154	30.1245	26.0827	0.1654
3	18/7/1997	-0.1654		0.0013	7.5269	21.9143	25.0031	0.1654
4	25/7/1997	-0.2183		-2.9879	-0.2183	21.2872	22.9686	0.2183
5	1/8/1997	-0.2183		4.4939	14.0674	23.9531	29.1225	0.2183
6	8/8/1997	-0.2183		-3.9188	-18.9683	19.7519	25.4567	0.2183
7	15/8/1997	-0.2183		0.4551	-0.2183	26.5303	29.3532	0.2183
8	22/8/1997	-0.2183		-12.5233	-0.2183	40.1513	44.0794	0.2183
9	29/8/1997	-0.2183		-7.9726	-15.6029	42.6603	47.7836	0.2183
10	5/9/1997	-0.2183		21.1171	-0.2183	29.7809	44.7143	0.2183
11	12/9/1997	-0.2183		-3.1106	-0.2183	39.2321	49.5659	0.2183
12	19/9/1997	-0.2183		-4.7791	-0.2183	40.9859	54.2103	0.2183
13	26/9/1997	-0.2183		10.5262	-0.2183	32.1864	46.5027	0.2183
14	3/10/1997	-0.2183		0.4551	-9.3092	36.4362	48.6179	0.2183
15	10/10/1997	-0.2183		2.4467	-0.2183	38.3753	51.6044	0.2183
16	17/10/1997	-0.2183		-2.4914	9.7817	48.5129	60.1988	0.2183
17	24/10/1997	-0.2183		-1.0433	-0.2183	40.8983	52.0119	0.2183
18	31/10/1997	-0.2183		-4.0769	-9.3092	32.8546	25.3941	0.2183
19	7/11/1997	-0.2183		6.2765	9.7817	18.0976	36.5135	0.2183
20	14/11/1997	-0.2183		-5.9806	-0.2183	28.4002	26.6917	0.2183
21	21/11/1997	-4.7636		2.5975	-9.3092	21.2457	25.1884	0.2183
22	28/11/1997	9.3053		-4.1311	-0.2183	36.3971	34.0962	0.2183
23	5/12/1997	27.3091		-0.5624	-0.2255	44.0405	30.4326	0.2255
24	12/12/1997	13.9805		-1.1018	-10.2255	43.9673	41.3582	0.2255
25	19/12/1997	-0.2255		8.6550	-11.3366	24.2870	45.8047	0.2255
26	26/12/1997	-0.2255		-1.0505	-12.7255	39.7567	46.5916	0.2255
27	2/1/1998	-0.2255		3.4765	14.0602	43.0700	67.3900	0.2255
28	9/1/1998	12.2136		-2.4987	24.7745	59.8133	72.3850	0.2255
29	16/1/1998	-14.8276		5.4345	19.7745	40.4622	90.1300	0.2255
30	23/1/1998	-0.2255		23.5944	-8.5588	21.3265	52.0448	0.2255
31	30/1/1998	-17.3170		12.8967	-0.2183	16.5221	47.0423	0.2183
32	6/2/1998	-45.2169		-5.2217	8.8726	12.5053	67.5621	0.2183
33	13/2/1998	-26.5843		-0.8433	-0.2183	25.1921	35.8601	0.2183
34	20/2/1998	-13.8002		2.3824	66.4448	34.7647	59.9555	0.2219
35	27/2/1998	-7.3602		-9.9517	14.7781	31.2418	44.3811	0.2219
36	6/3/1998	-23.3105		-3.6149	-8.9175	19.9119	38.3441	0.2219
37	13/3/1998	-0.2219		1.9031	42.6353	43.6348	63.5373	0.2219
38	20/3/1998	-0.2219		-11.5618	59.7781	58.5289	73.8516	0.2219
39	27/3/1998	-0.2219		-10.3379	3.9448	40.3622	46.9945	0.2219
40	3/4/1998	-0.2219		-1.5403	-12.2219	37.5908	37.0396	0.2219
41	10/4/1998	-0.2219		4.9953	-4.7673	34.1978	42.8789	0.2219
42	17/4/1998	-15.2243		-2.9430	-2.6028	33.3385	53.6334	0.2219

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
43	24/4/1998	-0.2219		-1.0437	4.6562	35.4259	45.5096	0.2219
44	1/5/1998	-0.2219		-1.0469	-7.1986	34.6574	44.6107	0.2219
45	8/5/1998	-17.8687		-6.7875	-15.2219	4.3893	8.7229	0.2219
46	15/5/1998	-28.7789		1.3997	2.7193	2.6315	15.1481	0.2219
47	22/5/1998	-28.2444		-0.2219	-31.6504	-5.2377	-0.7205	0.2219
48	29/5/1998	-0.2219		-7.1368	12.2781	15.0702	8.9076	0.2219
49	5/6/1998	-2.9867		-6.5040	-3.9220	13.9613	5.7583	0.2183
50	12/6/1998	-0.2183		-6.3158	-23.2952	-1.6273	-10.9381	0.2183
51	19/6/1998	-0.2183		-0.8676	4.7817	8.6347	6.1366	0.2183
52	26/6/1998	-0.2183		5.6641	-4.9802	4.3368	-0.4618	0.2183
53	3/7/1998	-0.2183		7.1891	4.7817	-1.1535	8.8575	0.2183
54	10/7/1998	-0.2183		-2.5171	-9.7421	-7.1878	-5.0429	0.2183
55	17/7/1998	-0.2327		5.0614	15.5568	-2.6358	11.7588	0.2327
56	24/7/1998	-3.0807		-5.2642	-4.7818	9.3021	5.5975	0.2363
57	31/7/1998	-6.0852		0.3604	4.5340	4.5199	4.2027	0.2279
58	7/8/1998	24.7212		-5.4862	-9.3140	11.9321	-11.0381	0.2231
59	14/8/1998	-20.1850		-1.4552	-0.2207	-3.8485	11.8037	0.2207
60	21/8/1998	-0.2207		-3.9707	-10.2207	1.4660	-2.6415	0.2207
61	28/8/1998	-0.2147		-14.5004	-11.3258	7.4641	2.2531	0.2147
62	4/9/1998	-6.5934		-3.2341	-6.4538	-3.7804	-0.3865	0.2038
63	11/9/1998	-13.5484		6.0534	13.1367	5.2951	13.7198	0.1966
64	18/9/1998	-0.1846		12.3154	-6.0670	-5.1237	-7.0065	0.1846
65	25/9/1998	-15.5760		14.2149	-0.1642	-5.9747	4.9896	0.1642
66	2/10/1998	-0.1570		2.7002	24.8430	21.5245	6.5044	0.1570
67	9/10/1998	-0.1534		7.0689	4.8466	9.3071	6.4592	0.1534
68	16/10/1998	82.0324		0.3648	18.8943	30.5007	-28.4341	0.1534
69	23/10/1998	4.8578		-8.9080	-0.1451	13.4778	5.0583	0.1451
70	30/10/1998	-0.1353		-4.0901	19.8647	23.0427	13.2660	0.1353
71	6/11/1998	4.6303		7.5177	-0.1293	-10.5226	-1.5490	0.1293
72	13/11/1998	13.4095		-8.8689	-30.1257	4.6645	-19.2415	0.1257
73	20/11/1998	-0.1209		-2.5161	14.1648	16.9833	12.7796	0.1209
74	27/11/1998	111.9783		-10.5504	-4.2876	35.6820	-54.2513	0.1209
75	4/12/1998	28.2396		-16.5545	-8.8118	20.4097	-8.6569	0.1161
76	11/12/1998	-25.1126		3.9847	-0.1137	1.7825	12.6616	0.1137
77	18/12/1998	-0.1137		0.6737	-0.1137	12.9216	0.8473	0.1137
78	25/12/1998	-0.1137		-0.8950	-0.1137	11.8150	4.6092	0.1137
79	1/1/1999	-0.1125		0.6749	-0.1125	11.1306	2.5186	0.1125
80	8/1/1999	-33.4468		29.5750	4.6494	-4.1464	11.3514	0.1125
81	15/1/1999	-11.8775		-6.7390	-4.6580	9.9512	8.4329	0.1125
82	22/1/1999	-10.1863		-5.9190	-0.1125	11.8407	11.5489	0.1125
83	29/1/1999	-0.1077		-9.0118	4.6542	14.9057	7.9800	0.1077
84	5/2/1999	-0.1029		-2.3585	-9.1938	9.7275	0.6447	0.1029
85	12/2/1999	-7.5162		10.6663	-5.1029	8.6982	-0.1349	0.1029
86	19/2/1999	20.0117		-11.9000	-0.0945	20.5215	-0.0619	0.0945
87	26/2/1999	-20.0941		-3.2441	-5.3576	8.7917	13.9785	0.0945

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
88	5/3/1999	16.5718		2.3446	-16.7611	12.7509	-12.0632	0.0945
89	12/3/1999	-3.7438		10.2242	-13.4266	5.1242	-3.9348	0.0933
90	19/3/1999	-1.9036		2.0650	7.5990	14.8756	9.9086	0.0933
91	26/3/1999	-1.9408		5.5405	21.3353	17.4520	11.4854	0.0933
92	2/4/1999	-13.5965		-1.4266	-11.8580	7.1873	5.8018	0.0933
93	9/4/1999	-0.0933		-0.0933	6.5734	12.6341	6.6502	0.0933
94	16/4/1999	-0.0933		8.6905	-0.0933	9.1851	3.0308	0.0933
95	23/4/1999	-15.7068		4.8757	-6.3433	7.2569	7.1779	0.0933
96	30/4/1999	-0.0933		1.0902	33.2401	26.6967	25.8806	0.0933
97	7/5/1999	26.3706		4.0003	44.9067	22.2247	4.5364	0.0933
98	14/5/1999	20.6472		-4.5877	3.3550	23.8259	6.6359	0.0933
99	21/5/1999	-6.9950		-3.6227	-0.0933	9.2542	6.3224	0.0933
100	28/5/1999	33.2703		-7.4103	-6.7599	22.2638	-12.0897	0.0933
101	4/6/1999	-0.0933		-2.7248	35.6210	20.6706	23.5972	0.0933
102	11/6/1999	-0.0933		-6.1744	36.7488	23.0532	22.4404	0.0933
103	18/6/1999	-0.0933		-0.0933	22.9837	11.5415	7.1177	0.0933
104	25/6/1999	-0.0933		3.5039	28.0317	16.1683	21.2375	0.0933
105	2/7/1999	24.9195		2.6845	-9.8494	10.0086	-17.3562	0.0933
106	9/7/1999	33.3059		-1.4446	-5.4987	16.5847	-16.8000	0.0933
107	16/7/1999	-8.4637		4.0163	17.0496	7.5795	6.7874	0.0933
108	23/7/1999	3.5445		-0.7512	8.4433	11.3144	3.4797	0.0933
109	30/7/1999	5.1824		-3.4045	-9.0820	11.3629	-2.8581	0.0933
110	6/8/1999	-11.7587		-2.1469	-13.6723	3.4382	1.0335	0.0921
111	13/8/1999	-3.8644		-4.9860	-11.5194	10.3119	0.7760	0.0909
112	20/8/1999	-11.8555		5.7915	-0.0909	10.3684	11.6079	0.0909
113	27/8/1999	14.3552		4.0758	11.1995	7.0835	-1.5245	0.0909
114	3/9/1999	12.5300		1.9103	-17.4810	9.2162	-14.4545	0.0897
115	10/9/1999	-31.1243		-2.0504	15.6998	8.7350	28.6147	0.0897
116	17/9/1999	-10.0892		3.2442	-1.6043	6.3227	5.8504	0.0892
117	24/9/1999	2.6900		-12.3453	-23.1642	11.8778	-4.9859	0.0873
118	1/10/1999	2.6183		6.5328	11.9151	16.2580	6.7824	0.0849
119	8/10/1999	7.8099		4.7427	-7.2277	8.1238	-5.2799	0.0849
120	15/10/1999	-14.7190		-8.6375	-3.9310	5.6539	14.3879	0.0849
121	22/10/1999	8.4866		-4.4014	-6.0849	12.1949	-1.1807	0.0849
122	29/10/1999	-7.9772		5.9326	8.4282	8.4824	8.9616	0.0825
123	5/11/1999	8.4914		-8.5907	-2.0408	9.1519	4.4159	0.0800
124	12/11/1999	-2.7116		1.4703	5.9200	3.3470	11.9884	0.0800
125	19/11/1999	2.6227		-8.4770	-5.7404	1.7498	4.0488	0.0800
126	26/11/1999	10.4467		-0.0800	-0.0800	7.8836	-1.6647	0.0800
127	3/12/1999	-11.9828		-11.7443	-4.0776	3.9020	17.0300	0.0776
128	10/12/1999	5.3278		5.5827	-0.0776	0.5669	-1.2077	0.0776
129	17/12/1999	-5.2058		-0.9705	-2.1610	-2.7468	1.7582	0.0776
130	24/12/1999	10.7332		3.5260	4.1777	2.3548	4.8905	0.0776
131	31/12/1999	-2.5167		0.7919	-2.1185	3.9761	7.0516	0.0776
132	7/1/2000	-2.5740		-10.4189	-6.3240	3.3677	6.9406	0.0740

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
133	14/1/2000	5.0542		4.7337	-4.5185	-1.7861	0.8795	0.0740
134	21/1/2000	-7.3911		18.2746	18.5306	-6.0177	16.8222	0.0740
135	28/1/2000	-0.0716		-7.8236	-3.9932	7.6121	7.3919	0.0716
136	4/2/2000	-2.7032		-5.1137	-4.1533	7.4555	7.5679	0.0716
137	11/2/2000	2.6311		-8.0362	-10.7099	7.2531	7.6737	0.0716
138	18/2/2000	-0.0716		-11.6101	-7.2145	4.4262	6.8357	0.0716
139	25/2/2000	-21.1243		10.7979	-7.7639	-4.5436	11.6083	0.0716
140	3/3/2000	6.5950		-7.4246	-0.0716	-4.5867	5.1315	0.0716
141	10/3/2000	-6.3216		-3.7753	-13.9605	-5.2595	12.7500	0.0716
142	17/3/2000	-16.7383		7.6207	-0.0716	-12.8483	14.2523	0.0716
143	24/3/2000	15.9284		2.9896	-3.2974	-4.0808	-1.9639	0.0716
144	31/3/2000	-0.0704		-3.5358	-0.0704	1.8401	6.8479	0.0704
145	7/4/2000	-6.9670		3.2629	-3.4038	-3.9269	10.1630	0.0704
146	14/4/2000	-7.4778		2.6696	10.2744	-6.8317	18.6359	0.0704
147	21/4/2000	-4.0704		-4.2175	3.0546	-0.5208	9.9985	0.0704
148	28/4/2000	45.7629		-0.2972	-3.1007	6.1663	-17.6946	0.0704
149	5/5/2000	28.5015		-0.8100	3.0546	7.6903	-5.3096	0.0704
150	12/5/2000	-42.2929		1.8237	-9.1613	-11.4085	20.3318	0.0704
151	19/5/2000	-3.9166		-4.4369	-3.4038	-6.8942	11.5159	0.0704
152	26/5/2000	-0.0704		-4.6229	-10.4153	-8.8748	0.4255	0.0704
153	2/6/2000	-8.0704		11.9647	3.7757	-21.9231	8.9508	0.0704
154	9/6/2000	4.2774		0.7611	-3.7741	-13.8925	6.3925	0.0704
155	16/6/2000	-0.0704		2.3296	-0.0704	-10.3804	6.5036	0.0704
156	23/6/2000	-12.5704		-4.4020	-3.9166	-6.8709	12.4089	0.0704
157	30/6/2000	-9.5942		4.6181	-4.0704	-19.4380	8.5131	0.0704
158	7/7/2000	5.1927		3.3717	-8.4038	-12.0460	-0.5524	0.0704
159	14/7/2000	-5.0667		-3.8538	-4.6147	-9.6427	9.4161	0.0692
160	21/7/2000	-0.0692		-2.4026	-14.3549	-15.5916	2.1838	0.0692
161	28/7/2000	-5.3349		6.9197	-0.0692	-20.1820	0.6290	0.0692
162	4/8/2000	16.5974		7.5119	16.5974	-9.3747	0.2676	0.0692
163	11/8/2000	-14.3549		5.5190	-0.0692	-15.5112	9.9178	0.0692
164	18/8/2000	-0.0692		11.7345	-0.0692	-14.7284	0.8025	0.0692
165	25/8/2000	22.1530		4.6367	-4.8311	-4.6608	-10.7477	0.0692
166	1/9/2000	-13.7056		-0.3837	-0.0692	-6.9105	14.8509	0.0692
167	8/9/2000	-0.0692		0.4267	-5.0692	-4.7788	1.6927	0.0692
168	15/9/2000	-0.0656		1.2352	-0.0656	-6.1756	4.0204	0.0656
169	22/9/2000	-0.0644		-14.8144	-5.3276	5.2515	9.5998	0.0644
170	29/9/2000	-0.0644		1.5641	5.4911	1.1956	8.8460	0.0644
171	6/10/2000	-10.5907		-4.0833	-5.3276	1.6916	10.4886	0.0644
172	13/10/2000	-11.8291		2.6385	-0.0644	-2.6533	11.8494	0.0644
173	20/10/2000	6.6022		11.2560	-0.0644	-8.6274	-2.2755	0.0644
174	27/10/2000	12.4356		-3.8451	-5.6200	-1.5550	-0.8529	0.0644
175	3/11/2000	-0.0644		7.8622	-0.0644	-4.3119	2.8653	0.0644
176	10/11/2000	5.4911		-1.2183	5.8179	3.1532	5.6942	0.0644
177	17/11/2000	-5.3276		3.9617	-0.0644	-4.0400	6.2767	0.0644

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
178	24/11/2000	8.2703		-0.3669	-5.6200	3.5484	0.5949	0.0644
179	1/12/2000	7.6265		-7.1068	-5.9468	-0.7424	1.6962	0.0644
180	8/12/2000	-0.0644		-5.8075	6.1856	-3.0040	11.7731	0.0644
181	15/12/2000	4.6975		-3.7213	-5.9468	-3.8791	4.3049	0.0644
182	22/12/2000	-13.7008		0.2125	-0.0644	-6.1564	12.6630	0.0644
183	29/12/2000	-0.0644		3.8016	-0.0644	-5.5281	6.0580	0.0644
184	5/1/2001	15.7251		4.6556	6.1856	-0.5844	-3.6126	0.0644
185	12/1/2001	13.5719		3.4933	-0.0644	-4.5339	-0.0614	0.0644
186	19/1/2001	3.9356		2.4496	-0.0644	-1.3869	5.6834	0.0644
187	26/1/2001	3.7817		1.4769	35.2297	8.5373	19.4133	0.0644
188	2/2/2001	-7.4718		-0.3462	4.2834	-1.3510	10.6118	0.0644
189	9/2/2001	-4.0644		-8.0919	-16.7311	-1.4257	6.4642	0.0644
190	16/2/2001	-4.2311		1.1919	-5.0644	-7.9516	5.4870	0.0644
191	23/2/2001	-8.7601		8.6256	5.1987	0.5850	10.2013	0.0644
192	2/3/2001	-4.8263		-6.7774	-10.0644	-20.5109	7.3591	0.0644
193	9/3/2001	-10.0678		1.6756	5.4911	-32.9047	13.6661	0.0644
194	16/3/2001	-11.1722		-0.3119	-10.5907	-35.0960	8.7736	0.0644
195	23/3/2001	3.0611		-0.3044	-0.0644	-25.1072	6.4850	0.0644
196	30/3/2001	2.9653		3.7134	-0.0644	-29.2246	9.7036	0.0644
197	6/4/2001	-11.8291		-2.4076	-0.0644	-34.2753	11.8830	0.0644
198	13/4/2001	-26.7345		3.6558	5.8179	-38.5591	22.0342	0.0644
199	20/4/2001	-0.0644		1.6263	-11.1755	-33.2154	3.6215	0.0644
200	27/4/2001	-0.0644		13.8937	6.1856	-31.3054	9.0915	0.0644
201	4/5/2001	-0.0644		-2.8946	-0.0644	-28.3622	7.8980	0.0644
202	11/5/2001	-36.4251		5.8456	5.8179	-15.6820	50.6010	0.0644
203	18/5/2001	-0.0644		5.5958	-5.6200	-28.3180	-1.2298	0.0644
204	25/5/2001	-0.0548		9.0490	-0.0548	-23.4849	1.7765	0.0548
205	1/6/2001	57.0880		6.6178	5.8275	-3.4108	-23.9623	0.0548
206	8/6/2001	18.1270		2.0977	-0.0548	-13.4125	-0.7727	0.0548
207	15/6/2001	6.7196		2.0977	-0.0548	-6.7253	13.2381	0.0548
208	22/6/2001	-0.0548		7.0808	5.5007	-15.2511	3.8310	0.0548
209	29/6/2001	-0.0548		2.6871	-0.0548	-7.2046	10.5446	0.0548
210	6/7/2001	-0.0548		3.4332	15.7347	-10.4055	9.1403	0.0548
211	13/7/2001	-0.0548		-0.5115	-4.6003	-16.4919	1.1779	0.0548
212	20/7/2001	-0.0548		0.3162	-0.0548	-10.2427	7.4492	0.0548
213	27/7/2001	-0.0548		-5.2597	-0.0548	10.6673	7.8763	0.0548
214	3/8/2001	-0.0548		4.0248	-4.8167	5.8276	5.1236	0.0548
215	10/8/2001	-0.0548		3.0669	-0.0548	3.6214	4.9992	0.0548
216	17/8/2001	-0.0548		3.0142	-0.0548	6.9056	5.7879	0.0548
217	24/8/2001	-0.0548		4.6460	-0.0548	6.2574	4.3709	0.0548
218	31/8/2001	-0.0548		-0.4215	-0.0548	11.0187	6.2576	0.0548
219	7/9/2001	-0.0548		14.7059	-0.0548	0.6600	-3.2572	0.0548
220	14/9/2001	-0.0548		0.1800	-30.0548	0.4768	-11.3613	0.0548
221	21/9/2001	-0.0548		-3.5625	-0.0548	12.6136	8.5378	0.0548
222	28/9/2001	-0.0548		-9.2011	-7.1977	-12.8981	9.1689	0.0548

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
223	5/10/2001	-0.0548		5.1562	-0.0548	-18.3385	6.4427	0.0548
224	12/10/2001	-0.0548		2.3380	7.6375	-15.8942	10.4021	0.0548
225	19/10/2001	-0.0548		-3.7512	7.0880	-13.4658	10.7799	0.0548
226	26/10/2001	-0.0548		0.8119	-6.7215	-19.4354	1.1594	0.0548
227	2/11/2001	-0.0548		0.8869	-14.3405	-20.0974	-0.7201	0.0548
228	9/11/2001	-0.0548		1.9254	-4.2215	-20.8840	1.5874	0.0548
229	16/11/2001	-0.0548		6.8252	13.8582	-15.1188	11.3099	0.0548
230	23/11/2001	-0.0548		5.5221	6.8154	-19.1399	11.0704	0.0548
231	30/11/2001	-0.0548		7.1228	7.0880	-13.4773	12.3578	0.0548
232	7/12/2001	-0.0512	21.3009	-2.8816	2.6155	-10.9803	-0.8820	0.0512
233	14/12/2001	-0.0512	18.4840	1.7035	-7.8434	-15.0802	-5.5201	0.0512
234	21/12/2001	-0.0512	21.1952	-0.1083	-0.0512	-11.1217	1.5080	0.0512
235	28/12/2001	-0.0512	22.8101	6.6449	5.5826	-21.2105	-0.4065	0.0512
236	4/1/2002	-0.0512	23.3691	3.5337	1.9488	-12.9624	1.5367	0.0512
237	11/1/2002	-0.0512	21.6059	5.3039	4.5240	-11.5172	-0.6776	0.0512
238	18/1/2002	-0.0512	20.1774	-0.2330	-6.3012	-12.9999	-0.7248	0.0512
239	25/1/2002	-0.0512	21.1952	5.3039	3.2821	-11.1998	1.8393	0.0512
240	1/2/2002	-0.0512	24.2700	2.4306	1.2391	-12.6922	0.9750	0.0512
241	8/2/2002	-0.0512	20.1774	7.7579	8.2291	-8.3139	2.1264	0.0512
242	15/2/2002	-0.0512	22.6445	3.0178	32.8900	-2.6932	11.7879	0.0512
243	22/2/2002	-0.0476	20.3265	-2.8681	-20.4016	-6.9345	-8.7459	0.0476
244	1/3/2002	-0.0476	27.9232	8.5470	17.7302	-4.9124	3.8292	0.0476
245	8/3/2002	-0.0476	20.8627	2.1049	-0.9910	-7.6159	-2.9312	0.0476
246	15/3/2002	-0.0476	17.4145	2.1049	-1.9524	-0.4550	-2.3957	0.0476
247	22/3/2002	-0.0476	23.7524	7.0880	2.8650	-2.0342	-0.2604	0.0476
248	29/3/2002	-0.0476	21.1552	-1.2573	-4.7646	-9.4355	-12.7774	0.0476
249	5/4/2002	-0.0476	13.4629	0.9274	0.9425	7.3584	7.0103	0.0476
250	12/4/2002	-0.0476	22.3160	4.4093	5.8348	-3.1357	-0.1832	0.0476
251	19/4/2002	-0.0476	21.5097	3.5903	-1.8994	0.4769	-0.1934	0.0476
252	26/4/2002	-0.0476	22.6087	0.3437	4.6694	-4.0004	-4.5057	0.0476
253	3/5/2002	-0.0476	22.6084	2.3251	-6.3539	-1.9178	-2.0613	0.0476
254	10/5/2002	-0.0476	32.0191	9.6346	0.9139	-5.1300	-5.7653	0.0476
255	17/5/2002	-0.0476	25.3382	5.5863	15.1905	5.2070	12.5599	0.0476
256	24/5/2002	-0.0476	27.3587	8.0320	14.0020	-3.8040	-2.6208	0.0476
257	31/5/2002	-0.0476	23.1404	13.3627	13.7205	-3.9782	1.0807	0.0476
258	7/6/2002	-0.0476	29.3554	5.1243	17.7868	2.5876	2.6580	0.0476
259	14/6/2002	-0.0476	20.9661	-0.9399	21.5740	6.4919	9.7769	0.0476
260	21/6/2002	-0.0476	12.3257	-2.3299	-23.1587	-2.7078	-7.5221	0.0476
261	28/6/2002	-0.0476	22.6381	5.2369	-2.9378	-0.7286	-2.4774	0.0476
262	5/7/2002	-0.0476	18.1191	6.7900	6.5000	0.9631	2.3192	0.0476
263	12/7/2002	-0.0476	20.3468	0.9274	9.4496	4.2623	5.1105	0.0476
264	19/7/2002	-0.0476	19.5049	1.1248	3.5238	3.7491	2.6977	0.0476
265	26/7/2002	-0.0476	16.1762	-0.3512	-15.3185	2.0790	-6.3613	0.0476
266	2/8/2002	-0.0476	21.8502	6.1883	6.9291	-1.7475	-0.0336	0.0476
267	9/8/2002	-0.0476	23.8365	11.4103	-2.2215	-4.5973	-2.4613	0.0476

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
268	16/8/2002	-0.0476	23.5049	9.6015	3.2857	-5.1514	-2.8550	0.0476
269	23/8/2002	-0.0476	18.2724	3.3191	-1.6605	-0.9199	-0.9829	0.0476
270	30/8/2002	-0.0476	17.4888	6.6079	-6.0585	-4.0661	-4.3262	0.0476
271	6/9/2002	-0.0476	18.6014	3.9852	-9.3499	-2.9092	-4.6741	0.0476
272	13/9/2002	-0.0476	17.5733	5.5590	2.5165	-0.6207	0.9003	0.0476
273	20/9/2002	-0.0476	17.3550	0.7589	-0.6726	-1.7063	0.1226	0.0476
274	27/9/2002	-0.0476	20.9330	4.9191	-5.7080	-6.0950	-4.2712	0.0476
275	4/10/2002	-0.0476	12.9340	6.4317	9.9524	1.7687	6.2049	0.0476
276	11/10/2002	-0.0476	17.3612	4.6298	7.5282	-2.6355	2.3415	0.0476
277	18/10/2002	-0.0476	10.5450	-0.8156	-1.4560	-3.5133	2.2141	0.0476
278	25/10/2002	-0.0404	16.5086	4.1949	7.1025	0.0618	1.9949	0.0404
279	1/11/2002	-0.0356	18.9118	9.0401	3.9644	-4.4747	-2.5073	0.0356
280	8/11/2002	-0.0356	18.7773	6.1164	3.8106	-0.5487	-0.8091	0.0356
281	15/11/2002	-0.0356	13.6751	2.1207	-4.9738	-1.6790	-0.7273	0.0356
282	22/11/2002	-0.0356	17.6935	8.3374	1.2631	-2.4966	-1.2801	0.0356
283	29/11/2002	-0.0356	15.1237	1.9493	-1.3176	2.1345	1.7327	0.0356
284	6/12/2002	-0.0356	19.8612	7.9721	2.5618	-1.8163	-2.1857	0.0356
285	13/12/2002	-0.0356	15.3930	1.0747	-2.5672	-0.9233	-1.5796	0.0356
286	20/12/2002	-0.0356	17.5048	9.1825	-0.0356	-2.1057	-1.9559	0.0356
287	27/12/2002	-0.0356	16.7402	3.6736	-5.2304	-1.8992	-2.8033	0.0356
288	3/1/2003	-0.0356	13.9763	4.3095	2.7041	1.3152	1.2270	0.0356
289	10/1/2003	-0.0356	10.4260	-5.2092	-8.0356	2.3159	2.5298	0.0356
290	17/1/2003	-0.0356	17.8410	1.9493	1.4137	1.3890	0.8507	0.0356
291	24/1/2003	-0.0356	15.3417	5.0029	-1.4641	-1.1269	-1.7726	0.0356
292	31/1/2003	-0.0356	15.4911	1.2144	11.5586	4.7806	6.2155	0.0356
293	7/2/2003	6.2968	16.0109	-0.9038	-0.0356	1.6969	-1.4166	0.0356
294	14/2/2003	31.8920	11.2639	3.9319	-2.6330	7.5324	-8.8072	0.0356
295	21/2/2003	5.9005	12.6771	3.9319	9.2978	6.4778	2.4936	0.0356
296	28/2/2003	0.3954	14.3228	8.6230	-11.0112	1.4763	-3.6442	0.0356
297	7/3/2003	-3.4682	11.0513	2.8261	-4.1440	1.4097	-0.7154	0.0344
298	14/3/2003	-8.9204	16.1786	2.8743	-0.0320	2.4260	3.8763	0.0320
299	21/3/2003	-0.5197	8.9453	-0.0950	1.3966	3.8708	4.1001	0.0320
300	28/3/2003	-3.9539	18.2537	8.4188	5.6018	0.2093	1.5245	0.0320
301	4/4/2003	0.4782	12.7635	1.1413	3.9680	5.4087	3.6339	0.0320
302	11/4/2003	13.1660	15.8750	4.4314	2.5321	6.7422	0.1636	0.0320
303	18/4/2003	9.8338	17.6559	4.4314	-0.0320	2.4885	-4.5912	0.0320
304	25/4/2003	14.2540	16.2826	3.6510	-1.2820	5.6409	-7.0249	0.0320
305	2/5/2003	8.8959	18.0340	5.2877	3.7655	0.9930	-2.6952	0.0320
306	9/5/2003	-4.1301	11.5492	4.4314	2.4071	4.1010	4.3139	0.0320
307	16/5/2003	4.2412	14.1268	7.5371	-2.4129	5.5098	0.0846	0.0320
308	23/5/2003	7.3456	19.7180	13.2436	-2.4710	0.1751	-6.4074	0.0320
309	30/5/2003	-2.3220	12.2373	5.5436	-0.0320	1.6254	1.8862	0.0320
310	6/6/2003	4.6554	17.8171	8.0877	1.2180	4.5427	-2.7889	0.0320
311	13/6/2003	10.4202	13.3815	9.5366	-2.4963	3.8995	-7.3063	0.0272
312	20/6/2003	-2.7235	16.9871	5.0983	7.5738	4.7143	8.6497	0.0212

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
313	27/6/2003	1.3675	5.7232	1.3224	-4.7270	8.7129	5.2090	0.0212
314	4/7/2003	6.1455	17.9358	3.1924	19.7343	9.8810	7.8977	0.0188
315	11/7/2003	5.1440	3.9014	0.1491	12.3536	10.3799	4.5708	0.0175
316	18/7/2003	2.4365	6.6263	4.5331	1.8173	3.9020	0.1553	0.0175
317	25/7/2003	14.9523	0.7122	0.7713	-5.4230	12.0172	-3.8108	0.0175
318	1/8/2003	2.5864	9.0605	0.8369	-0.0175	0.1802	-7.4451	0.0175
319	8/8/2003	-0.5249	2.7359	9.7050	0.9348	5.1039	3.2796	0.0175
320	15/8/2003	3.0436	9.6303	4.7837	-2.8477	2.5547	-1.2377	0.0175
321	22/8/2003	-1.5027	5.1852	0.5942	9.6912	10.7909	8.2706	0.0175
322	29/8/2003	18.5752	3.9014	-2.8499	9.7170	10.8607	-2.4468	0.0175
323	5/9/2003	5.0674	9.8866	8.2356	6.4341	4.4022	-1.0290	0.0175
324	12/9/2003	-0.0175	8.5838	-1.1014	50.7400	25.0627	22.6194	0.0175
325	19/9/2003	8.8533	3.2906	3.1936	-10.0678	-3.1471	-8.2854	0.0175
326	26/9/2003	-3.7213	7.0398	3.1553	-2.8108	8.2279	0.8137	0.0175
327	3/10/2003	-3.0946	7.3489	0.1358	-12.6612	1.4453	-5.6087	0.0175
328	10/10/2003	6.3319	5.2716	6.3284	5.2456	2.0467	2.1424	0.0175
329	17/10/2003	1.4760	16.0789	-0.4891	1.8587	3.7288	-3.2099	0.0163
330	24/10/2003	-0.0163	4.7138	12.9899	5.5051	0.3054	-0.6361	0.0163
331	31/10/2003	5.1308	2.0670	8.2266	5.7976	8.5154	7.4033	0.0163
332	7/11/2003	12.5711	16.4468	2.9358	-5.5109	5.3038	5.1099	0.0163
333	14/11/2003	3.0893	2.4281	2.8889	-6.9931	2.1879	1.5145	0.0163
334	21/11/2003	34.9233	-4.7849	-2.7820	-9.3913	12.4111	-13.3951	0.0163
335	28/11/2003	16.0551	9.6437	8.9673	-0.0163	5.1265	-6.1046	0.0163
336	5/12/2003	-3.8625	3.3855	4.7490	3.4319	1.2222	0.6625	0.0163
337	12/12/2003	3.9837	16.9281	11.3896	-11.3497	-7.5824	-14.5570	0.0163
338	19/12/2003	26.9067	9.7659	1.3530	3.7431	14.7547	3.3482	0.0163
339	26/12/2003	-4.2587	28.1031	2.2404	-7.9874	-5.8832	-7.2039	0.0163
340	2/1/2004	10.1102	9.7131	18.9837	5.4955	-2.7909	-9.1984	0.0163
341	9/1/2004	-0.5911	-7.2163	0.2034	-3.0014	8.4907	8.6332	0.0163
342	16/1/2004	12.1224	-0.1928	7.7737	1.5221	11.9970	-3.8837	0.0163
343	23/1/2004	-5.6864	-0.7723	3.6765	-9.1073	-4.5909	-6.2692	0.0163
344	30/1/2004	-11.4917	-1.9679	-6.0858	-4.1830	10.5851	11.7176	0.0163
345	6/2/2004	4.3046	-1.3726	-5.7253	-0.0163	9.8762	4.2843	0.0163
346	13/2/2004	4.7174	11.3042	10.5677	5.2010	1.2134	-3.8511	0.0163
347	20/2/2004	-8.4909	-2.5047	-2.0090	-9.1073	5.1234	3.6164	0.0163
348	27/2/2004	-0.6337	-1.9621	-4.2720	2.7109	11.3249	5.0041	0.0163
349	5/3/2004	-2.5008	1.6979	2.6186	-1.7863	8.2563	-0.0091	0.0163
350	12/3/2004	-0.6533	1.0701	1.7883	11.6954	9.6974	6.2341	0.0163
351	19/3/2004	-1.9394	-5.1707	0.9992	-0.0163	5.9683	1.0805	0.0163
352	26/3/2004	-3.2843	-1.5130	4.8364	-5.6615	3.4142	-1.5215	0.0163
353	2/4/2004	3.3621	7.2439	-2.0313	4.2572	6.5735	5.1213	0.0163
354	9/4/2004	-5.8987	0.3927	3.2683	3.2623	7.5204	7.8066	0.0163
355	16/4/2004	4.1504	5.5955	7.6453	0.7773	4.3033	-0.2672	0.0163
356	23/4/2004	12.0817	-2.1493	-0.5762	-1.5911	9.0538	-1.9994	0.0163
357	30/4/2004	19.2369	-2.1611	-2.6949	-9.6163	9.7417	-7.3797	0.0163

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
358	7/5/2004	22.1049	2.5316	-0.5571	-0.0163	11.9386	-2.6630	0.0163
359	14/5/2004	21.3777	-0.1660	-6.5051	-3.5562	13.5132	-2.2752	0.0163
360	21/5/2004	15.3959	3.9559	5.1219	-1.8512	6.6086	-6.2369	0.0163
361	28/5/2004	21.5032	6.5143	1.0149	4.6566	7.5484	-4.7214	0.0163
362	4/6/2004	13.1817	1.6720	0.2415	-0.0163	7.1094	-2.4681	0.0163
363	11/6/2004	15.0714	-0.2436	1.0309	5.3408	10.8169	-1.0020	0.0163
364	18/6/2004	16.5858	4.3413	1.8104	-0.8638	2.3058	-5.6446	0.0163
365	25/6/2004	18.7143	2.2804	5.6555	-0.0163	2.1948	-5.3063	0.0163
366	2/7/2004	15.1514	0.3683	0.9240	-1.7257	8.6768	-1.9723	0.0163
367	9/7/2004	20.8376	4.2239	4.6217	6.9402	11.7858	7.9406	0.0163
368	16/7/2004	12.6092	-2.1493	-6.2681	-2.4554	6.3855	-1.1484	0.0163
369	23/7/2004	17.9596	1.7139	11.7511	-1.6830	4.2269	-9.7842	0.0163
370	30/7/2004	10.1016	2.3587	1.5011	-2.5587	1.9091	-3.5060	0.0163
371	6/8/2004	12.2722	-1.5196	1.4871	-6.1033	6.8053	-2.7718	0.0163
372	13/8/2004	14.8129	1.1458	-0.5819	-3.7200	8.6191	-2.9608	0.0163
373	20/8/2004	30.2337	3.1673	-0.5793	0.9452	12.1926	-6.5139	0.0163
374	27/8/2004	20.7363	3.1045	1.5368	2.8408	11.0172	-3.1130	0.0163
375	3/9/2004	18.0229	4.3413	1.5189	2.7614	9.4365	-2.1438	0.0163
376	10/9/2004	13.4972	2.2804	0.1165	0.8846	8.2384	-1.2467	0.0163
377	17/9/2004	14.7700	9.8362	1.5189	0.8765	4.6765	-3.7193	0.0163
378	24/9/2004	5.0630	2.5517	5.6655	-3.5562	1.1576	-3.3339	0.0163
379	1/10/2004	12.0804	2.5041	3.3803	0.9011	11.2267	3.0294	0.0163
380	8/10/2004	31.6630	8.1686	5.2109	-0.9254	9.8812	-9.2162	0.0163
381	15/10/2004	5.4837	-4.7190	-0.6002	-1.8512	10.8809	3.7062	0.0163
382	22/10/2004	8.1888	5.2768	1.9019	-0.9509	7.7067	0.6722	0.0163
383	29/10/2004	7.6119	-4.7954	-0.6002	-5.6767	7.0262	-1.7185	0.0163
384	5/11/2004	11.2740	0.7895	-3.0950	1.9837	12.8235	5.4290	0.0163
385	12/11/2004	4.9212	1.3860	-1.2418	-1.9771	8.3380	3.1897	0.0163
386	19/11/2004	8.8869	1.3860	0.7337	-0.0163	10.2896	4.5044	0.0163
387	26/11/2004	8.1888	1.3860	0.0737	-0.0163	9.8039	3.0585	0.0163
388	3/12/2004	6.4580	1.9659	-3.2512	1.9837	10.7619	6.8293	0.0163
389	10/12/2004	7.3039	-1.5340	-1.2716	-0.9967	12.8926	5.6986	0.0163
390	17/12/2004	6.3413	7.4321	4.3872	-0.0163	7.5649	0.6824	0.0163
391	24/12/2004	5.5619	0.1608	0.7871	-1.0064	8.2693	6.2973	0.0163
392	31/12/2004	11.9695	1.3189	0.7871	0.9837	9.0972	0.6063	0.0163

ตารางที่ 1.2 อัตราผลตอบแทนของตลาดและอัตราผลตอบแทนของหลักทรัพย์กลุ่มพลังงาน วันที่ 2 กรกฎาคม 2540 ถึง วันที่ 31 ธันวาคม 2547 เป็นรายเดือน

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
1	2/7/1997	26.0711	17.8669	67.5874	1.9181	31.5568	33.7690	0.7167
2	31/8/1997	-24.7653	-14.2461	59.0763	12.9043	-17.0859	-1.7048	0.9458
3	30/9/1997	8.2062	3.0194	27.6753	-7.8873	14.8658	5.3430	0.9458
4	31/10/1997	-18.0921	-30.1439	18.2329	2.4342	-1.3734	-22.3502	0.9458
5	30/11/1997	-11.7878	-1.6977	40.9423	20.5973	10.0410	-17.5422	0.9458
6	31/12/1997	-5.9857	-29.6023	13.4902	1.4595	20.9352	16.5392	0.9771
7	31/1/1998	32.6544	77.8427	45.7692	46.7664	39.5558	85.9990	0.9771
8	28/2/1998	6.4837	27.2800	5.6386	-0.4987	-2.9813	21.0317	0.9458
9	31/3/1998	-13.3383	-11.2078	41.3877	-5.6093	-8.3078	1.9639	0.9615
10	30/4/1998	-10.4547	-10.9357	15.4147	-12.9859	-14.7046	-20.4491	0.9615
11	31/5/1998	-21.2201	-32.6056	-22.4441	0.7887	-18.7703	-20.7645	0.9615
12	30/6/1998	-18.1119	-58.3897	-23.5949	43.7728	6.7124	-27.4683	0.9458
13	31/7/1998	-0.4464	115.3454	15.0359	-8.5011	10.8928	107.1955	0.9458
14	31/8/1998	-19.7880	2.3571	-19.3383	3.3921	-12.7207	194.2978	0.9563
15	30/9/1998	18.1250	35.6367	3.4468	-2.7421	13.1439	20.9644	0.8208
16	31/10/1998	30.3683	1.3618	40.1975	13.1567	14.1323	34.7673	0.6646
17	30/11/1998	9.3916	67.0385	-6.3757	-12.2174	-8.9493	10.4625	0.5448
18	31/12/1998	-2.0482	-14.4018	-12.1161	7.8814	2.3032	-4.9033	0.5031
19	31/1/1999	1.9082	0.9292	1.4026	3.1751	-5.6243	0.4462	0.4875
20	28/2/1999	-6.1800	-4.2266	-10.5505	12.3693	-10.1029	-16.2140	0.4458
21	31/3/1999	3.1536	-6.5449	1.5733	14.7038	1.7586	-10.6893	0.4042
22	30/4/1999	30.4002	20.5964	37.6116	17.1832	9.5249	194.7215	0.4042
23	31/5/1999	-1.3450	10.3829	-1.2837	42.7845	-3.1450	161.6459	0.4042
24	30/6/1999	14.9354	10.2516	68.5814	-0.2008	3.5919	97.6079	0.4042
25	31/7/1999	-12.5432	-7.9058	-14.3789	-0.6018	-5.7568	103.7163	0.4042
26	31/8/1999	-3.7116	-1.7858	-6.3409	0.7041	-3.6742	109.4494	0.3938
27	30/9/1999	-11.6235	-8.7104	-8.9785	-0.8472	2.2092	146.5770	0.3885
28	31/10/1999	1.4710	17.8397	-0.0849	8.0477	-3.8214	128.5603	0.3677
29	30/11/1999	6.6372	9.0080	-2.5191	19.1861	1.3524	98.8224	0.3469
30	31/12/1999	14.0889	29.6104	2.4224	4.2786	12.9443	167.8056	0.3365
31	31/1/2000	-0.9767	31.8169	-2.5131	16.8790	12.5260	151.8918	0.3208
32	29/2/2000	-21.6915	-7.9664	-33.0717	16.2117	-20.9167	137.8130	0.3104
33	31/3/2000	6.8743	79.1506	10.3762	36.2986	51.7200	137.4592	0.3104
34	30/4/2000	-2.5485	46.8841	14.7945	21.1528	23.1042	165.5546	0.3052
35	31/5/2000	-17.2605	8.3046	-22.4235	21.2955	4.7174	103.7190	0.3052
36	30/6/2000	0.6719	82.5142	2.9600	31.5755	28.8387	117.0027	0.3052
37	31/7/2000	-12.6640	45.6150	-17.7163	19.5763	30.2214	126.1530	0.3000
38	31/8/2000	8.0665	87.7462	3.5021	17.5968	26.1847	127.8853	0.3000
39	30/9/2000	-9.9891	45.5424	-17.3094	22.1677	9.2653	131.9320	0.2948
40	31/10/2000	-2.0299	34.5641	-2.1477	18.8557	27.0503	147.7405	0.2792
41	30/11/2000	2.1722	31.2499	-4.3199	16.9439	13.0064	122.6279	0.2792
42	31/12/2000	-3.2056	30.6784	-6.7309	24.4703	24.4102	107.2329	0.2792
43	31/1/2001	23.5546	40.9944	18.9832	10.2214	22.9356	84.1022	0.2792
44	28/2/2001	-2.3393	32.0437	-4.0646	21.2262	31.4110	89.8556	0.2792

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
45	31/3/2001	-10.2920	103.3715	-8.3978	25.0836	13.6541	87.0032	0.2792
46	30/4/2001	2.9122	130.4708	-2.3371	13.8926	14.8587	158.2454	0.2792
47	31/5/2001	3.0956	127.5672	46.4473	38.9159	24.6775	187.3641	0.2792
48	30/6/2001	3.9500	77.9877	39.6275	22.6788	28.7577	110.0601	0.2375
49	31/7/2001	-7.7621	48.6555	-14.8275	20.0635	15.5764	85.9026	0.2375
50	31/8/2001	12.6698	13.3473	5.2785	22.7908	18.7903	104.0150	0.2375
51	30/9/2001	-17.4968	-13.6912	-31.7004	19.9896	16.0268	146.2925	0.2375
52	31/10/2001	-0.7587	71.1873	-1.9066	22.5922	24.8109	107.4008	0.2375
53	30/11/2001	9.9528	75.0702	23.5301	18.4630	32.8407	111.6411	0.2375
54	31/12/2001	0.3553	62.5370	-10.7383	23.3896	24.2587	89.9488	0.2219
55	31/1/2002	12.1160	77.7088	-3.4699	21.4761	29.2727	86.7620	0.2219
56	28/2/2002	9.0416	64.7488	-2.7060	28.5905	25.7501	89.9488	0.2219
57	31/3/2002	0.5280	37.7332	-41.8659	20.8959	22.2166	85.6667	0.2063
58	30/4/2002	-0.7242	16.3645	-14.4225	23.9861	10.8440	93.2108	0.2063
59	31/5/2002	9.7903	38.6277	20.3906	31.2588	21.2364	83.6481	0.2063
60	30/6/2002	-4.6706	13.7664	6.0128	22.6858	6.3662	81.4131	0.2063
61	31/7/2002	-3.4092	14.6774	6.8724	16.5264	1.4646	94.4309	0.2063
62	31/8/2002	-3.9995	33.3317	10.6667	23.3892	20.5357	102.5002	0.2063
63	30/9/2002	-8.1797	16.4119	-3.2734	20.1487	13.8853	97.4208	0.2063
64	31/10/2002	7.6169	43.8572	3.2857	20.5328	21.1918	105.2156	0.2063
65	30/11/2002	2.1144	30.1519	-0.0356	24.8787	22.9089	107.2013	0.1542
66	31/12/2002	-2.3431	27.2927	-3.2614	20.7281	17.3244	98.6741	0.1542
67	31/1/2003	3.7599	29.3584	3.2978	19.5750	16.5282	106.0455	0.1542
68	28/2/2003	-2.3842	32.1383	3.1902	17.8759	24.1277	113.0679	0.1542
69	31/3/2003	0.8620	16.8101	-3.1570	24.9498	14.7275	103.3237	0.1385
70	30/4/2003	2.7331	26.1449	12.8713	23.2724	24.0454	121.5065	0.1385
71	31/5/2003	7.7597	27.8122	19.9680	20.9347	31.3213	23.7518	0.1385
72	30/6/2003	14.3357	24.9788	38.0681	26.3599	22.8155	31.5518	0.1177
73	31/7/2003	4.8090	21.8830	-18.9831	18.8230	10.5951	13.3627	0.0760
74	31/8/2003	11.0543	24.3517	10.6207	28.4482	12.2632	24.0116	0.0760
75	30/9/2003	7.6576	18.5951	9.5978	8.1696	3.7658	49.7541	0.0760
76	31/10/2003	10.4267	46.5028	19.2807	17.6295	14.4997	43.4251	0.0760
77	30/11/2003	1.0127	9.7062	54.3954	5.8431	19.8062	-7.1679	0.0708
78	31/12/2003	19.5060	41.6793	19.6994	13.2713	31.3217	1.7768	0.0708
79	31/1/2004	-9.5028	2.2727	6.5854	2.4498	-11.0497	20.8408	0.0708
80	29/2/2004	2.4733	12.1619	-2.2552	4.9287	2.0226	40.7837	0.0708
81	31/3/2004	-9.6492	-8.4289	-29.0240	5.0351	-6.6389	28.0457	0.0708
82	30/4/2004	0.1150	-1.5590	24.7148	10.3884	3.8344	80.6854	0.0708
83	31/5/2004	-1.1118	0.4675	6.0181	13.4038	8.4577	98.3443	0.0708
84	30/6/2004	0.8557	9.5456	-3.2684	5.6065	1.3639	61.3761	0.0708
85	31/7/2004	-1.5535	10.7278	22.6727	5.9598	14.4874	23.7837	0.0708
86	31/8/2004	-1.9183	2.7979	-2.0711	4.7042	3.8467	28.1244	0.0708
87	30/9/2004	3.1986	15.7993	9.0746	13.2103	-0.7436	21.7837	0.0708
88	31/10/2004	-2.5773	-6.9101	-8.9907	4.3015	6.4498	31.8116	0.0708
89	30/11/2004	4.5319	8.3056	-2.1290	14.9090	15.9079	39.0898	0.0708
90	31/12/2004	1.7150	0.1320	-4.3329	23.8899	8.6364	38.4536	0.0708

ตารางที่ 1.2 (ต่อ) อัตราผลตอบแทนของตลาดและอัตราผลตอบแทนของหลักทรัพย์กลุ่มพลังงาน วันที่ 2 กรกฎาคม 2540 ถึง วันที่ 31 ธันวาคม 2547 เป็นรายเดือน

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
1	2/7/1997	-3.5293		24.3080	30.6038	1.4925	22.9804	0.7167
2	31/8/1997	-2.0333		-23.3945	-35.5124	24.7882	24.8699	0.9458
3	30/9/1997	12.6066		21.1233	-0.2183	-5.4990	-10.3417	0.9458
4	31/10/1997	8.3707		-2.6080	-9.3092	10.8508	0.9046	0.9458
5	30/11/1997	12.1355		-1.6077	-0.2183	8.9377	15.1766	0.9458
6	31/12/1997	38.6428		9.5980	-20.2255	9.6709	-25.8790	0.9771
7	31/1/1998	2.1186		43.8379	37.2745	-10.1599	20.2918	0.9771
8	28/2/1998	-64.1486		-13.0149	108.8726	10.4179	76.5860	0.9458
9	31/3/1998	-16.4995		-22.6849	104.1260	39.1406	66.2270	0.9615
10	30/4/1998	8.6171		-0.5586	-15.1155	3.8292	-8.2582	0.9615
11	31/5/1998	-59.8025		-11.8380	-32.7219	-5.9175	17.6945	0.9615
12	30/6/1998	2.7149		-8.7897	-26.1442	14.0117	1.0487	0.9458
13	31/7/1998	2.9097		6.6567	9.7817	-19.0139	0.6556	0.9458
14	31/8/1998	8.2784		-21.2733	-27.4934	42.3729	-7.9824	0.9563
15	30/9/1998	-22.9404		30.1809	12.3106	-24.1126	0.7181	0.8208
16	31/10/1998	110.6636		-3.5625	66.5133	49.0824	-13.5948	0.6646
17	30/11/1998	219.0103		-14.8316	-23.4591	23.0649	-116.1067	0.5448
18	31/12/1998	-21.3750		-11.8402	-8.8118	0.1147	12.2588	0.5031
19	31/1/1999	-37.4455		3.7938	4.6494	-5.2540	19.9016	0.4875
20	28/2/1999	-3.0297		-7.6217	-18.2847	0.1751	-0.1629	0.4458
21	31/3/1999	18.1556		19.4189	-11.2044	-2.3697	-17.0963	0.4042
22	30/4/1999	1.3673		16.2333	24.9067	39.7065	17.7669	0.4042
23	31/5/1999	23.0306		-11.2044	39.9067	54.5389	21.2227	0.4042
24	30/6/1999	38.3502		-7.9880	164.1924	71.7544	62.3433	0.4042
25	31/7/1999	85.4200		4.1924	9.3662	39.8610	-46.6777	0.4042
26	31/8/1999	-17.1584		3.3338	-21.0785	13.8239	-1.9928	0.3938
27	30/9/1999	-11.7356		-6.0499	-17.2772	25.7314	-0.1415	0.3885
28	31/10/1999	11.5710		-0.7891	-3.8584	24.4374	-4.0228	0.3677
29	30/11/1999	29.1480		-14.9737	-2.0408	30.0571	-2.2118	0.3469
30	31/12/1999	3.2544		-3.4110	-4.0776	21.6888	0.9527	0.3365
31	31/1/2000	3.8500		4.2363	2.0093	18.2303	1.4152	0.3208
32	29/2/2000	-38.4937		-23.6254	-34.7655	27.0416	13.8510	0.3104
33	31/3/2000	58.5269		5.3338	-6.3216	1.8664	-18.4793	0.3104
34	30/4/2000	28.2391		-0.8499	6.5962	24.2213	0.4866	0.3052
35	31/5/2000	-27.5569		-1.3308	-18.8204	7.3457	7.7944	0.3052
36	30/6/2000	-10.0712		1.8338	-7.7627	-10.9880	13.0430	0.3052
37	31/7/2000	3.6140		0.2571	-25.0692	-4.0529	-9.6720	0.3000
38	31/8/2000	36.2076		34.0048	11.0419	-10.0652	-24.3926	0.3000
39	30/9/2000	-10.0688		-15.4331	-5.0680	11.2058	12.6811	0.2948
40	31/10/2000	12.3558		1.5677	-10.5907	12.1820	-4.9227	0.2792
41	30/11/2000	8.4346		5.2160	-5.9468	11.0572	-4.5995	0.2792
42	31/12/2000	2.5847		-10.0912	-0.0644	10.4994	9.6449	0.2792
43	31/1/2001	37.8817		11.6356	49.9356	15.0363	1.6214	0.2792
44	28/2/2001	-3.3571		-3.8662	-16.7311	-2.4770	3.7552	0.2792

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
45	31/3/2001	-12.6366		-3.1399	-15.0644	-22.7643	8.4287	0.2792
46	30/4/2001	-3.8300		4.9258	5.8179	-15.7273	5.2433	0.2792
47	31/5/2001	-2.1983		14.3010	-0.0644	-1.4223	22.3816	0.2792
48	30/6/2001	1.3014		9.8935	5.5007	-3.0459	17.0049	0.2375
49	31/7/2001	38.5453		-7.7188	5.2084	8.1408	-11.9318	0.2375
50	31/8/2001	7.0159		5.7947	-0.0548	15.1650	2.9329	0.2375
51	30/9/2001	7.0159		-4.9181	-35.0548	22.1694	-16.6375	0.2375
52	31/10/2001	7.0159		-7.2291	-0.0548	-2.5802	6.9835	0.2375
53	30/11/2001	7.0159		16.6051	15.3298	-6.3093	7.2972	0.2375
54	31/12/2001	7.0195		-2.8548	-0.0512	-6.0666	2.1177	0.2219
55	31/1/2002	7.0195	22.4126	5.3545	5.9488	-10.1398	-3.6105	0.2219
56	28/2/2002	7.0195	23.1372	7.7653	28.2507	-0.1296	5.4044	0.2219
57	31/3/2002	7.0231	25.1323	6.5263	-1.0280	-8.7637	-20.2266	0.2063
58	30/4/2002	7.0231	2.4139	-7.4059	6.8831	17.7820	4.8052	0.2063
59	31/5/2002	7.0231	42.6076	25.8486	45.3228	5.4486	7.1643	0.2063
60	30/6/2002	7.0231	27.3255	-4.8601	6.9588	14.1692	2.0563	0.2063
61	31/7/2002	7.0231	14.5080	-5.0305	4.7143	19.5086	3.8709	0.2063
62	31/8/2002	7.0231	30.1714	19.8864	-2.3203	2.2705	-8.4484	0.2063
63	30/9/2002	7.0231	25.7537	4.7393	-18.0709	5.4521	-12.9039	0.2063
64	31/10/2002	7.0231	9.1963	2.2613	36.4772	15.3802	13.9383	0.2063
65	30/11/2002	7.0351	17.2631	11.4355	-0.0356	7.3689	-3.6421	0.1542
66	31/12/2002	7.0351	25.0225	12.6644	-5.2304	3.0131	-10.8286	0.1542
67	31/1/2003	7.0351	15.9171	-5.9652	5.4439	14.3198	3.7765	0.1542
68	28/2/2003	139.2341	15.0807	3.7474	-5.2304	34.8540	-47.4088	0.1542
69	31/3/2003	67.1604	16.9509	3.6269	4.0776	26.2420	-20.6226	0.1385
70	30/4/2003	183.0370	17.7482	-0.4273	5.2312	52.3058	-52.9944	0.1385
71	31/5/2003	108.5958	25.3723	19.6672	-0.0320	8.6004	-37.5882	0.1385
72	30/6/2003	129.1541	34.3313	16.3461	1.2228	20.6534	-38.0602	0.1177
73	31/7/2003	147.4882	10.3584	-1.0921	29.6121	27.6245	-42.4341	0.0760
74	31/8/2003	120.2702	10.6012	4.5115	18.0777	27.3538	-26.0787	0.0760
75	30/9/2003	115.1373	18.5852	7.6976	35.4663	31.4641	-29.3954	0.0760
76	31/10/2003	109.9825	18.5969	15.8258	8.3158	15.8704	-33.0597	0.0760
77	30/11/2003	197.8446	15.3942	6.1113	-20.3460	33.3594	-59.8192	0.0708
78	31/12/2003	133.8298	75.0304	36.2286	-7.6026	-13.8700	-73.2402	0.0708
79	31/1/2004	101.7501	-12.6055	2.4306	-14.1955	28.2241	-32.2451	0.0708
80	29/2/2004	108.6437	1.6462	-5.0686	-1.7555	27.3786	-34.7677	0.0708
81	31/3/2004	78.8657	-11.9667	4.1979	-0.0163	22.2903	-31.7007	0.0708
82	30/4/2004	119.6249	6.0979	4.7913	-0.0163	43.7883	-31.8091	0.0708
83	31/5/2004	120.5404	10.1069	-3.4460	0.8686	43.9385	-35.6369	0.0708
84	30/6/2004	93.1118	-0.8708	4.8984	0.8608	27.8031	-31.3135	0.0708
85	31/7/2004	104.4235	0.9966	8.3866	-0.0163	22.7150	-28.3968	0.0708
86	31/8/2004	128.2006	-0.1994	-1.9747	-4.3642	29.8011	-42.5859	0.0708
87	30/9/2004	119.5332	14.3370	7.2729	-2.7436	23.0052	-40.5340	0.0708
88	31/10/2004	143.6344	1.9363	7.4132	-6.5584	30.6174	-54.7438	0.0708
89	30/11/2004	99.3385	0.7895	-8.7428	0.9837	26.3733	-25.8739	0.0708
90	31/12/2004	87.6460	3.7766	1.5218	-0.0163	25.6113	-24.4679	0.0708

ตารางที่ 1.3 อัตราผลตอบแทนของตลาดและอัตราผลตอบแทนของหลักทรัพย์กลุ่มพลังงาน วันที่ 2 กรกฎาคม 2540 ถึง วันที่ 31 ธันวาคม 2547 เป็นรายไตรมาส

ลำดับที่	วันที่	Rm - Rf	Rbanpu - Rf	Rbcp - Rf	Reastw - Rf	Regcomp - Rf	Rlanna - Rf	Rf
1	30/9/1997	3.1080	1.0078	78.0256	2.5007	13.0383	20.1078	2.1500
2	31/12/1997	-31.7770	-57.1206	75.6781	12.0726	15.8679	-44.6853	2.8375
3	31/3/1998	22.9627	91.4791	81.7552	28.5825	17.6808	92.1215	2.9313
4	30/6/1998	-41.9940	-80.3891	27.6511	10.8671	-25.7391	-77.2673	2.8844
5	30/9/1998	-5.2719	71.7090	-3.6082	-17.1216	9.9669	64.9541	2.8375
6	31/12/1998	40.0286	45.3012	15.6361	-7.9551	6.5693	41.9101	1.9938
7	31/3/1999	-1.1805	-9.4875	-7.6882	3.1751	-13.4983	-24.6935	1.4625
8	30/6/1999	48.1326	47.0332	129.4149	42.8967	1.3431	39.1660	1.2125
9	30/9/1999	-25.4454	-17.2808	-26.8789	-19.2816	-17.4391	92.4067	1.2125
10	31/12/1999	23.6462	3.6887	-0.0849	-1.0429	-8.6118	98.2377	1.1031
11	31/3/2000	-17.0063	8.1805	-27.8790	18.6668	1.0974	8.3020	0.9625
12	30/6/2000	-18.7130	24.1568	-8.1785	28.6998	11.1994	27.0129	0.9156
13	30/9/2000	-14.9300	52.1939	-29.4811	20.4525	26.8026	30.5974	0.9000
14	31/12/2000	-2.9856	31.7070	-12.5643	20.5818	21.3126	69.6917	0.8375
15	31/3/2001	8.3869	36.5826	4.6973	10.2214	29.6022	31.6022	0.8375
16	30/6/2001	10.4206	174.1328	99.9356	26.9768	27.9356	51.2032	0.8375
17	30/9/2001	-14.1642	46.7863	-38.6912	20.9726	9.9026	84.3069	0.7125
18	31/12/2001	9.6225	75.3978	8.2785	20.7904	30.7810	113.9097	0.7125
19	31/3/2002	23.0194	127.7088	-45.3504	23.2779	39.8361	95.8829	0.6656
20	30/6/2002	4.0037	20.0009	9.3275	33.9861	12.0488	91.8625	0.6188
21	30/9/2002	-14.7765	2.8024	14.5096	19.0039	0.2451	102.7745	0.6188
22	31/12/2002	7.3939	47.0318	-0.0476	28.1693	24.7130	114.8208	0.6188
23	31/3/2003	2.2282	36.1765	3.2978	21.3450	21.8973	117.2617	0.4625
24	30/6/2003	26.6502	44.5122	87.0648	38.9246	59.5293	144.0240	0.4156
25	30/9/2003	25.3516	50.0598	-1.7417	36.2143	12.3969	59.8416	0.2281
26	31/12/2003	33.3463	113.9825	120.5114	21.7845	62.7756	22.9333	0.2281
27	31/3/2004	-16.1855	2.2727	-26.0315	-4.8395	-22.1608	12.9837	0.2125
28	30/6/2004	-0.1183	2.3170	27.9406	9.7932	3.8344	114.0187	0.2125
29	30/9/2004	-0.3210	26.2317	31.0761	0.0075	4.8577	17.2837	0.2125
30	31/12/2004	3.6181	-3.1601	-14.7599	3.6393	18.4799	35.5751	0.2125

ตารางที่ 1.3 (ต่อ) อัตราผลตอบแทนของตลาดและอัตราผลตอบแทนของหลักทรัพย์กลุ่มพลังงาน วันที่ 2 กรกฎาคม 2540 ถึง วันที่ 31 ธันวาคม 2547 เป็นรายไตรมาส

ลำดับที่	วันที่	Rpicni - Rf	Rptt - Rf	Rpttep - Rf	Rsusco - Rf	SMB	HML	Rf
1	30/9/1997	-21.1530		15.4322	-15.5500	2.9601	24.5192	2.1500
2	31/12/1997	37.2818		5.0843	-27.4910	22.6274	-1.0965	2.8375
3	31/3/1998	-77.4982		-2.9913	487.2745	87.0576	239.4488	2.9313
4	30/6/1998	-64.2220		-19.6540	-57.6687	9.7994	35.5545	2.8844
5	30/9/1998	-39.1072		9.7817	-10.2183	-31.5061	4.3467	2.8375
6	31/12/1998	54.3751		-27.4261	16.5133	15.9478	-5.4097	1.9938
7	31/3/1999	52.8455		14.7313	-23.9220	2.6949	-43.2668	1.4625
8	30/6/1999	34.5221		-4.8552	362.4067	107.1742	163.4060	1.2125
9	30/9/1999	-0.0933		1.3353	-28.4716	14.6644	-25.4984	1.2125
10	31/12/1999	14.2009		-18.3947	-9.5188	28.1310	-1.4519	1.1031
11	31/3/2000	-27.5740		-16.0223	-37.5740	-10.9635	6.2028	0.9625
12	30/6/2000	-34.5532		-1.8756	-20.0704	-12.5781	18.3647	0.9156
13	30/9/2000	-0.0692		12.3623	-20.9026	-30.3335	-16.1236	0.9000
14	31/12/2000	-0.0644		-5.0361	-15.8539	-3.6363	-0.0619	0.8375
15	31/3/2001	78.8633		2.6356	6.1856	3.3738	-33.7147	0.8375
16	30/6/2001	37.9356		25.5140	11.7003	-30.3105	14.4794	0.8375
17	30/9/2001	73.8945		-10.9188	-31.6338	6.5131	-47.9386	0.7125
18	31/12/2001	-0.0548		-0.3484	15.3298	-3.6261	15.0012	0.7125
19	31/3/2002	-0.0512	24.7604	15.7318	34.6155	-30.3344	-9.2993	0.6656
20	30/6/2002	-0.0476	21.9944	1.7607	66.2890	26.3323	28.6317	0.6188
21	30/9/2002	-0.0476	33.2580	9.4994	-16.1190	12.5731	-8.4384	0.6188
22	31/12/2002	-0.0476	18.3426	19.3345	29.3850	7.1005	6.6257	0.6188
23	31/3/2003	-79.8796	21.8342	-5.9652	4.0740	-5.2660	30.9091	0.4625
24	30/6/2003	95.9140	60.6054	29.0300	6.5470	26.0756	-17.6711	0.4156
25	30/9/2003	79.2932	30.6591	5.7402	107.3899	31.4854	8.7233	0.2281
26	31/12/2003	79.3942	127.0306	61.6090	-20.2556	-46.4758	-48.6645	0.2281
27	31/3/2004	13.1741	-23.4163	-0.5997	-15.6880	6.8958	-11.9057	0.2125
28	30/6/2004	36.8820	11.8122	4.0221	345.1164	101.2538	110.0446	0.2125
29	30/9/2004	69.4853	11.3863	12.1180	355.6358	81.0492	97.9100	0.2125
30	31/12/2004	24.4281	3.7115	-1.9828	435.4977	92.6139	132.7401	0.2125

ภาคผนวก จ

ผลการศึกษาโดยคำนวณจากโปรแกรมคอมพิวเตอร์ทางสถิติ

ผลการศึกษาความเสี่ยงและผลตอบแทน โดยใช้แบบจำลองฟาร์มาและเฟรนช์ ของหลักทรัพย์กลุ่มพลังงานรายสัปดาห์

หลักทรัพย์ BANPU

Dependent Variable: BANPU

Method: Least Squares

Included observations: 392

Weighting series: 1/SMB

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.85139	1.259385	20.52700	0.0000
RMF	1.149317	0.248609	4.622993	0.0000
SMB	-2.833743	0.225144	-12.58633	0.0000
HML	1.433365	0.171728	8.346715	0.0000

Weighted Statistics

R-squared	0.970885	Mean dependent var	4.688729
Adjusted R-squared	0.970660	S.D. dependent var	253.5300
S.E. of regression	43.42710	Akaike info criterion	10.39020
Sum squared resid	731734.2	Schwarz criterion	10.43072
Log likelihood	-2032.478	F-statistic	4312.810
Durbin-Watson stat	1.876162	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.520285	Mean dependent var	22.86734
Adjusted R-squared	0.516576	S.D. dependent var	27.99908
S.E. of regression	19.46739	Sum squared resid	147044.0
Durbin-Watson stat	1.740746		

หลักทรัพย์ BCP

Dependent Variable: BCP

Method: Least Squares

Date: 01/22/05 Time: 14:56

Sample: 7/02/1997 12/29/2004

Included observations: 392

Weighting series: 1/HML

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.269007	0.635722	-6.715207	0.0000
RMF	1.263481	0.221995	5.691481	0.0000
SMB	0.147385	0.129427	1.138745	0.2555
HML	1.260794	0.531962	2.370086	0.0183

Weighted Statistics

R-squared	0.923323	Mean dependent var	-7.483935
Adjusted R-squared	0.922730	S.D. dependent var	89.45507
S.E. of regression	24.86618	Akaike info criterion	9.275046
Sum squared resid	239910.8	Schwarz criterion	9.315569
Log likelihood	-1813.909	F-statistic	1557.403
Durbin-Watson stat	2.128722	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.615592	Mean dependent var	14.61560
Adjusted R-squared	0.612620	S.D. dependent var	42.83192
S.E. of regression	26.65854	Sum squared resid	275742.9
Durbin-Watson stat	0.303414		

หลักทรัพย์ EASTW

Dependent Variable: EASTW

Method: Least Squares

Date: 01/22/05 Time: 14:59

Sample: 7/02/1997 12/29/2004

Included observations: 392

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.16854	0.451560	42.44964	0.0000
RMF	-0.299888	0.182703	-1.641400	0.1015
SMB	-0.694362	0.122367	-5.674433	0.0000
HML	0.263935	0.129496	2.038177	0.0422

Weighted Statistics

R-squared	0.983373	Mean dependent var	13.11231
Adjusted R-squared	0.983244	S.D. dependent var	165.6148
S.E. of regression	21.43786	Akaike info criterion	8.978345
Sum squared resid	178317.7	Schwarz criterion	9.018869
Log likelihood	-1755.756	F-statistic	7649.081
Durbin-Watson stat	1.988939	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-0.052852	Mean dependent var	14.76248
Adjusted R-squared	-0.060992	S.D. dependent var	8.441583
S.E. of regression	8.695208	Sum squared resid	29335.38
Durbin-Watson stat	1.083369		

หลักทรัพย์ EGCOMP

Dependent Variable: EGCOMP

Method: Least Squares

Date: 01/22/05 Time: 15:01

Sample: 7/02/1997 12/29/2004

Included observations: 392

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	17.75547	0.720602	24.63976	0.0000
RMF	0.375263	0.284228	1.320287	0.1875
SMB	-1.000032	0.137807	-7.256751	0.0000
HML	0.441811	0.226122	1.953858	0.0514

Weighted Statistics

R-squared	0.975180	Mean dependent var	10.19892
Adjusted R-squared	0.974988	S.D. dependent var	163.4644
S.E. of regression	25.85240	Akaike info criterion	9.352835
Sum squared resid	259318.4	Schwarz criterion	9.393358
Log likelihood	-1829.156	F-statistic	5081.420
Durbin-Watson stat	1.850561	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-0.289251	Mean dependent var	11.00745
Adjusted R-squared	-0.299219	S.D. dependent var	9.617597
S.E. of regression	10.96245	Sum squared resid	46628.04
Durbin-Watson stat	0.720648		

หลักทรัพย์ LANNA

Dependent Variable: LANNA

Method: Least Squares

Date: 01/22/05 Time: 15:04

Sample: 7/02/1997 12/29/2004

Included observations: 392

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	60.03117	0.859145	69.87316	0.0000
RMF	1.147854	0.262941	4.365441	0.0000
SMB	-1.204583	0.256884	-4.689203	0.0000
HML	0.910041	0.147863	6.154630	0.0000

Weighted Statistics

R-squared	0.992351	Mean dependent var	52.16758
Adjusted R-squared	0.992292	S.D. dependent var	543.0557
S.E. of regression	47.67717	Akaike info criterion	10.57693
Sum squared resid	881967.5	Schwarz criterion	10.61746
Log likelihood	-2069.079	F-statistic	16779.88
Durbin-Watson stat	1.738442	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-1.196346	Mean dependent var	50.93358
Adjusted R-squared	-1.213328	S.D. dependent var	14.69932
S.E. of regression	21.86856	Sum squared resid	185554.7
Durbin-Watson stat	0.946297		

หลักทรัพย์ PICNI

Dependent Variable: PICNI

Method: Least Squares

Date: 01/22/05 Time: 15:06

Sample: 7/02/1997 12/29/2004

Included observations: 392

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.186844	0.355935	0.524938	0.5999
RMF	0.430510	0.125136	3.440333	0.0006
SMB	0.233805	0.122944	1.901717	0.0579
HML	-0.602835	0.131510	-4.583956	0.0000

Weighted Statistics

R-squared	0.503786	Mean dependent var	2.314017
Adjusted R-squared	0.499950	S.D. dependent var	31.09127
S.E. of regression	21.98596	Akaike info criterion	9.028837
Sum squared resid	187552.4	Schwarz criterion	9.069360
Log likelihood	-1765.652	F-statistic	131.3070
Durbin-Watson stat	1.842982	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.221224	Mean dependent var	1.874094
Adjusted R-squared	0.215203	S.D. dependent var	13.19468
S.E. of regression	11.68900	Sum squared resid	53013.51
Durbin-Watson stat	1.023217		

หลักทรัพย์ PTT

Dependent Variable: PTT

Method: Least Squares

Date: 01/22/05 Time: 15:09

Sample(adjusted): 12/05/2001 12/29/2004

Included observations: 161 after adjusting endpoints

Weighting series: 1/HML

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.80317	0.728624	23.06152	0.0000
RMF	1.799551	0.589361	3.053395	0.0027
SMB	-1.340028	0.206009	-6.504706	0.0000
HML	0.889815	0.720382	1.235199	0.2186

Weighted Statistics

R-squared	0.968200	Mean dependent var	6.638940
Adjusted R-squared	0.967592	S.D. dependent var	71.26386
S.E. of regression	12.82911	Akaike info criterion	7.965841
Sum squared resid	25840.00	Schwarz criterion	8.042398
Log likelihood	-637.2502	F-statistic	1593.344
Durbin-Watson stat	2.190585	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.020795	Mean dependent var	11.12913
Adjusted R-squared	0.002084	S.D. dependent var	9.044405
S.E. of regression	9.034975	Sum squared resid	12816.03
Durbin-Watson stat	1.230765		

หลักทรัพย์ PTTEP

Dependent Variable: PTTEP

Method: Least Squares

Date: 01/22/05 Time: 15:12

Sample: 7/02/1997 12/29/2004

Included observations: 392

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.824094	0.707292	5.406667	0.0000
RMF	0.836592	0.283293	2.953094	0.0033
SMB	0.033188	0.110536	0.300252	0.7641
HML	-0.281911	0.297081	-0.948937	0.3432

Weighted Statistics

R-squared	0.760313	Mean dependent var	5.062073
Adjusted R-squared	0.758460	S.D. dependent var	53.56198
S.E. of regression	26.32396	Akaike info criterion	9.388988
Sum squared resid	268864.9	Schwarz criterion	9.429511
Log likelihood	-1836.242	F-statistic	410.2596
Durbin-Watson stat	1.931718	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-0.068068	Mean dependent var	1.590338
Adjusted R-squared	-0.076326	S.D. dependent var	5.990703
S.E. of regression	6.215122	Sum squared resid	14987.56
Durbin-Watson stat	1.168451		

หลักทรัพย์ SUSCO

Dependent Variable: SUSCO

Method: Least Squares

Date: 01/22/05 Time: 15:14

Sample: 7/02/1997 12/29/2004

Included observations: 392

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.253073	0.656225	3.433383	0.0007
RMF	1.303755	0.158852	8.207378	0.0000
SMB	-0.266203	0.131441	-2.025269	0.0435
HML	0.804000	0.175191	4.589275	0.0000

Weighted Statistics

R-squared	0.846197	Mean dependent var	2.407975
Adjusted R-squared	0.845008	S.D. dependent var	60.73793
S.E. of regression	23.91193	Akaike info criterion	9.196783
Sum squared resid	221850.7	Schwarz criterion	9.237307
Log likelihood	-1798.570	F-statistic	711.5704
Durbin-Watson stat	1.772782	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-0.722647	Mean dependent var	0.820521
Adjusted R-squared	-0.735966	S.D. dependent var	11.03506
S.E. of regression	14.53936	Sum squared resid	82020.45
Durbin-Watson stat	0.879550		

ผลการศึกษาความเสี่ยงและผลตอบแทน โดยใช้แบบจำลองฟาร์มาและเฟรนช์ ของหลักทรัพย์กลุ่มพลังงานรายเดือน

หลักทรัพย์ BANPU

Dependent Variable: BANPU

Method: Least Squares

Date: 01/23/05 Time: 12:54

Sample: 1997:07 2004:12

Included observations: 90

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	27.40005	2.092030	13.09735	0.0000
RMF	5.235243	0.244674	21.39680	0.0000
SMB	-3.555401	1.679994	-2.116317	0.0372
HML	-2.306726	0.334562	-6.894761	0.0000

Weighted Statistics

R-squared	0.931491	Mean dependent var	-90.20714
Adjusted R-squared	0.929101	S.D. dependent var	594.1210
S.E. of regression	158.1957	Akaike info criterion	13.00897
Sum squared resid	2152227.	Schwarz criterion	13.12007
Log likelihood	-581.4036	F-statistic	389.7694
Durbin-Watson stat	1.585188	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-7.052950	Mean dependent var	25.32833
Adjusted R-squared	-7.333867	S.D. dependent var	34.87681
S.E. of regression	100.6839	Sum squared resid	871803.4
Durbin-Watson stat	1.625737		

หลักทรัพย์ BCP

Dependent Variable: BCP

Method: Least Squares

Date: 01/23/05 Time: 12:58

Sample(adjusted): 1997:08 2004:12

Included observations: 89 after adjusting endpoints

Convergence achieved after 6 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.364349	3.402201	0.401019	0.6894
RMF	0.999142	0.151011	6.616349	0.0000
SMB	0.321666	0.105253	3.056117	0.0030
HML	0.207619	0.071445	2.906022	0.0047
AR(1)	0.403921	0.101341	3.985755	0.0001

R-squared	0.390489	Mean dependent var	5.159829
Adjusted R-squared	0.361465	S.D. dependent var	20.82138
S.E. of regression	16.63804	Akaike info criterion	8.515800
Sum squared resid	23253.24	Schwarz criterion	8.655611
Log likelihood	-373.9531	F-statistic	13.45384
Durbin-Watson stat	2.028011	Prob(F-statistic)	0.000000
Inverted AR Roots	.40		

หลักทรัพย์ EASTW

Dependent Variable: EASTW

Method: Least Squares

Date: 01/23/05 Time: 13:09

Sample: 1997:07 2004:12

Included observations: 90

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.15934	0.633111	31.84170	0.0000
RMF	1.279148	0.086549	14.77951	0.0000
SMB	-0.851684	0.514014	-1.656930	0.1012
HML	-0.734100	0.090403	-8.120263	0.0000

Weighted Statistics

R-squared	0.974475	Mean dependent var	-8.762458
Adjusted R-squared	0.973584	S.D. dependent var	278.9470
S.E. of regression	45.33702	Akaike info criterion	10.50955
Sum squared resid	176768.3	Schwarz criterion	10.62065
Log likelihood	-468.9298	F-statistic	1094.401
Durbin-Watson stat	1.642099	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-5.588772	Mean dependent var	15.07533
Adjusted R-squared	-5.818613	S.D. dependent var	12.04478
S.E. of regression	31.45191	Sum squared resid	85073.13
Durbin-Watson stat	1.900314		

หลักทรัพย์ EGCOMP

Dependent Variable: EGCOMP

Method: Least Squares

Date: 01/23/05 Time: 13:10

Sample: 1997:07 2004:12

Included observations: 90

Weighting series: 1/HML

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.030299	3.079069	-0.009840	0.9922
RMF	0.998797	0.283168	3.527220	0.0007
SMB	0.537400	0.170457	3.152696	0.0022
HML	1.669371	0.617806	2.702097	0.0083

Weighted Statistics

R-squared	0.538629	Mean dependent var	-56.20291
Adjusted R-squared	0.522534	S.D. dependent var	239.1499
S.E. of regression	165.2499	Akaike info criterion	13.09622
Sum squared resid	2348448.	Schwarz criterion	13.20732
Log likelihood	-585.3300	F-statistic	33.46694
Durbin-Watson stat	1.854504	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-12.561487	Mean dependent var	11.80686
Adjusted R-squared	-13.034562	S.D. dependent var	14.09923
S.E. of regression	52.81956	Sum squared resid	239931.9
Durbin-Watson stat	1.180350		

หลักทรัพย์ LANNA

Dependent Variable: LANNA

Method: Least Squares

Date: 01/23/05 Time: 13:12

Sample: 1997:07 2004:12

Included observations: 90

Weighting series: 1/HML

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	32.69364	21.17086	1.544276	0.1262
RMF	4.034578	1.397776	2.886426	0.0049
SMB	5.798247	1.163126	4.985055	0.0000
HML	4.740498	3.734602	1.269345	0.2077

Weighted Statistics

R-squared	0.888889	Mean dependent var	23.35865
Adjusted R-squared	0.885013	S.D. dependent var	3117.148
S.E. of regression	1057.015	Akaike info criterion	16.80771
Sum squared resid	96086132	Schwarz criterion	16.91881
Log likelihood	-752.3470	F-statistic	229.3342
Durbin-Watson stat	2.286904	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-6.425267	Mean dependent var	75.57854
Adjusted R-squared	-6.684288	S.D. dependent var	57.09666
S.E. of regression	158.2751	Sum squared resid	2154386.
Durbin-Watson stat	1.530313		

หลักทรัพย์ PICNI

Dependent Variable: PICNI

Method: Least Squares

Date: 01/23/05 Time: 13:17

Sample: 1997:07 2004:12

Included observations: 90

Weighting series: 1/RMF

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.82687	4.430894	2.669183	0.0091
RMF	1.065061	0.916711	1.161829	0.2485
SMB	1.090973	0.306602	3.558267	0.0006
HML	-1.863006	0.354540	-5.254717	0.0000

Weighted Statistics

R-squared	0.990960	Mean dependent var	120.9253
Adjusted R-squared	0.990645	S.D. dependent var	913.7400
S.E. of regression	88.37917	Akaike info criterion	11.84458
Sum squared resid	671735.4	Schwarz criterion	11.95568
Log likelihood	-529.0059	F-statistic	3142.465
Durbin-Watson stat	2.274214	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.852206	Mean dependent var	37.59394
Adjusted R-squared	0.847050	S.D. dependent var	59.85990
S.E. of regression	23.41049	Sum squared resid	47132.39
Durbin-Watson stat	1.288690		

หลักทรัพย์ PTT

Dependent Variable: PTT

Method: Least Squares

Date: 01/23/05 Time: 13:18

Sample(adjusted): 2002:01 2004:12

Included observations: 36 after adjusting endpoints

Weighting series: 1/RMF

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.27244	2.846339	5.365644	0.0000
RMF	0.580846	0.718013	0.808963	0.4245
SMB	-0.360552	0.054186	-6.653982	0.0000
HML	-0.199654	0.097583	-2.045990	0.0490

Weighted Statistics

R-squared	0.889601	Mean dependent var	11.59611
Adjusted R-squared	0.879251	S.D. dependent var	38.60322
S.E. of regression	13.41422	Akaike info criterion	8.134947
Sum squared resid	5758.121	Schwarz criterion	8.310893
Log likelihood	-142.4290	F-statistic	85.95247
Durbin-Watson stat	1.850981	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.470320	Mean dependent var	15.35988
Adjusted R-squared	0.420662	S.D. dependent var	15.93715
S.E. of regression	12.13044	Sum squared resid	4708.719
Durbin-Watson stat	1.354613		

หลักทรัพย์ PTTEP

Dependent Variable: PTTEP

Method: Least Squares

Date: 01/23/05 Time: 13:20

Sample: 1997:07 2004:12

Included observations: 90

Weighting series: 1/RMF

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.730787	1.529191	0.477891	0.6339
RMF	0.522644	0.340828	1.533451	0.1288
SMB	-0.085500	0.043122	-1.982755	0.0506
HML	-0.231589	0.050337	-4.600816	0.0000

Weighted Statistics

R-squared	0.704697	Mean dependent var	10.59476
Adjusted R-squared	0.694395	S.D. dependent var	44.54937
S.E. of regression	24.62757	Akaike info criterion	9.289036
Sum squared resid	52160.47	Schwarz criterion	9.400139
Log likelihood	-414.0066	F-statistic	68.40865
Durbin-Watson stat	1.915397	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.378510	Mean dependent var	2.625852
Adjusted R-squared	0.356830	S.D. dependent var	12.69126
S.E. of regression	10.17813	Sum squared resid	8909.105
Durbin-Watson stat	1.725835		

หลักทรัพย์ SUSCO

Dependent Variable: SUSCO

Method: Least Squares

Date: 01/23/05 Time: 13:21

Sample: 1997:07 2004:12

Included observations: 90

Weighting series: 1/SMB

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.846421	0.912451	0.927635	0.3562
RMF	3.053645	0.122074	25.01478	0.0000
SMB	0.020182	0.605172	0.033349	0.9735
HML	-0.251377	0.102101	-2.462057	0.0158

Weighted Statistics

R-squared	0.970108	Mean dependent var	-42.90245
Adjusted R-squared	0.969065	S.D. dependent var	287.3440
S.E. of regression	50.53871	Akaike info criterion	10.72678
Sum squared resid	219657.8	Schwarz criterion	10.83789
Log likelihood	-478.7052	F-statistic	930.3467
Durbin-Watson stat	1.588840	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-0.525253	Mean dependent var	4.561614
Adjusted R-squared	-0.578459	S.D. dependent var	29.74256
S.E. of regression	37.36758	Sum squared resid	120084.9
Durbin-Watson stat	1.496610		

ผลการศึกษาความเสี่ยงและผลตอบแทน โดยใช้แบบจำลองฟาร์มาและเฟรนช์ ของหลักทรัพย์กลุ่มพลังงานรายไตรมาส

หลักทรัพย์ BANPU

Dependent Variable: BANPU

Method: Least Squares

Date: 01/23/05 Time: 21:04

Sample(adjusted): 1997:4 2004:4

Included observations: 29 after adjusting endpoints

Convergence achieved after 6 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	40.70866	8.732911	4.661522	0.0001
RMF	1.494059	0.246204	6.068380	0.0000
SMB	-1.316012	0.207745	-6.334744	0.0000
HML	0.575163	0.127075	4.526178	0.0001
AR(1)	0.383701	0.178936	2.144347	0.0423

R-squared	0.755960	Mean dependent var	34.96576
Adjusted R-squared	0.715287	S.D. dependent var	51.68145
S.E. of regression	27.57647	Akaike info criterion	9.627388
Sum squared resid	18251.08	Schwarz criterion	9.863129
Log likelihood	-134.5971	F-statistic	18.58613
Durbin-Watson stat	2.059567	Prob(F-statistic)	0.000000

Inverted AR Roots	.38

หลักทรัพย์ BCP

Dependent Variable: BCP

Method: Least Squares

Date: 01/23/05 Time: 19:52

Sample: 1997:3 2004:4

Included observations: 30

Weighting series: 1/HML

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10.78906	0.491203	-21.96455	0.0000
RMF	-1.409029	0.135406	-10.40594	0.0000
SMB	1.633844	0.114822	14.22932	0.0000
HML	0.120040	0.826288	0.145277	0.8856

Weighted Statistics

R-squared	0.987463	Mean dependent var	-8.022865
Adjusted R-squared	0.986016	S.D. dependent var	67.94449
S.E. of regression	8.034688	Akaike info criterion	7.128979
Sum squared resid	1678.462	Schwarz criterion	7.315806
Log likelihood	-102.9347	F-statistic	682.6025
Durbin-Watson stat	2.572992	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-1.973586	Mean dependent var	19.06049
Adjusted R-squared	-2.316692	S.D. dependent var	47.96228
S.E. of regression	87.34788	Sum squared resid	198371.0
Durbin-Watson stat	1.602600		

หลักทรัพย์ EASTW

Dependent Variable: EASTW

Method: Least Squares

Date: 01/23/05 Time: 19:54

Sample: 1997:3 2004:4

Included observations: 30

Weighting series: 1/HML

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.57036	0.490610	37.85155	0.0000
RMF	-0.152211	0.071620	-2.125253	0.0432
SMB	-0.424594	0.094231	-4.505892	0.0001
HML	0.151258	0.431089	0.350874	0.7285

Weighted Statistics

R-squared	0.998298	Mean dependent var	19.13804
Adjusted R-squared	0.998102	S.D. dependent var	104.2535
S.E. of regression	4.541739	Akaike info criterion	5.988063
Sum squared resid	536.3122	Schwarz criterion	6.174889
Log likelihood	-85.82094	F-statistic	5084.799
Durbin-Watson stat	2.346169	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-0.613636	Mean dependent var	15.11206
Adjusted R-squared	-0.799825	S.D. dependent var	15.83820
S.E. of regression	21.24815	Sum squared resid	11738.58
Durbin-Watson stat	1.946247		

หลักทรัพย์ EGCOMP

Dependent Variable: EGCOMP

Method: Least Squares

Date: 01/23/05 Time: 19:56

Sample: 1997:3 2004:4

Included observations: 30

Weighting series: 1/RMF

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.860466	2.739456	1.409209	0.1706
RMF	0.900719	0.396636	2.270897	0.0317
SMB	-0.305023	0.082299	-3.706286	0.0010
HML	0.279990	0.065710	4.260975	0.0002

Weighted Statistics

R-squared	0.927382	Mean dependent var	0.379703
Adjusted R-squared	0.919003	S.D. dependent var	20.02839
S.E. of regression	5.700058	Akaike info criterion	6.442395
Sum squared resid	844.7571	Schwarz criterion	6.629222
Log likelihood	-92.63593	F-statistic	110.6800
Durbin-Watson stat	2.106614	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-0.378736	Mean dependent var	13.20882
Adjusted R-squared	-0.537821	S.D. dependent var	20.51108
S.E. of regression	25.43557	Sum squared resid	16821.17
Durbin-Watson stat	2.110862		

หลักทรัพย์ LANNA

Dependent Variable: LANNA

Method: Least Squares

Date: 01/23/05 Time: 19:57

Sample: 1997:3 2004:4

Included observations: 30

Weighting series: 1/HML

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	72.30941	0.899801	80.36158	0.0000
RMF	2.534300	0.211731	11.96943	0.0000
SMB	-1.355843	0.152078	-8.915422	0.0000
HML	0.260922	1.016819	0.256606	0.7995

Weighted Statistics

R-squared	0.999294	Mean dependent var	65.18299
Adjusted R-squared	0.999213	S.D. dependent var	353.6398
S.E. of regression	9.922115	Akaike info criterion	7.550975
Sum squared resid	2559.658	Schwarz criterion	7.737801
Log likelihood	-109.2646	F-statistic	12271.11
Durbin-Watson stat	2.351432	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-0.783503	Mean dependent var	54.93821
Adjusted R-squared	-0.989292	S.D. dependent var	51.73795
S.E. of regression	72.97238	Sum squared resid	138449.2
Durbin-Watson stat	1.548271		

หลักทรัพย์ PICNI

Dependent Variable: PICNI

Method: Least Squares

Date: 01/23/05 Time: 19:59

Sample(adjusted): 1997:4 2004:4

Included observations: 29 after adjusting endpoints

Convergence achieved after 6 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.91974	9.052784	1.758546	0.0914
RMF	1.027864	0.248564	4.135210	0.0004
SMB	1.073614	0.205093	5.234775	0.0000
HML	-0.890724	0.129250	-6.891482	0.0000
AR(1)	0.403779	0.197240	2.047148	0.0517

R-squared	0.710165	Mean dependent var	15.83379
Adjusted R-squared	0.661859	S.D. dependent var	47.48120
S.E. of regression	27.61028	Akaike info criterion	9.629839
Sum squared resid	18295.86	Schwarz criterion	9.865579
Log likelihood	-134.6327	F-statistic	14.70141
Durbin-Watson stat	1.784766	Prob(F-statistic)	0.000003

Inverted AR Roots	.40

หลักทรัพย์ PTT

Dependent Variable: PTT

Method: Least Squares

Date: 01/23/05 Time: 20:01

Sample(adjusted): 2002:1 2004:4

Included observations: 12 after adjusting endpoints

Weighting series: 1/RMF

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.79515	5.198309	4.769849	0.0014
RMF	0.929118	0.557744	1.665850	0.1343
SMB	0.157772	0.070283	2.244816	0.0550
HML	-0.262407	0.107825	-2.433639	0.0410

Weighted Statistics

R-squared	0.998025	Mean dependent var	10.43930
Adjusted R-squared	0.997285	S.D. dependent var	35.35515
S.E. of regression	1.842304	Akaike info criterion	4.321113
Sum squared resid	27.15268	Schwarz criterion	4.482748
Log likelihood	-21.92668	F-statistic	1347.707
Durbin-Watson stat	1.676936	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.525848	Mean dependent var	28.49820
Adjusted R-squared	0.348041	S.D. dependent var	36.74406
S.E. of regression	29.66861	Sum squared resid	7041.811
Durbin-Watson stat	3.114237		

หลักทรัพย์ PTTEP

Dependent Variable: PTTEP

Method: Least Squares

Date: 01/23/05 Time: 20:06

Sample: 1997:3 2004:4

Included observations: 30

Weighting series: 1/RMF

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.21211	6.433170	2.520081	0.0182
RMF	-0.655459	0.735205	-0.891532	0.3808
SMB	-0.252383	0.227925	-1.107306	0.2783
HML	0.124627	0.159909	0.779361	0.4428

Weighted Statistics

R-squared	0.834400	Mean dependent var	6.509932
Adjusted R-squared	0.815293	S.D. dependent var	25.02843
S.E. of regression	10.75661	Akaike info criterion	7.712484
Sum squared resid	3008.322	Schwarz criterion	7.899310
Log likelihood	-111.6873	F-statistic	43.66841
Durbin-Watson stat	2.088959	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	-1.323273	Mean dependent var	4.321740
Adjusted R-squared	-1.591342	S.D. dependent var	16.95033
S.E. of regression	27.28604	Sum squared resid	19357.73
Durbin-Watson stat	1.536671		

หลักทรัพย์ SUSCO

Dependent Variable: SUSCO

Method: Least Squares

Date: 01/23/05 Time: 20:46

Sample: 1997:3 2004:4

Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.437538	10.24188	0.726189	0.4742
RMF	1.011542	0.468391	2.159611	0.0402
SMB	1.430914	0.394483	3.627319	0.0012
HML	1.400359	0.247241	5.663951	0.0000

R-squared	0.900993	Mean dependent var	64.43409
Adjusted R-squared	0.889570	S.D. dependent var	156.3059
S.E. of regression	51.94211	Akaike info criterion	10.86170
Sum squared resid	70147.57	Schwarz criterion	11.04853
Log likelihood	-158.9255	F-statistic	78.86967
Durbin-Watson stat	1.505060	Prob(F-statistic)	0.000000

ผลการทดสอบวิธีการถดถอยแบบสลับเปลี่ยน (Switching regression method) ของหลักทรัพย์กลุ่มพลังงานรายสัปดาห์

หลักทรัพย์ BCP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: BCP

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	5.918212	1.300957	4.549122	0.0000
RMF	2.286672	0.294193	7.772688	0.0000
SMB	1.074910	0.094074	11.42627	0.0000
HML	2.206698	0.096354	22.90201	0.0000
	Error Distribution			
SCALE:C(5)	19.72934	0.999399	19.74120	0.0000

Mean dependent var	14.61560	S.D. dependent var	42.83192
Akaike info criterion	5.050874	Schwarz criterion	5.101528
Log likelihood	-984.9713	Hannan-Quinn criter.	5.070949
Avg. log likelihood	-2.512682		
Left censored obs	0	Right censored obs	186
Uncensored obs	206	Total obs	392

ภาวะหลักทรัพย์ขาลง

Dependent Variable: BCP

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	14.11308	1.693784	8.332278	0.0000
RMF	-0.912290	0.290238	-3.143248	0.0017
SMB	0.794356	0.100796	7.880800	0.0000
HML	1.607325	0.087636	18.34097	0.0000
	Error Distribution			
SCALE:C(5)	21.04477	1.080581	19.47541	0.0000

Mean dependent var	14.61560	S.D. dependent var	42.83192
Akaike info criterion	4.623289	Schwarz criterion	4.673942
Log likelihood	-901.1646	Hannan-Quinn criter.	4.643364
Avg. log likelihood	-2.298889		
Left censored obs	0	Right censored obs	206
Uncensored obs	186	Total obs	392

หลักทรัพย์ BANPU ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: BANPU

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	65.14650	4.529088	14.38402	0.0000
RMF	3.098067	0.579539	5.345746	0.0000
SMB	-2.697714	0.215545	-12.51578	0.0000
HML	1.109315	0.163934	6.766832	0.0000
	Error Distribution			
SCALE:C(5)	29.32863	2.575446	11.38779	0.0000

Mean dependent var	22.86734	S.D. dependent var	27.99908
Akaike info criterion	2.337818	Schwarz criterion	2.388471
Log likelihood	-453.2122	Hannan-Quinn criter.	2.357893
Avg. log likelihood	-1.156154		
Left censored obs	0	Right censored obs	313
Uncensored obs	79	Total obs	392

ภาวะหลักทรัพย์ขาลง

Dependent Variable: BANPU

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	29.83821	0.798249	37.37956	0.0000
RMF	-0.356961	0.165235	-2.160326	0.0307
SMB	-1.736892	0.057543	-30.18416	0.0000
HML	0.731194	0.051691	14.14543	0.0000
	Error Distribution			
SCALE:C(5)	13.38793	0.527369	25.38628	0.0000

Mean dependent var	22.86734	S.D. dependent var	27.99908
Akaike info criterion	6.566232	Schwarz criterion	6.616886
Log likelihood	-1281.981	Hannan-Quinn criter.	6.586307
Avg. log likelihood	-3.270361		
Left censored obs	0	Right censored obs	79
Uncensored obs	313	Total obs	392

หลักทรัพย์ EASTW ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: EASTW

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	99.85794	24.59000	4.060916	0.0000
RMF	1.005068	1.240156	0.810436	0.4177
SMB	-1.289672	0.513807	-2.510033	0.0121
HML	0.432501	0.337794	1.280369	0.2004
	Error Distribution			
SCALE:C(5)	39.09557	10.87237	3.595865	0.0003

Mean dependent var	14.76248	S.D. dependent var	8.441583
Akaike info criterion	0.433380	Schwarz criterion	0.484034
Log likelihood	-79.94257	Hannan-Quinn criter.	0.453456
Avg. log likelihood	-0.203935		
Left censored obs	0	Right censored obs	382
Uncensored obs	10	Total obs	392

ภาวะหลักทรัพย์ขาลง

Dependent Variable: EASTW

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	16.66718	0.357344	46.64181	0.0000
RMF	-0.028280	0.071350	-0.396359	0.6918
SMB	-0.335249	0.026668	-12.57120	0.0000
HML	0.011474	0.024246	0.473248	0.6360
	Error Distribution			
SCALE:C(5)	6.359058	0.229496	27.70877	0.0000

Mean dependent var	14.76248	S.D. dependent var	8.441583
Akaike info criterion	6.402425	Schwarz criterion	6.453078
Log likelihood	-1249.875	Hannan-Quinn criter.	6.422500
Avg. log likelihood	-3.188457		
Left censored obs	0	Right censored obs	10
Uncensored obs	382	Total obs	392

หลักทรัพย์ EGCOMP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: EGCOMP

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	39.71191	3.679672	10.79224	0.0000
RMF	2.143486	0.392403	5.462458	0.0000
SMB	-1.027259	0.150670	-6.817959	0.0000
HML	0.314546	0.102336	3.073665	0.0021
	Error Distribution			
SCALE:C(5)	18.26860	2.000139	9.133664	0.0000
Mean dependent var	11.00745	S.D. dependent var		9.617597
Akaike info criterion	1.649604	Schwarz criterion		1.700258
Log likelihood	-318.3224	Hannan-Quinn criter.		1.669680
Avg. log likelihood	-0.812047			
Left censored obs	0	Right censored obs		335
Uncensored obs	57	Total obs		392

ภาวะหลักทรัพย์ขาลง

Dependent Variable: EGCOMP

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	13.53904	0.352573	38.40067	0.0000
RMF	0.215217	0.073407	2.931823	0.0034
SMB	-0.406449	0.025953	-15.66078	0.0000
HML	0.152779	0.024278	6.292885	0.0000
	Error Distribution			
SCALE:C(5)	5.989325	0.228074	26.26048	0.0000
Mean dependent var	11.00745	S.D. dependent var		9.617597
Akaike info criterion	5.560155	Schwarz criterion		5.610809
Log likelihood	-1084.790	Hannan-Quinn criter.		5.580231
Avg. log likelihood	-2.767323			
Left censored obs	0	Right censored obs		57
Uncensored obs	335	Total obs		392

หลักทรัพย์ PICNI ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: PICNI

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	7.861258	0.759142	10.35545	0.0000
RMF	0.467252	0.141031	3.313124	0.0009
SMB	0.718508	0.052079	13.79640	0.0000
HML	-0.821636	0.048055	-17.09797	0.0000
	Error Distribution			
SCALE:C(5)	12.05163	0.551862	21.83811	0.0000

Mean dependent var	1.874094	S.D. dependent var	13.19468
Akaike info criterion	5.691103	Schwarz criterion	5.741757
Log likelihood	-1110.456	Hannan-Quinn criter.	5.711179
Avg. log likelihood	-2.832796		
Left censored obs	0	Right censored obs	131
Uncensored obs	261	Total obs	392

ภาวะหลักทรัพย์ขาลง

Dependent Variable: PICNI

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	13.78332	0.794715	17.34373	0.0000
RMF	0.182057	0.157054	1.159199	0.2464
SMB	0.414256	0.053060	7.807363	0.0000
HML	-0.403428	0.050645	-7.965772	0.0000
	Error Distribution			
SCALE:C(5)	9.395254	0.544227	17.26348	0.0000

Mean dependent var	1.874094	S.D. dependent var	13.19468
Akaike info criterion	2.742304	Schwarz criterion	2.792958
Log likelihood	-532.4916	Hannan-Quinn criter.	2.762380
Avg. log likelihood	-1.358397		
Left censored obs	0	Right censored obs	261
Uncensored obs	131	Total obs	392

หลักทรัพย์ PTT ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: PTT

Method: ML - Censored Normal (TOBIT)

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	43.49690	6.702213	6.489931	0.0000
RMF	4.282240	1.117665	3.831417	0.0001
SMB	-2.145837	0.478828	-4.481433	0.0000
HML	0.048113	0.435453	0.110488	0.9120
	Error Distribution			
SCALE:C(5)	14.88304	2.768699	5.375463	0.0000

Mean dependent var	11.12913	S.D. dependent var	9.044405
Akaike info criterion	1.284770	Schwarz criterion	1.380466
Log likelihood	-98.42397	Hannan-Quinn criter.	1.323626
Avg. log likelihood	-0.611329		
Left censored obs	0	Right censored obs	142
Uncensored obs	19	Total obs	161

ภาวะหลักทรัพย์ขาลง

Dependent Variable: PTT

Method: ML - Censored Normal (TOBIT)

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	14.76846	0.521645	28.31131	0.0000
RMF	0.062743	0.170506	0.367980	0.7129
SMB	-0.858162	0.071986	-11.92125	0.0000
HML	0.287173	0.098879	2.904282	0.0037
	Error Distribution			
SCALE:C(5)	5.576691	0.326417	17.08456	0.0000

Mean dependent var	11.12913	S.D. dependent var	9.044405
Akaike info criterion	5.637068	Schwarz criterion	5.732764
Log likelihood	-448.7840	Hannan-Quinn criter.	5.675924
Avg. log likelihood	-2.787478		
Left censored obs	0	Right censored obs	19
Uncensored obs	142	Total obs	161

หลักทรัพย์ PTTEP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: PTTEP

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	8.585204	0.789167	10.87882	0.0000
RMF	1.387581	0.137193	10.11409	0.0000
SMB	-0.146707	0.045193	-3.246219	0.0012
HML	-0.023111	0.039385	-0.586805	0.5573
	Error Distribution			
SCALE:C(5)	8.913117	0.585770	15.21608	0.0000
Mean dependent var	1.590338	S.D. dependent var		5.990703
Akaike info criterion	3.285880	Schwarz criterion		3.336534
Log likelihood	-639.0326	Hannan-Quinn criter.		3.305956
Avg. log likelihood	-1.630185			
Left censored obs	0	Right censored obs		247
Uncensored obs	145	Total obs		392

ภาวะหลักทรัพย์ขาลง

Dependent Variable: PTTEP

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	4.487332	0.242485	18.50559	0.0000
RMF	0.411703	0.051164	8.046791	0.0000
SMB	-0.044074	0.018738	-2.352157	0.0187
HML	0.024098	0.017029	1.415105	0.1570
	Error Distribution			
SCALE:C(5)	3.629170	0.155834	23.28871	0.0000
Mean dependent var	1.590338	S.D. dependent var		5.990703
Akaike info criterion	3.536310	Schwarz criterion		3.586964
Log likelihood	-688.1167	Hannan-Quinn criter.		3.556385
Avg. log likelihood	-1.755400			
Left censored obs	0	Right censored obs		145
Uncensored obs	247	Total obs		392

หลักทรัพย์ SUSCO ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: SUSCO

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	2.781982	0.775561	3.587056	0.0003
RMF	1.683034	0.160580	10.48098	0.0000
SMB	0.128640	0.055198	2.330513	0.0198
HML	0.177234	0.051433	3.445900	0.0006
	Error Distribution			
SCALE:C(5)	12.50648	0.605761	20.64590	0.0000
Mean dependent var	0.820521	S.D. dependent var		11.03506
Akaike info criterion	5.445541	Schwarz criterion		5.496195
Log likelihood	-1062.326	Hannan-Quinn criter.		5.465616
Avg. log likelihood	-2.710015			
Left censored obs	0	Right censored obs		150
Uncensored obs	242	Total obs		392

ภาวะหลักทรัพย์ขาลง

Dependent Variable: SUSCO

Method: ML - Censored Normal (TOBIT)

Included observations: 392

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	8.609869	0.744764	11.56054	0.0000
RMF	0.194417	0.143332	1.356410	0.1750
SMB	0.171551	0.046093	3.721863	0.0002
HML	0.178282	0.041177	4.329673	0.0000
	Error Distribution			
SCALE:C(5)	8.284237	0.431718	19.18899	0.0000
Mean dependent var	0.820521	S.D. dependent var		11.03506
Akaike info criterion	2.926211	Schwarz criterion		2.976865
Log likelihood	-568.5374	Hannan-Quinn criter.		2.946287
Avg. log likelihood	-1.450350			
Left censored obs	0	Right censored obs		242
Uncensored obs	150	Total obs		392

ผลการทดสอบวิธีการถดถอยแบบสลับเปลี่ยน (Switching regression method) ของหลักทรัพย์กลุ่มพลังงานรายเดือน

หลักทรัพย์ BCP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: BCP

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	17.20007	4.852859	3.544316	0.0004
RMF	1.860599	0.372832	4.990454	0.0000
SMB	0.362165	0.207509	1.745297	0.0809
HML	0.354055	0.138572	2.555030	0.0106
	Error Distribution			
SCALE:C(5)	28.56808	3.381098	8.449352	0.0000
Mean dependent var	5.853469	S.D. dependent var		21.72466
Akaike info criterion	5.277214	Schwarz criterion		5.416093
Log likelihood	-232.4746	Hannan-Quinn criter.		5.333218
Avg. log likelihood	-2.583052			
Left censored obs	0	Right censored obs		47
Uncensored obs	43	Total obs		90

ภาวะหลักทรัพย์ขาลง

Dependent Variable: BCP

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	18.56270	2.811394	6.602667	0.0000
RMF	0.220852	0.181428	1.217294	0.2235
SMB	0.234211	0.108207	2.164460	0.0304
HML	0.164997	0.068971	2.392278	0.0167
	Error Distribution			
SCALE:C(5)	15.49241	1.461674	10.59909	0.0000
Mean dependent var	5.853469	S.D. dependent var		21.72466
Akaike info criterion	4.572208	Schwarz criterion		4.711086
Log likelihood	-200.7494	Hannan-Quinn criter.		4.628212
Avg. log likelihood	-2.230548			
Left censored obs	0	Right censored obs		43
Uncensored obs	47	Total obs		90

หลักทรัพย์ BANPU ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: BANPU

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	114.0670	18.27833	6.240556	0.0000
RMF	6.106257	1.306492	4.673780	0.0000
SMB	-0.759073	0.549336	-1.381801	0.1670
HML	0.352515	0.379751	0.928278	0.3533
	Error Distribution			
SCALE:C(5)	53.10380	9.548728	5.561349	0.0000
Mean dependent var	25.32833	S.D. dependent var		34.87681
Akaike info criterion	2.760043	Schwarz criterion		2.898921
Log likelihood	-119.2019	Hannan-Quinn criter.		2.816046
Avg. log likelihood	-1.324466			
Left censored obs	0	Right censored obs		71
Uncensored obs	19	Total obs		90

ภาวะหลักทรัพย์ขาลง

Dependent Variable: BANPU

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	49.95967	3.484267	14.33864	0.0000
RMF	0.101095	0.257285	0.392931	0.6944
SMB	-0.977793	0.140938	-6.937766	0.0000
HML	0.046321	0.095384	0.485629	0.6272
	Error Distribution			
SCALE:C(5)	22.97246	1.883587	12.19612	0.0000
Mean dependent var	25.32833	S.D. dependent var		34.87681
Akaike info criterion	7.357872	Schwarz criterion		7.496750
Log likelihood	-326.1042	Hannan-Quinn criter.		7.413876
Avg. log likelihood	-3.623380			
Left censored obs	0	Right censored obs		19
Uncensored obs	71	Total obs		90

หลักทรัพย์ EASTW ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: EASTW

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	75.37269	19.59157	3.847201	0.0001
RMF	0.056267	0.682689	0.082420	0.9343
SMB	-0.148623	0.378174	-0.393002	0.6943
HML	-0.150479	0.231017	-0.651376	0.5148
	Error Distribution			
SCALE:C(5)	45.72680	12.49903	3.658426	0.0003
Mean dependent var	15.07533	S.D. dependent var		12.04478
Akaike info criterion	1.710489	Schwarz criterion		1.849367
Log likelihood	-71.97201	Hannan-Quinn criter.		1.766493
Avg. log likelihood	-0.799689			
Left censored obs	0	Right censored obs		80
Uncensored obs	10	Total obs		90

ภาวะหลักทรัพย์ขาลง

Dependent Variable: EASTW

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	19.45309	1.371091	14.18804	0.0000
RMF	0.147295	0.091961	1.601714	0.1092
SMB	-0.057392	0.066537	-0.862558	0.3884
HML	0.118764	0.049888	2.380588	0.0173
	Error Distribution			
SCALE:C(5)	9.366880	0.734035	12.76080	0.0000
Mean dependent var	15.07533	S.D. dependent var		12.04478
Akaike info criterion	6.622932	Schwarz criterion		6.761810
Log likelihood	-293.0319	Hannan-Quinn criter.		6.678936
Avg. log likelihood	-3.255911			
Left censored obs	0	Right censored obs		10
Uncensored obs	80	Total obs		90

หลักทรัพย์ EGCOMP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: EGCOMP

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	51.10687	9.838474	5.194593	0.0000
RMF	1.935131	0.516704	3.745142	0.0002
SMB	-0.554598	0.268696	-2.064033	0.0390
HML	-0.066491	0.141003	-0.471561	0.6372
	Error Distribution			
SCALE:C(5)	28.38652	5.532246	5.131102	0.0000
Mean dependent var	11.80686	S.D. dependent var		14.09923
Akaike info criterion	2.488445	Schwarz criterion		2.627324
Log likelihood	-106.9800	Hannan-Quinn criter.		2.544449
Avg. log likelihood	-1.188667			
Left censored obs	0	Right censored obs		72
Uncensored obs	18	Total obs		90

ภาวะหลักทรัพย์ขาลง

Dependent Variable: EGCOMP

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	19.07043	1.253029	15.21947	0.0000
RMF	0.298913	0.092659	3.225934	0.0013
SMB	-0.259262	0.053674	-4.830329	0.0000
HML	-0.038039	0.042665	-0.891573	0.3726
	Error Distribution			
SCALE:C(5)	8.455400	0.690091	12.25259	0.0000
Mean dependent var	11.80686	S.D. dependent var		14.09923
Akaike info criterion	5.830525	Schwarz criterion		5.969403
Log likelihood	-257.3736	Hannan-Quinn criter.		5.886529
Avg. log likelihood	-2.859707			
Left censored obs	0	Right censored obs		18
Uncensored obs	72	Total obs		90

หลักทรัพย์ LANNA ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: LANNA

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	17.9374	80.17191	3.965696	0.0001
RMF	13.93145	5.332535	2.612538	0.0090
SMB	4.598769	2.719773	1.690865	0.0909
HML	2.167594	1.957430	1.107368	0.2681
	Error Distribution			
SCALE:C(5)	165.4836	44.17975	3.745690	0.0002

Mean dependent var	75.57854	S.D. dependent var	57.09666
Akaike info criterion	1.876527	Schwarz criterion	2.015405
Log likelihood	-79.44370	Hannan-Quinn criter.	1.932531
Avg. log likelihood	-0.882708		
Left censored obs	0	Right censored obs	80
Uncensored obs	10	Total obs	90

ภาวะหลักทรัพย์ขาลง

Dependent Variable: LANNA

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	92.08503	6.722789	13.69744	0.0000
RMF	-0.971130	0.473533	-2.050818	0.0403
SMB	0.150714	0.272816	0.552439	0.5806
HML	0.575360	0.181095	3.177123	0.0015
	Error Distribution			
SCALE:C(5)	45.62772	3.574429	12.76504	0.0000

Mean dependent var	75.57854	S.D. dependent var	57.09666
Akaike info criterion	9.434325	Schwarz criterion	9.573203
Log likelihood	-419.5446	Hannan-Quinn criter.	9.490329
Avg. log likelihood	-4.661607		
Left censored obs	0	Right censored obs	10
Uncensored obs	80	Total obs	90

หลักทรัพย์ PICNI ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: PICNI

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	37.01125	7.412404	4.993151	0.0000
RMF	2.000498	0.483338	4.138920	0.0000
SMB	1.978998	0.340269	5.815983	0.0000
HML	-2.089340	0.242909	-8.601337	0.0000
	Error Distribution			
SCALE:C(5)	30.61193	5.195745	5.891730	0.0000
Mean dependent var	37.59394	S.D. dependent var		59.85990
Akaike info criterion	2.439340	Schwarz criterion		2.578218
Log likelihood	-104.7703	Hannan-Quinn criter.		2.495344
Avg. log likelihood	-1.164114			
Left censored obs	0	Right censored obs		71
Uncensored obs	19	Total obs		90

ภาวะหลักทรัพย์ขาลง

Dependent Variable: PICNI

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	14.14740	3.418259	4.138774	0.0000
RMF	0.791541	0.230282	3.437269	0.0006
SMB	1.100615	0.139466	7.891659	0.0000
HML	-1.520982	0.091175	-16.68201	0.0000
	Error Distribution			
SCALE:C(5)	22.70029	1.924672	11.79437	0.0000
Mean dependent var	37.59394	S.D. dependent var		59.85990
Akaike info criterion	7.521723	Schwarz criterion		7.660602
Log likelihood	-333.4775	Hannan-Quinn criter.		7.577727
Avg. log likelihood	-3.705306			
Left censored obs	0	Right censored obs		19
Uncensored obs	71	Total obs		90

หลักทรัพย์ PTT ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: PTT

Method: ML - Censored Normal (TOBIT)

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	81.05788	30.43206	2.663568	0.0077
RMF	4.965663	2.175441	2.282601	0.0225
SMB	-0.640008	0.863254	-0.741390	0.4585
HML	0.606987	0.675165	0.899020	0.3686
	Error Distribution			
SCALE:C(5)	21.75686	8.888209	2.447834	0.0044

Mean dependent var	15.35988	S.D. dependent var	15.93715
Akaike info criterion	1.533371	Schwarz criterion	1.753304
Log likelihood	-22.60067	Hannan-Quinn criter.	1.610133
Avg. log likelihood	-0.627796		
Left censored obs	0	Right censored obs	32
Uncensored obs	4	Total obs	36

ภาวะหลักทรัพย์ขาลง

Dependent Variable: PTT

Method: ML - Censored Normal (TOBIT)

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	22.94923	3.064372	7.489048	0.0000
RMF	0.486350	0.296987	1.637613	0.1015
SMB	-0.636987	0.126245	-5.045661	0.0000
HML	-0.230497	0.087574	-2.632033	0.0085
	Error Distribution			
SCALE:C(5)	9.408368	1.157032	8.131469	0.0000

Mean dependent var	15.35988	S.D. dependent var	15.93715
Akaike info criterion	6.811579	Schwarz criterion	7.031513
Log likelihood	-117.6084	Hannan-Quinn criter.	6.888342
Avg. log likelihood	-3.266901		
Left censored obs	0	Right censored obs	4
Uncensored obs	32	Total obs	36

หลักทรัพย์ PTTEP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: PTTEP

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	15.02914	2.704727	5.556622	0.0000
RMF	0.903038	0.157197	5.744645	0.0000
SMB	-0.460474	0.097886	-4.704209	0.0000
HML	-0.172020	0.060358	-2.849975	0.0044
	Error Distribution			
SCALE:C(5)	14.03674	1.741031	8.062317	0.0000
Mean dependent var	2.625852	S.D. dependent var		12.69126
Akaike info criterion	4.309039	Schwarz criterion		4.447918
Log likelihood	-188.9068	Hannan-Quinn criter.		4.365043
Avg. log likelihood	-2.098964			
Left censored obs	0	Right censored obs		50
Uncensored obs	40	Total obs		90

ภาวะหลักทรัพย์ขาลง

Dependent Variable: PTTEP

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	10.11816	1.067189	9.481130	0.0000
RMF	0.520358	0.077405	6.722490	0.0000
SMB	-0.210714	0.047896	-4.399381	0.0000
HML	-0.092595	0.036200	-2.557836	0.0105
	Error Distribution			
SCALE:C(5)	6.110875	0.590945	10.34086	0.0000
Mean dependent var	2.625852	S.D. dependent var		12.69126
Akaike info criterion	3.851993	Schwarz criterion		3.990871
Log likelihood	-168.3397	Hannan-Quinn criter.		3.907997
Avg. log likelihood	-1.870441			
Left censored obs	0	Right censored obs		40
Uncensored obs	50	Total obs		90

หลักทรัพย์ SUSCO ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: SUSCO

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	7.116685	3.419611	2.081139	0.0374
RMF	2.349349	0.276796	8.487663	0.0000
SMB	0.860079	0.151627	5.672343	0.0000
HML	0.746807	0.094540	7.899344	0.0000
	Error Distribution			
SCALE:C(5)	21.55715	2.194886	9.821535	0.0000

Mean dependent var	4.561614	S.D. dependent var	29.74256
Akaike info criterion	5.750622	Schwarz criterion	5.889501
Log likelihood	-253.7780	Hannan-Quinn criter.	5.806626
Avg. log likelihood	-2.819756		
Left censored obs	0	Right censored obs	38
Uncensored obs	52	Total obs	90

ภาวะหลักทรัพย์ขาลง

Dependent Variable: SUSCO

Method: ML - Censored Normal (TOBIT)

Included observations: 90

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	18.57057	3.840224	4.835804	0.0000
RMF	0.447639	0.251836	1.777505	0.0755
SMB	0.613383	0.128508	4.773099	0.0000
HML	0.588930	0.084475	6.971635	0.0000
	Error Distribution			
SCALE:C(5)	18.92533	2.064010	9.169205	0.0000

Mean dependent var	4.561614	S.D. dependent var	29.74256
Akaike info criterion	4.074203	Schwarz criterion	4.213081
Log likelihood	-178.3391	Hannan-Quinn criter.	4.130206
Avg. log likelihood	-1.981546		
Left censored obs	0	Right censored obs	52
Uncensored obs	38	Total obs	90

ผลการทดสอบวิธีการถดถอยแบบสลับเปลี่ยน (Switching regression method) ของหลักทรัพย์กลุ่มพลังงานรายไตรมาส

หลักทรัพย์ BCP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: BCP

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	40.35294	15.99524	2.522809	0.0116
RMF	1.190213	0.712481	1.670520	0.0948
SMB	-0.121389	0.598059	-0.202973	0.8392
HML	0.515534	0.421800	1.222225	0.2216
	Error Distribution			
SCALE:C(5)	67.41439	14.13997	4.767647	0.0000
Mean dependent var	19.06049	S.D. dependent var		47.96228
Akaike info criterion	6.234040	Schwarz criterion		6.467572
Log likelihood	-88.51059	Hannan-Quinn criter.		6.308749
Avg. log likelihood	-2.950353			
Left censored obs	0	Right censored obs		16
Uncensored obs	14	Total obs		30

ภาวะหลักทรัพย์ขาลง

Dependent Variable: BCP

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	48.46548	9.666310	5.013855	0.0000
RMF	0.654891	0.368842	1.775534	0.0758
SMB	-0.315998	0.333514	-0.947480	0.3434
HML	0.217341	0.199408	1.089931	0.2757
	Error Distribution			
SCALE:C(5)	35.10342	5.647623	6.215610	0.0000
Mean dependent var	19.06049	S.D. dependent var		47.96228
Akaike info criterion	5.762961	Schwarz criterion		5.996494
Log likelihood	-81.44441	Hannan-Quinn criter.		5.837670
Avg. log likelihood	-2.714814			
Left censored obs	0	Right censored obs		14
Uncensored obs	16	Total obs		30

หลักทรัพย์ BANPU ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: BANPU

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	126.9206	35.98503	3.527037	0.0004
RMF	4.200879	1.131258	3.713459	0.0002
SMB	-1.823854	0.796479	-2.289897	0.0220
HML	0.595588	0.480661	1.239102	0.2153
	Error Distribution			
SCALE:C(5)	45.70022	15.88775	2.876445	0.0040
Mean dependent var	33.83383	S.D. dependent var		51.15963
Akaike info criterion	2.360641	Schwarz criterion		2.594174
Log likelihood	-30.40962	Hannan-Quinn criter.		2.435351
Avg. log likelihood	-1.013654			
Left censored obs	0	Right censored obs		25
Uncensored obs	5	Total obs		30

ภาวะหลักทรัพย์ขาลง

Dependent Variable: BANPU

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	44.99156	5.686752	7.911645	0.0000
RMF	1.069089	0.287188	3.722613	0.0002
SMB	-1.048060	0.211338	-4.959161	0.0000
HML	0.448804	0.133243	3.368321	0.0008
	Error Distribution			
SCALE:C(5)	26.73411	3.729648	7.167997	0.0000
Mean dependent var	33.83383	S.D. dependent var		51.15963
Akaike info criterion	8.272239	Schwarz criterion		8.505772
Log likelihood	-119.0836	Hannan-Quinn criter.		8.346948
Avg. log likelihood	-3.969453			
Left censored obs	0	Right censored obs		5
Uncensored obs	25	Total obs		30

หลักทรัพย์ EASTW ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: EASTW

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	64.11181	24.91176	2.573556	0.0101
RMF	0.059971	0.606895	0.098815	0.9213
SMB	-0.279852	0.577404	-0.484673	0.6279
HML	0.633403	0.528734	1.197961	0.2309
	Error Distribution			
SCALE:C(5)	47.37110	18.21812	2.600219	0.0093

Mean dependent var	15.11206	S.D. dependent var	15.83820
Akaike info criterion	2.589042	Schwarz criterion	2.822575
Log likelihood	-33.83564	Hannan-Quinn criter.	2.663752
Avg. log likelihood	-1.127855		
Left censored obs	0	Right censored obs	25
Uncensored obs	5	Total obs	30

ภาวะหลักทรัพย์ขาลง

Dependent Variable: EASTW

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	19.99057	2.086550	9.580685	0.0000
RMF	0.295617	0.098909	2.988766	0.0028
SMB	-0.076768	0.079487	-0.965792	0.3341
HML	0.025554	0.049989	0.511189	0.6092
	Error Distribution			
SCALE:C(5)	9.585870	1.343497	7.135015	0.0000

Mean dependent var	15.11206	S.D. dependent var	15.83820
Akaike info criterion	6.472163	Schwarz criterion	6.705696
Log likelihood	-92.08244	Hannan-Quinn criter.	6.546872
Avg. log likelihood	-3.069415		
Left censored obs	0	Right censored obs	5
Uncensored obs	25	Total obs	30

หลักทรัพย์ EGCOMP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: EGCOMP

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	72.47888	28.29545	2.561503	0.0104
RMF	1.559481	0.713448	2.185838	0.0288
SMB	-1.105610	0.759592	-1.455533	0.1455
HML	0.876270	0.548479	1.597637	0.1101
	Error Distribution			
SCALE:C(5)	42.74930	15.92987	2.683594	0.0073

Mean dependent var	13.20882	S.D. dependent var	20.51108
Akaike info criterion	2.443548	Schwarz criterion	2.677081
Log likelihood	-31.65322	Hannan-Quinn criter.	2.518257
Avg. log likelihood	-1.055107		
Left censored obs	0	Right censored obs	25
Uncensored obs	5	Total obs	30

ภาวะหลักทรัพย์ขาลง

Dependent Variable: EGCOMP

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	20.62755	2.729678	7.556768	0.0000
RMF	0.385171	0.131530	2.928387	0.0034
SMB	-0.154900	0.099629	-1.554776	0.1200
HML	-0.032160	0.064677	-0.497236	0.6190
	Error Distribution			
SCALE:C(5)	12.41815	1.730730	7.175091	0.0000

Mean dependent var	13.20882	S.D. dependent var	20.51108
Akaike info criterion	6.906869	Schwarz criterion	7.140402
Log likelihood	-98.60303	Hannan-Quinn criter.	6.981578
Avg. log likelihood	-3.286768		
Left censored obs	0	Right censored obs	5
Uncensored obs	25	Total obs	30

หลักทรัพย์ LANNA ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: LANNA

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	21.5639	159.2138	2.019699	0.0434
RMF	8.207954	4.562332	1.799070	0.0720
SMB	-1.406409	3.155740	-0.445667	0.6558
HML	1.808621	2.088775	0.865876	0.3866
	Error Distribution			
SCALE:C(5)	129.8473	63.05232	2.059358	0.0395
Mean dependent var	54.93821	S.D. dependent var		51.73795
Akaike info criterion	1.814713	Schwarz criterion		2.048246
Log likelihood	-22.22070	Hannan-Quinn criter.		1.889422
Avg. log likelihood	-0.740690			
Left censored obs	0	Right censored obs		27
Uncensored obs	3	Total obs		30

ภาวะหลักทรัพย์ขาลง

Dependent Variable: LANNA

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	64.68351	7.997645	8.087819	0.0000
RMF	0.221546	0.400535	0.553125	0.5802
SMB	0.256305	0.295027	0.868754	0.3850
HML	-0.149628	0.188227	-0.794934	0.4267
	Error Distribution			
SCALE:C(5)	37.81018	5.120751	7.383719	0.0000
Mean dependent var	54.93821	S.D. dependent var		51.73795
Akaike info criterion	9.428675	Schwarz criterion		9.662208
Log likelihood	-136.4301	Hannan-Quinn criter.		9.503384
Avg. log likelihood	-4.547671			
Left censored obs	0	Right censored obs		3
Uncensored obs	27	Total obs		30

หลักทรัพย์ PICNI ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: PICNI

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	32.65052	9.681714	3.372391	0.0007
RMF	1.781933	0.481946	3.697372	0.0002
SMB	1.930046	0.397537	4.855004	0.0000
HML	-1.316302	0.235780	-5.582762	0.0000
	Error Distribution			
SCALE:C(5)	37.88870	7.521655	5.037282	0.0000
Mean dependent var	14.60089	S.D. dependent var		47.14154
Akaike info criterion	5.850720	Schwarz criterion		6.084253
Log likelihood	-82.76080	Hannan-Quinn criter.		5.925429
Avg. log likelihood	-2.758693			
Left censored obs	0	Right censored obs		15
Uncensored obs	15	Total obs		30

ภาวะหลักทรัพย์ขาลง

Dependent Variable: PICNI

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	47.47142	7.652886	6.203075	0.0000
RMF	0.398779	0.253648	1.572174	0.1159
SMB	0.262733	0.266013	0.987669	0.3233
HML	-0.328335	0.180861	-1.815396	0.0695
	Error Distribution			
SCALE:C(5)	20.79949	3.598490	5.780061	0.0000
Mean dependent var	14.60089	S.D. dependent var		47.14154
Akaike info criterion	4.815482	Schwarz criterion		5.049014
Log likelihood	-67.23222	Hannan-Quinn criter.		4.890191
Avg. log likelihood	-2.241074			
Left censored obs	0	Right censored obs		15
Uncensored obs	15	Total obs		30

หลักทรัพย์ PTTEP ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: PTTEP

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	21.52834	7.527099	2.860111	0.0042
RMF	0.271067	0.278823	0.972180	0.3310
SMB	-0.102210	0.248249	-0.411725	0.6805
HML	-0.094519	0.149017	-0.634285	0.5259
	Error Distribution			
SCALE:C(5)	27.82377	6.156447	4.519453	0.0000
Mean dependent var	4.321740	S.D. dependent var		16.95033
Akaike info criterion	5.129810	Schwarz criterion		5.363343
Log likelihood	-71.94714	Hannan-Quinn criter.		5.204519
Avg. log likelihood	-2.398238			
Left censored obs	0	Right censored obs		17
Uncensored obs	13	Total obs		30

ภาวะหลักทรัพย์ขาลง

Dependent Variable: PTTEP

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	15.35036	2.358628	6.508170	0.0000
RMF	0.403035	0.126879	3.176525	0.0015
SMB	-0.153740	0.091701	-1.676528	0.0936
HML	0.026163	0.074608	0.350672	0.7258
	Error Distribution			
SCALE:C(5)	9.640085	1.564753	6.160769	0.0000
Mean dependent var	4.321740	S.D. dependent var		16.95033
Akaike info criterion	4.605457	Schwarz criterion		4.838990
Log likelihood	-64.08185	Hannan-Quinn criter.		4.680166
Avg. log likelihood	-2.136062			
Left censored obs	0	Right censored obs		13
Uncensored obs	17	Total obs		30

หลักทรัพย์ SUSCO ภาวะหลักทรัพย์ขาขึ้น

Dependent Variable: SUSCO

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: UP

	Coefficient	Std. Error	z-Statistic	Prob.
C	39.02557	13.78143	2.831751	0.0046
RMF	2.869802	0.693947	4.135477	0.0000
SMB	1.657036	0.548199	3.022689	0.0025
HML	1.840121	0.438024	4.200963	0.0000
	Error Distribution			
SCALE:C(5)	55.47025	10.36326	5.352588	0.0000

Mean dependent var	64.43409	S.D. dependent var	156.3059
Akaike info criterion	6.073487	Schwarz criterion	6.307020
Log likelihood	-86.10230	Hannan-Quinn criter.	6.148196
Avg. log likelihood	-2.870077		
Left censored obs	0	Right censored obs	15
Uncensored obs	15	Total obs	30

ภาวะหลักทรัพย์ขาลง

Dependent Variable: SUSCO

Method: ML - Censored Normal (TOBIT)

Included observations: 30

Right censoring (indicator) series: DOWN

	Coefficient	Std. Error	z-Statistic	Prob.
C	63.55549	15.97839	3.977591	0.0001
RMF	-1.004282	0.701932	-1.430740	0.1525
SMB	1.347200	0.428860	3.141349	0.0017
HML	1.356289	0.268161	5.057738	0.0000
	Error Distribution			
SCALE:C(5)	47.72777	8.493036	5.619636	0.0000

Mean dependent var	64.43409	S.D. dependent var	156.3059
Akaike info criterion	5.841420	Schwarz criterion	6.074953
Log likelihood	-82.62130	Hannan-Quinn criter.	5.916129
Avg. log likelihood	-2.754043		
Left censored obs	0	Right censored obs	15
Uncensored obs	15	Total obs	30

ประวัติผู้เขียน

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ประวัติการศึกษา	สำเร็จการศึกษามัธยมศึกษาตอนต้น โรงเรียนดาราวิทยาลัย จังหวัดเชียงใหม่ ปีการศึกษา 2538 สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนดาราวิทยาลัย จังหวัดเชียงใหม่ ปีการศึกษา 2541 สำเร็จการศึกษาปริญญาวิทยาศาสตรบัณฑิต (เศรษฐศาสตร์เกษตร) มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2545