(   )*

(   )

<   >

(accrual

anomaly)   ,

. 1987

2005   ,

3   16%

.

,

Fama-French   3

.   ,

,

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:   ,   ,   ,   ,   ,

1.

.   ,

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                                                                        ,

.

(GAAP)

(accrual)   .

,

                                                                    ,

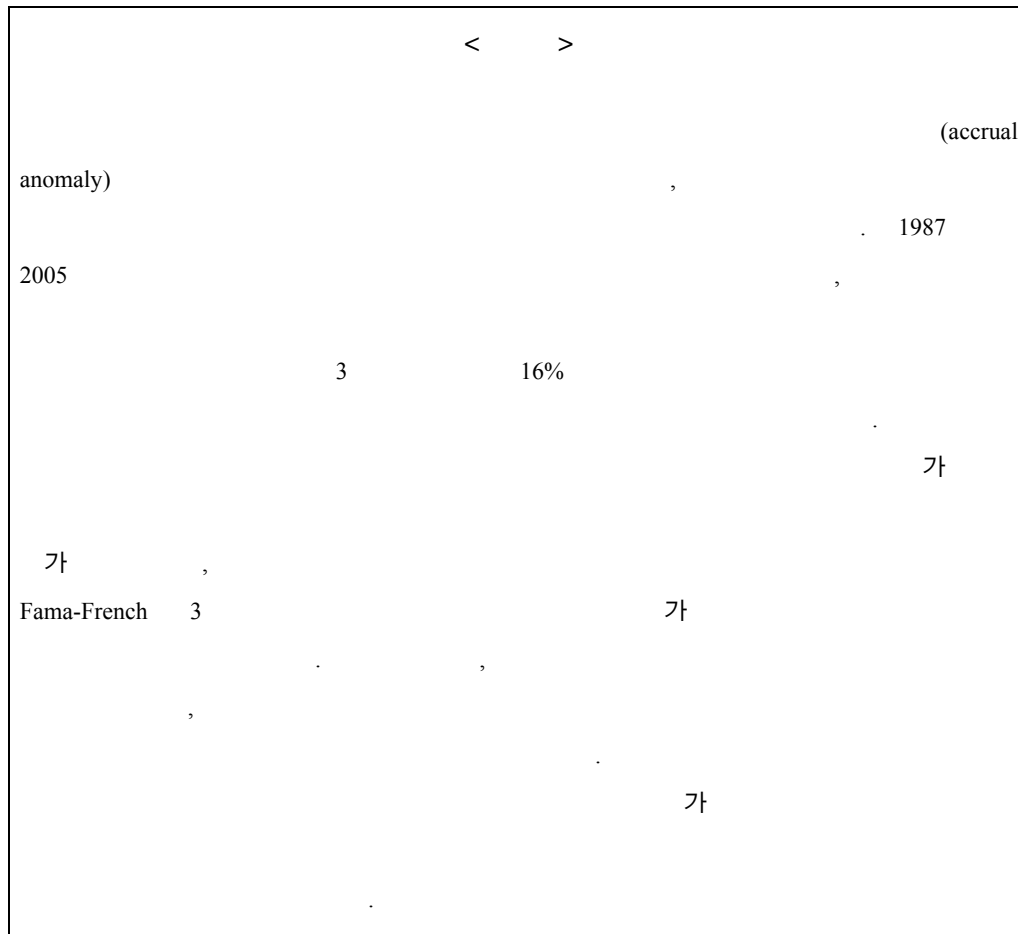.   , Sloan(1996)

                                                                ,

(accrual   anomaly)

                    .   Pincus   et.   al.(2005)   3   (2005)

                                                      ,

                                                                            ,

.

,   Hirshleifer   et.   al.(2004)

                    (operating   assets)   (operating   liabilities)

                              (net   operating   assets)

                                        3

            ,   .

.

,   .

,   (behavioral finance)

.

,

,

.

,   Fama-French   3

.   Fama-French

3   Book-to-market   (HML)

Daniel and Titman(1997), Davis et. al.(2000)   Daniel et. al.(2001)

.

,

(test assets)   Fama-French 3

.

1987   2005

,

.   ,

,

3

,

16%   .

1994   2002

3   (2005)   ,

                                                            .

                    1   10%

            .

                                                                    ,
        (   )   (test   assets)

                                        Fama-French   3

                    4   .   ,   9

            .   4   3

            .

                                        ,

                                                                            ,

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6   .
                                                                                    .

2.

                                                                (accrual)

                                              .

        (accrual anomaly)

                                                   ,
                                      .

            ,

                                                    .(Sloan(1996), Teoh et.
al.(1998a,b), Collins and Hribar(2000), Xie (2001), Thomas and Zhang(2002),
Mushruwala et. al.(2004), Hirshleifer et. al.(2004, 2006), Kang et. al.(2006)   )
                                    Sloan(1996)

                                             ,

                                                                             ,

Xia(2001)

                    .   Kang et. al.(2006)

                                                             (aggregate total and
discretionary accruals)

                        ,
                                                      Xia(2001)
      .

      , Hirshleifer et. al.(2004)

                                                      (net operating assets)

            ,

.

.

Hirshleifer et. al.(2006)

Fama-French 3 ,

.

Fairfield et.
al.(2003), Zach(2004), Desai et. al.(2004), Ng(2004), Khan(2005), Zhang(2005),
Zhang(2006)

. Zach(2004)

, Zhang(2005)

,

. Ng(2004) Khan(2005)
(financial distress risk) Campbell and Vuolteenaho(2004)

.

3 (2005) 1994 2002

1

9.1%~16.9%

.

,

.

．

．

3.

3.1

1987　　　　2004

．　　　　　，

t　　　　　　　　t-1　　　　t

t　　　　　　　　　　　　　　　　　　．

(firm-year)

807　　　　9,454　　　，　　　　　　　　　　　　1987　　1

2005　12　　　　　228　　　　．[1]

1985　　　　2004

TS2000　　　　　　　　　　　　　，

1982　1　　　　2005　12

．

FnDataGuide　　　　　　　　　　　，

364　　　　　　　　　　　．

3.2

---

[1]　　　　　　　　　1987

364　　　　　　　　　　1987

，

．

6

3.2.1

.

            ,

         ,   ,

                 ,

     ,   ,   ,

.

.

Sloan(1996)

, Hribar and Collins(2002)

,

.

20

Hribar and Collins(2002)

.   (1)   (NI)

              (CFO)   ($TA_{i,t-1}$)

      i   t   (total accrual, TACC)   .

$$TACC_{i,t} = \frac{NI_{i,t} - CFO_{i,t}}{TA_{i,t-1}} \tag{1}$$

    (discretionary accrual, DACC)

Jones   ,   (2)

       ε_{it} .

$$TACC_{i,t} = \alpha_0 \frac{1}{TA_{i,t-1}} + \alpha_1 \frac{\Delta REV_{i,t} - \Delta AR_{i,t}}{TA_{i,t-1}} + \alpha_2 \frac{PPE_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t} \qquad (2)$$

, $TA_{i,t-1}$ = i t-1

$\Delta REV_{i,t}$ = i t

$PPE_{i,t}$ = i t

$\Delta AR_{i,t}$ = i t

$\varepsilon_{i,t}$ = i t

(2)

,

3 (2005) $TACC_{i,t}$ ($\Delta REV_{i,t}$ −

$\Delta AR_{i,t}$)/$TA_{i,t-1}$ 1% , 1/$TA_{i,t-1}$ $PPE_{i,t}$/$TA_{i,t-1}$

1% [2]

,

10 .

(1)

, ( ) ( )

.

( ) ( )

. Kasznik(1999)

3 (2005)

,

( ) ( )

( ) .

3 (2005)

(return on asset, ROA) 50 ,

ROA

(adjDACC) .

2)

.

3.2.2

(net operating assets)

,

(balance sheet bloat)   .

.3)   Hirshleifer et. al.(2004)   (3)

(OA)

(OL)   (NOA)   .

$$NOA_{i,t} = (OA_{i,t} - OL_{i,t})/TA_{t-1} \tag{3}$$

OA$_{i,t}$= $_{i,t}$ – (+   )$_{i,t}$

OL$_{i,t}$= $_{i,t}$ – (+   +   )$_{i,t}$

(3)   ,   ,   ,

,

.

,   ,   ,

.

.

ROA

(adjNOA)   .

3.3

<   1>   5   (TACC,
DACC, adjDACC, NOA, adjNOA)

---

3)   Hirshleifer et. al.(2004)
.

. ,

5 $(TA_{i,t-1})$

,   ROA   (Cash Flows)

. BV   , MV   12

,   (B/M)

BV   MV   .   Beta

4   60   KOSPI

Dimson beta   .

p-   .

<   1>   5

0.33

.

ROA   5   (TACC)

(0.30)   ,   TACC

ROA   .

(DACC)   TACC   (0.28)

,   (adjDACC)   DACC

0.05

.

(NOA)   ROA   0.02

.

5

,

.

BV,   MV   B/M

. ,

TACC, DACC   adjDACC

(   )

( )   ,
NOA

                              Hirshleifer   et.   al.(2004)
                                                          .
            Beta   5   DACC

                TACC   NOA
                CAPM   .
                                        <   2>   TACC   NOA
                                    10
                    (   )
       .4)   <   2>   Panel A   ,   5
            TACC
                                                                  .   ROA
TACC   (Highest)   (Lowest)
      ROA   8.21%   .
                          (BV)   (MV)   ,   TACC
    ( )   (   )   (   )   ,
                                                                  B/M

                                                                  .
    Panel   B   NOA   10
          ,   ROA
                      Panel   A
NOA   B/M
                  NOA
Hirshleifer et. al.(2004)   NOA
          .

---

4) DACC   adjDACC   adjNOA   TACC   NOA
                                                    .

4.

3   5   (TACC, DACC, adjDACC,
NOA, adjNOA)   10

,

.

t-1

5   10

,   3

.   ,

4

1987   5

2005   12   .

Daniel et al.(1997)

.

t-1   B/M

3   9   ,

12   2

, HPR(-12:-2)   3

27   .

.

<   3>   10

(L-H)   3

.   R(i:j)   AR(i:j)

i   j

.

.

α

(   )

.   3 factor   Fama and French(1993)   3   (R_m-R_f, SMB,
HML)   , 4 factor1   3   Carhart(1997)

, 4 factor2 3 Pastor and Stambaugh(2003)

.   5 factor

.   Fama and French(1993)

,

.

,   KOSPI   ,

364   1

. Panel A   TACC, DACC,   adjDACC

10   , Panel B

NOA   adjNOA   10

.   %   ,   t-

.

Panel A

,   3

. TACC

1 , 2 , 3

48bp, 89bp, 69bp   ,

-89bp, -44bp, -

68bp   .   TACC

3   1.37%,

1.34%, 1.36%   ,   3

16.28%(=12×(1.37+1.34+1.36)/3)   .

α 3

.

,   t-   , 3

.   TACC

DACC   adjDACC

2   3

.

1

9.1%~16.9%

3 (2005)   .

, NOA   adjNOA   Panel B
NOA

                              1   ,
NOA   adjNOA

              1   91bp   84bp

                  ,   10%

                  .   NOA   adjNOA

                          1

                                                              3 ,

                  1   , 1

                                            .   NOA
adjNOA

                  α 1

    ,

                          .   Hirshleifer   et.
al.(2004)   1

                                          .

5.

          4

    ,

                                                          .   Fama-
French   3   Book-to-market   (HML)

              Daniel and Titman(1997), Davis et. al.(2000)   Daniel et. al.(2001)

                                          .

,

(test assets)　　　　　Fama-French 3

.

5.1

Fama and French(1993)　　　Book-to-market ratio

HML　　　　　　　　　　　　　　　TACC

NOA　　　　　　　　　　　　　　　　　　　　　.[5)

t

,　　　　　t　　6

(S)　,

(B)　　　　　　　2　　　　　　　　,　　　t-1

TACC(　　NOA)　　　　　　　　　　　3

(　　30%　　L,　　　40%　　M,　　　30%　　H)　　　　　.

6　　　　　　　　(S/L, S/M, S/H, B/L, B/M,

B/H)　　　　　,　　　　　　　t　　7　　　t+1　　6

.

L　　　　　　　　　H　　　　　　A_LMH(low

accrual minus high accrual)　　　　　　,

,　　(S/L + B/L)/2 − (S/H + B/H)/2　　1987

1　　　2005　12　　　　　　　　.

<　4>　　　　　　　TACC　NOA　　　　　　A_LMH　Rm-

Rf, SMB, HML　　　　　　　　　　　　　　,

5

(ex-post tangent portfolios)　　　　　,　　　　, Sharp ratio

.　　,

(**r**)

(Ω)　　　　　Ω⁻¹**r**　　　　　. Panel A　　TACC　　NOA

A_LMH

HML　　Rm-Rf　　　　　　　　　　　　, A_LMH　Sharp ratio

---

5) DACC, adjDACC　　　　adjNOA

,　　　　　TACC　NOA　　　　　　　　　　.

15

SMB   Sharpe ratio 0.21(=1.87/9.11)

HML   Sharpe ratio 0.09(=0.74/7.81)

.(A_LMH of TACC   0.08, A_LMH of NOA   0.12   ) Panel B

SMB

(-0.04~0.17)   A_LMH

.

Panel C

, 3   Sharp ratio

0.25   , TACC   NOA   A_LMH

Sharp ratio   0.28   0.26

.   TACC   NOA

Fama and French   3

.

5.2   /

.

TACC   NOA   A_LMH

, A_LMH   (factor loading)

.

(test assets)   ,

,

Fama and French(1993), Daniel and Titman(1997), Davis et. al.(2000), Daniel et.
al.(2001)   (test
assets)   .   , t   6

3   (S, M, B)   ,

t-1   TACC(

NOA)   3   (L, M, H)   9

/   (S/L, S/M, S/H, M/L, M/M, M/H, B/L, B/M, B/H)   ,

t   7   t+1   6

16

.

9

(4)   Fama-
French 3   ,   (5)   A_LMH
4 α_p

, 4

.

$$R_{p,t} - R_{f,t} = a_p + b_p(R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + \varepsilon_{p,t} \tag{4}$$

$$R_{p,t} - R_{f,t} = a_p + b_p(R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + c_p A\_LMH_t + \varepsilon_{p,t} \tag{5}$$

, $R_{p,t}$-$R_{f,t}$ t   p   .

<   5>   9   /   (4)
(5)   .   1993   7   2005
12   150   ,   t
5   4
5.3   .[6]   Size   TACC(NOA)
                                            10
TACC(NOA)   , xret

          .   ,

                                        1

          . Panel A   B   TACC   NOA   9
                                        ,   t-   .
<   5>   Panel A   (TACC)
                                .   Size   TACC
                    TACC   H   , TACC
                        B   9
                                        .

          (xret)   TACC   (L)   TACC
    (H)   ,
4.96%(=(7.05+5.61+2.21)/3),   2.84%(=(4.69+2.24+1.60)/3)   2.12%

---

6)   1987   1   2005   12
                    <   5>   .

17

<표 4> Panel A 　 　 　 .

Panel A 　 3 　 　 , 9

7 　 　 　 ,
　 0 　 　 Gibbons et.
al.(1989) F- (GRS F-) 12.19(p- <0.01)
. 　 B/M
TACC
, 　 3

. 　 TACC
A_LMH 4 GRS F- 11.41(P-
<0.01) , TACC

. A_LMH 9 6
, 　 R^2 3 , 3
(S)
A_LMH .
Panel B (NOA)
, 3 4 GRS
F- 11.30(p- <0.01) 11.11(p- <0.01)
. 4 5 A_LMH
, 9 3
. NOA
,

.

5.3 　 / 　 /

(TACC) A_LMH 9 /
.

GRS

. TACC
A_LMH /

저한다.

　　　　　　　　　　　　　　　Daniel and Titman(1997), Davis et. al.(2000), Daniel et.
al.(2001)　　　　　　　　5　　　　　　　　　　　　　　　A_LMH

　　　　(factor loading)　　　　　　　　　　　　　　　　　　　.

　　　　　1992　　　　　　　　　　　　　　　　　　　60

　　　　　　　　(5)　　4　　　　　　　　　　A_LMH

　　　,　　　　　　(pre-formation factor loadings)　　　　　　.[7]

　　　　　　　　　　　9

　　　　　　　3　　　　　　(L,　　M,　　H)　　　　　　　　27

　　/　　　/　　　　　　　　　　　　　　　　　.　　　　　　　27

　　　　　　　　　A_LMH

　　　　　　　　　　　　　　　　.

　　　　　　　,　A_LMH

　　,　　　　　　　　　　　　　A_LMH

　　　　　　　　　　　　　　.

　　　<　　6>　　Panel A　　　TACC　　　　　　　　　　,

　　　　　　.　　,　27　　　　　　　　　　　　(xret)

　　　　　　　　　　.　9　　　　　　/

　　　　　　　　　　　　　　　　　, S/M

　　.　　,

　　.　　　　　　　　　　　　　　(　)

　　　　　(　)　　　　　　　　　　　(　)

　　　　M/H/H

　　8　　　/

　　　　.　　,　27　　　　　　　　　　　　14

　　　　　　A_LMH

---

4   .

,

                                                                          .

Panel B   NOA   TACC   .

        9   /   M/H

                                                                                  .

                                                M/H/L

                                , 27   18

                                                                    4

                            .   NOA

                                                          .

                    <   6>

                        , <   7>   9   /

                                                          ,

                                        (high loading minus low loading, HL-

LL)   .

                                ,

                                    0   .

                                                    .

                                            0   .

        <   7>   Panel A   B   TACC   NOA

                            (HL-LL)   4

            ,   <   6>

                                                                              . Panel

A   B   (xret)   0

.   Panel A   10

0   GRS F-   1.01(P-
=0.44)   .

,

Hirshleifer et. al.(2006)   .

5.4

.   A_LMH

.   Fama
and MacBeth(1973)   ,
LnSize(6   ),
LnB/M(   ), Ret(-1:-1)
(   ), Ret(-12:-2)
(11   ), Ret(-36:-13)
(36
13   )   .
A_LMH

60
(5)   4   4   (β_{Market},
β_{SMB}, β_{HML}, β_{A_LMH})   36

,

9   /

.

<   8>   5   Fama and MacBeth(1973)
.

21

1992 1 2005 12 168 . Panel A

B(C D) TACC(NOA) , Panel A C

9 ,

Panel B D

. 1 t-

, $[(1+\rho)/(1-\rho)]^{0.5}$

. , ρ 1 .

TACC Panel A A_LMH β_{A_LMH}

, TACC 5

. TACC

4 5

, t- β_{A_LMH}

. Panel B

TACC β_{A_LMH}

.

NOA Panel C D

. , 9 Panel C

3 HML

3

NOA 5

(β_{Market})

.

Panel D NOA

.

< 8>

.

6.

,

. 1987   2005

,

.   ,

,

3   16%

.

Sloan(1996)   Hirshleifer et. al.(2004)

.

.   (

)   Fama-
French   3   4

,

, 4   3

.

,

0

.

.

.

.

<   >

,   ,   ,   , 2005, "
                    ",   30   1   , pp. 59-91.

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Table 1. Pearson Correlation Coefficients

This table reports the Pearson correlation coefficients between 5 accrual-related variables and selected characteristics variables. The sample stocks are listed at the stock market division of KRX from 1987 to 2004. The sample consists of common stocks for non-financial firms with positive book values of equity in years t and t-1 and total observations are 9,454 firm-year. TACC is the total accruals measured by net income minus cash flow from operation in year t ($NI_t - CFO_t$). DACC is the discretionary accruals in year t, estimated cross-sectional modified Jones model. NOA is the net operating assets measured by the difference between operating assets and operating liabilities at year t. adjDACC and adjNOA are performance-adjusted variables using the median value of DACC and NOA of 50 ROA groups which individual stock belong to. 5 accrual-related variables, TACC, DACC, adjDACC, NOA, and adjNOA are scaled by lagged total asset (TA_{t-1}). ROA is the percent ratio of net income in year to TA_{t-1}, Cash flows is the cash flow from operation in year t scaled by TA_{t-1}. BV is the book value of common equity measured at fiscal year end and MV is the market value of common equity measured in year end. BV and MV are in billion won. BV is the book value of common equity measured at fiscal year end and MV is the market value of common equity measured in year end. BV and MV are in billion won. B/M is the book-to-market ratio measured by BV/MV in year t and Beta is the Dimson beta estimated from a regression of monthly raw returns on monthly KOSPI return, using 60 months' return data ending four months after each firm's fiscal year end. The p-values are in parenthesis.

	TACC	DACC	adj-DACC	NOA	adj-NOA	ROA	Cash Flows	BV	MV	B/M	Beta
TACC	1.00										
	-										
DACC	0.89	1.00									
	(0.00)	-									
adjDACC	0.78	0.91	1.00								
	(0.00)	(0.00)	-								
NOA	0.25	0.33	0.30	1.00							
	(0.00)	(0.00)	(0.00)	-							
adjNOA	0.20	0.30	0.32	0.93	1.00						
	(0.00)	(0.00)	(0.00)	(0.00)	-						
ROA	0.30	0.28	0.05	0.02	-0.05	1.00					
	(0.00)	(0.00)	(0.00)	(0.10)	(0.00)	-					
Cash Flows	-0.75	-0.65	-0.72	-0.22	-0.20	0.41	1.00				
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	-				
BV	-0.06	-0.04	-0.05	0.04	0.06	0.06	0.10	1.00			
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	-			
MV	-0.06	-0.05	-0.06	0.02	0.03	0.10	0.13	0.75	1.00		
	(0.00)	(0.00)	(0.00)	(0.12)	(0.01)	(0.00)	(0.00)	(0.00)	-		
B/M	0.00	0.04	0.03	0.03	0.08	-0.08	-0.05	0.01	-0.06	1.00	
	(0.69)	(0.00)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.19)	(0.00)	-	
Beta	-0.02	-0.02	0.01	0.01	0.02	-0.14	-0.09	0.04	0.04	0.10	1.00
	(0.14)	(0.05)	(0.49)	(0.34)	(0.06)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	-

Table 2. Mean (Median) Values of Selected Characteristics for Decile Portfolios

This table shows the mean (median) values of selected characteristics for decile portfolio sorted by TACC or NOA. The sample stocks are listed at the stock market division of KRX from 1987 to 2004. The sample consists of common stocks for non-financial firms with positive book values of equity in years t and t-1 and total observations are 9,454 firm-year. TACC is the total accruals measured by net income minus cash flow from operation in year t ($NI_t - CFO_t$). DACC is the discretionary accruals in year t, estimated cross-sectional modified Jones model. NOA is the net operating assets measured by the difference between operating assets and operating liabilities at year t. adjDACC and adjNOA are performance-adjusted variables using the median value of DACC and NOA of 50 ROA groups which individual stock belong to. TACC, DACC, adjDACC, NOA, and adjNOA are scaled by lagged total asset (TA_{t-1}). ROA is the percent ratio of net income in year to TA_{t-1}, Cash flows is the cash flow from operation in year t scaled by TA_{t-1}. BV is the book value of common equity measured at fiscal year end and MV is the market value of common equity measured in year end. BV and MV are in billion won. B/M is the book-to-market ratio calculated by BV/MV in year t and Beta is Dimson beta estimated from a regression of monthly raw returns on monthly KOSPI return, using 60 months' return data ending four months after each firm's fiscal year end. Panel A and B shows the results of decile portfolios sorted by TACC and NOA, respectively. The median values are in parenthesis.

Panel A. Decile portfolio sorted by TACC

| | Portfolio TACC Ranking(Ascending order) | | | | | | | | | |
	Lowest	2	3	4	5	6	7	8	9	Highest
<Accounting variables>										
TACC	-0.20	-0.11	-0.08	-0.06	-0.04	-0.02	0.00	0.03	0.06	0.16
	(-0.18)	(-0.11)	(-0.08)	(-0.06)	(-0.04)	(-0.02)	(0.00)	(0.03)	(0.06)	(0.14)
DACC	-0.15	-0.07	-0.04	-0.02	-0.01	0.01	0.03	0.05	0.08	0.17
	(-0.13)	(-0.07)	(-0.04)	(-0.02)	(-0.01)	(0.01)	(0.03)	(0.05)	(0.08)	(0.15)
adjDACC	-0.11	-0.06	-0.04	-0.02	-0.01	0.00	0.02	0.04	0.07	0.15
	(-0.11)	(-0.06)	(-0.04)	(-0.02)	(-0.00)	(0.00)	(0.02)	(0.03)	(0.06)	(0.13)
NOA	0.73	0.76	0.77	0.79	0.78	0.79	0.81	0.82	0.84	0.90
	(0.71)	(0.76)	(0.77)	(0.79)	(0.79)	(0.80)	(0.82)	(0.81)	(0.84)	(0.89)
adjNOA	-0.03	-0.03	-0.02	-0.01	-0.01	0.00	0.01	0.02	0.05	0.10
	(-0.04)	(-0.02)	(-0.01)	(-0.00)	(-0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.07)
ROA (%)	-3.53	1.22	1.99	1.94	2.55	2.44	2.57	2.50	3.03	4.68
	(1.39)	(1.85)	(2.01)	(1.83)	(2.16)	(1.97)	(1.96)	(1.90)	(2.42)	(2.83)
Cash Flows	0.17	0.13	0.10	0.08	0.06	0.04	0.02	0.00	-0.03	-0.12
	(0.17)	(0.13)	(0.10)	(0.08)	(0.06)	(0.04)	(0.02)	(-0.00)	(-0.03)	(-0.10)
BV	399	401	298	251	192	262	177	186	127	100
	(40)	(52)	(56)	(62)	(50)	(52)	(45)	(49)	(48)	(45)
<Stock market variables>										
MV	539	479	281	254	138	189	119	125	109	93
	(32)	(35)	(37)	(38)	(34)	(36)	(32)	(34)	(34)	(33)
B/M	1.59	1.79	1.96	2.07	1.95	1.89	1.96	1.92	1.78	1.77
	(1.00)	(1.17)	(1.30)	(1.30)	(1.33)	(1.33)	(1.29)	(1.26)	(1.22)	(1.25)
Beta	0.96	0.90	0.87	0.89	0.89	0.88	0.90	0.89	0.89	0.95
	(0.88)	(0.87)	(0.86)	(0.85)	(0.86)	(0.85)	(0.91)	(0.86)	(0.88)	(0.95)

Panel B. Decile portfolio sorted by NOA

					Portfolio NOA Ranking					
	Lowest	2	3	4	5	6	7	8	9	Highest
<Accounting variables>										
NOA	0.47	0.62	0.68	0.73	0.78	0.82	0.86	0.90	0.96	1.21
	(0.48)	(0.63)	(0.70)	(0.75)	(0.79)	(0.83)	(0.87)	(0.91)	(0.97)	(1.13)
adjNOA	-0.29	-0.15	-0.09	-0.05	-0.01	0.01	0.05	0.08	0.14	0.39
	(-0.28)	(-0.15)	(-0.08)	(-0.04)	(-0.01)	(0.00)	(0.04)	(0.08)	(0.13)	(0.30)
TACC	-0.08	-0.05	-0.05	-0.04	-0.03	-0.02	-0.02	-0.01	0.00	0.02
	(-0.07)	(-0.05)	(-0.04)	(-0.04)	(-0.03)	(-0.02)	(-0.02)	(-0.02)	(-0.00)	(0.00)
DACC	-0.06	-0.02	-0.02	-0.01	0.00	0.01	0.01	0.02	0.04	0.07
	(-0.05)	(-0.02)	(-0.02)	(-0.01)	(-0.00)	(0.01)	(0.01)	(0.02)	(0.04)	(0.06)
adjDACC	-0.05	-0.02	-0.01	-0.01	0.00	0.01	0.01	0.02	0.03	0.06
	(-0.04)	(-0.02)	(-0.01)	(-0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.03)	(0.04)
ROA (%)	0.16	2.44	1.59	1.95	1.92	2.35	2.06	2.32	2.48	2.24
	(2.31)	(2.28)	(1.98)	(1.94)	(2.06)	(1.85)	(1.75)	(1.93)	(2.02)	(2.39)
Cash Flows	0.08	0.07	0.06	0.06	0.05	0.04	0.04	0.04	0.02	0.00
	(0.08)	(0.07)	(0.06)	(0.05)	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)	(0.02)
BV	110	132	171	218	206	232	223	287	289	516
	(36)	(42)	(41)	(49)	(51)	(50)	(60)	(59)	(65)	(64)
<Stock market variables>										
MV	102	117	201	290	234	229	209	245	246	455
	(28)	(32)	(30)	(36)	(32)	(34)	(37)	(37)	(42)	(42)
B/M	1.33	1.74	1.72	1.81	1.93	1.97	2.01	2.01	1.99	2.13
	(1.01)	(1.18)	(1.14)	(1.17)	(1.31)	(1.29)	(1.33)	(1.37)	(1.33)	(1.44)
Beta	0.92	0.88	0.88	0.89	0.87	0.93	0.92	0.90	0.95	0.90
	(0.86)	(0.86)	(0.86)	(0.85)	(0.82)	(0.90)	(0.93)	(0.89)	(0.91)	(0.89)

Table 3. Average Monthly Abnormal Returns for Decile Portfolios

This table shows the equal- and value-weighted average monthly abnormal returns of decile portfolios sorted by TACC, DACC, adjDACC, NOA or adjNOA for 1, 2, and 3 year after portfolio formation. The sample period is from May 1987 to December 2005. Decile portfolios are formed at end of April for each year based on one of above 5 variables of the previous fiscal year end and monthly returns are calculated from May year t to April year t+3. So, there are minimum 4 month lags between the fiscal year end and the portfolio formation month. The sample consists of common stocks for non-financial firms with positive book values of equity in years t and t-1. TACC is the total accruals measured by net income minus cash flow from operation in year t ($NI_t - CFO_t$). DACC is the discretionary accruals in year t, estimated cross-sectional modified Jones model. NOA is the net operating assets measured by the difference between operating assets and operating liabilities at year t. adjDACC and adjNOA are performance-adjusted variables using the median value of DACC and NOA of 50 ROA groups which individual stock belong to. They all are scaled by lagged total asset (TA_{t-1}). AR(i:j) (R(i:j)) is the average of monthly abnormal (raw) return from i-th month to j-th month after portfolio formation. The monthly abnormal return of any individual stock is calculated by subtracting the monthly return of a benchmarking portfolio which the individual stock belong to. To construct benchmark portfolios, we first divide the sample firms into 3 groups by market value of common stocks at the end of previous month for each month and then each size group is divided again into 3 groups by book-to-market ratio measured by previous year end. Finally, we construct 27 benchmark portfolios by dividing each size-B/M portfolio into 3 groups based on past 11 months holding period return HPR(-12:-2). Hedge portfolio is TACC or NOA factor-mimicking portfolio (Buy lowest decile and Sell Highest decile) and α is excess monthly return of hedge portfolio, estimated by intercept of time series regressions using various asset pricing models. CAPM α is estimated by CAPM, where market portfolio return is the monthly return of KOSPI and risk-free interest rate is the one-month yield of Monetary Stabilization Bonds (MSBs) maturing 364 days. 3 factor is market portfolio, SMB and HML of Fama and French(1993), 4 factor1 is including the momentum factor of Carhart(1997), 4 factor2 is including liquidity factor of Pastor and Stambaugh(2003) and 5 factor is including all 5 factors. Panel A reports the results of decile portfolios sorted by TACC, DACC and adjDACC and Panel B reports the results of NOA and adjNOA The *t*-values are in parenthesis.

Panel A. The results of decile portfolios sorted by TACC

Portfolio ranking	Equal-weighted portfolio return (%)				Value-weighted portfolio return (%)			
	R(1:12)	AR(1:12)	AR(13:24)	AR(25:36)	R(1:12)	AR(1:12)	AR(13:24)	AR(25:36)
<TACC results>								
Lowest (L)	1.98	0.48	0.89	0.69	2.92	0.18	0.59	0.25
	(2.83)	(2.15)	(2.25)	(2.64)	(3.74)	(0.86)	(2.18)	(1.51)
3	1.74	0.15	-0.04	0.13	2.22	-0.19	-0.36	-0.26
	(2.24)	(1.20)	(-0.17)	(0.95)	(3.19)	(-1.26)	(-1.54)	(-1.12)
5	1.51	0.00	0.30	-0.17	1.77	-0.60	0.03	-0.25
	(2.06)	(0.01)	(1.68)	(-1.29)	(2.70)	(-2.98)	(0.13)	(-0.91)
7	1.53	-0.09	-0.27	-0.14	2.19	-0.44	-0.12	-0.16
	(2.14)	(-0.70)	(-1.60)	(-1.21)	(3.48)	(-1.62)	(-0.39)	(-0.63)
9	1.27	-0.40	-0.33	-0.25	2.24	-0.35	-0.38	-0.77
	(1.50)	(-2.95)	(-1.35)	(-2.01)	(2.59)	(-1.00)	(-1.62)	(-2.50)
Highest (H)	0.59	-0.89	-0.44	-0.68	1.52	-0.90	-0.42	-0.50
	(0.74)	(-3.32)	(-2.24)	(-2.68)	(1.99)	(-2.68)	(-1.45)	(-1.71)
Hedge (L-H)	1.38	1.37	1.34	1.36	1.39	1.08	1.02	0.75
	(2.98)	(3.05)	(2.76)	(4.35)	(1.91)	(2.51)	(2.83)	(1.97)
CAPM α	1.38	1.37	1.32	1.37	1.40	1.08	0.99	0.80
	(3.60)	(4.37)	(3.21)	(3.83)	(2.03)	(2.17)	(2.23)	(1.58)
3 factor α	1.44	1.33	1.45	1.50	2.23	1.13	1.22	1.31
	(3.66)	(4.16)	(3.52)	(4.17)	(3.49)	(2.24)	(2.71)	(2.71)
4 factor1 α	1.55	1.33	1.30	1.50	2.31	1.14	1.09	1.49
	(3.95)	(4.16)	(3.14)	(4.14)	(3.58)	(2.23)	(2.43)	(3.02)
4 factor2 α	1.45	1.34	1.37	1.50	2.22	1.15	1.17	1.41
	(3.67)	(4.22)	(3.30)	(4.16)	(3.44)	(2.27)	(2.58)	(2.88)
5 factor α	1.53	1.32	1.28	1.50	2.29	1.12	1.08	1.47
	(3.91)	(4.12)	(3.10)	(4.13)	(3.55)	(2.19)	(2.40)	(2.98)
<DACC results>								
Hedge (L-H)	1.54	1.35	0.91	1.22	1.72	1.31	0.16	0.34
	(3.30)	(3.31)	(2.89)	(3.86)	(2.21)	(3.13)	(0.50)	(0.86)
CAPM α	1.54	1.35	0.89	1.21	1.72	1.31	0.15	0.40
	(4.36)	(4.53)	(2.64)	(3.78)	(2.60)	(2.80)	(0.37)	(0.74)
3 factor α	1.54	1.34	0.93	1.28	2.38	1.38	0.30	0.68
	(4.31)	(4.40)	(2.68)	(3.93)	(3.77)	(2.91)	(0.75)	(1.25)
4 factor1 α	1.63	1.31	0.85	1.18	2.59	1.43	0.32	0.87
	(4.53)	(4.34)	(2.59)	(3.79)	(4.14)	(2.96)	(0.79)	(1.54)
4 factor2 α	1.56	1.34	0.82	1.22	2.38	1.42	0.33	0.82
	(4.34)	(4.45)	(2.51)	(3.90)	(3.73)	(2.95)	(0.81)	(1.47)
5 factor α	1.61	1.30	0.84	1.18	2.59	1.42	0.32	0.87
	(4.49)	(4.31)	(2.56)	(3.78)	(4.13)	(2.95)	(0.79)	(1.55)
<adjDACC results>								
Hedge (L-H)	1.14	1.32	0.56	1.08	0.93	1.09	0.76	0.63
	(3.87)	(3.89)	(1.88)	(4.31)	(1.36)	(3.23)	(2.13)	(1.52)
CAPM α	1.14	1.32	0.55	1.05	0.93	1.09	0.82	0.63
	(3.37)	(4.82)	(1.93)	(3.59)	(1.53)	(2.57)	(2.00)	(1.17)
3 factor α	1.38	1.33	0.60	1.01	1.83	1.31	0.94	0.89
	(4.16)	(4.74)	(2.07)	(3.36)	(3.40)	(3.09)	(2.26)	(1.66)
4 factor1 α	1.51	1.35	0.53	0.95	1.96	1.33	1.13	0.92
	(4.57)	(4.82)	(1.84)	(3.05)	(3.61)	(3.09)	(2.60)	(1.60)
4 factor2 α	1.43	1.35	0.51	0.98	1.85	1.33	1.07	0.87
	(4.35)	(4.86)	(1.78)	(3.14)	(3.39)	(3.11)	(2.47)	(1.53)
5 factor α	1.49	1.34	0.52	0.95	1.96	1.32	1.12	0.92
	(4.54)	(4.79)	(1.80)	(3.03)	(3.59)	(3.06)	(2.57)	(1.61)

Panel B. The results of decile portfolios sorted by NOA

Portfolio ranking	Equal-weighted portfolio return (%)				Value-weighted portfolio return (%)			
	R(1:12)	AR(1:12)	AR(13:24)	AR(25:36)	R(1:12)	AR(1:12)	AR(13:24)	AR(25:36)
<NOA results>								
Lowest (L)	1.93	0.32	0.04	0.25	2.52	-0.19	-0.11	-0.35
	(2.80)	(1.58)	(0.33)	(1.45)	(4.80)	(-0.59)	(-0.47)	(-1.11)
3	1.83	0.29	-0.07	-0.05	3.02	0.46	-0.29	-0.26
	(2.58)	(2.24)	(-0.47)	(-0.31)	(4.02)	(1.95)	(-1.00)	(-1.14)
5	1.66	0.00	-0.04	0.17	1.96	-0.36	0.11	0.23
	(1.89)	(-1.19)	(1.07)	(0.53)	(3.60)	(-1.51)	(-1.30)	(-0.61)
7	1.65	0.02	0.26	0.14	2.92	0.51	-0.09	-0.04
	(2.19)	(-0.46)	(-1.37)	(-2.54)	(3.79)	(0.79)	(-1.22)	(-0.57)
9	1.08	-0.29	0.00	-0.09	1.71	-0.48	0.13	-0.16
	(1.37)	(-1.85)	(-0.01)	(-0.72)	(2.40)	(-1.92)	(0.90)	(-0.87)
Highest (H)	0.74	-0.60	-0.05	-0.03	1.33	-0.29	0.09	0.01
	(1.02)	(-4.54)	(-0.43)	(-0.14)	(2.18)	(-1.37)	(0.86)	(0.07)
Hedge (L-H)	1.19	0.91	0.10	0.28	1.19	0.10	-0.20	-0.36
	(3.39)	(3.63)	(0.44)	(1.31)	(2.59)	(0.26)	(-0.75)	(-1.08)
CAPM α	1.19	0.91	0.07	0.23	1.19	0.10	-0.21	-0.42
	(3.51)	(3.20)	(0.26)	(0.88)	(2.13)	(0.25)	(-0.63)	(-1.12)
3 factor α	1.14	0.94	0.08	0.22	0.61	0.00	-0.39	-0.63
	(3.32)	(3.33)	(0.27)	(0.85)	(1.15)	(-0.00)	(-1.16)	(-1.68)
4 factor1 α	1.28	0.97	-0.05	0.12	0.71	0.03	-0.42	-0.70
	(3.70)	(3.36)	(-0.16)	(0.44)	(1.32)	(0.08)	(-1.21)	(-1.84)
4 factor2 α	1.19	0.96	-0.05	0.12	0.65	-0.01	-0.45	-0.75
	(3.45)	(3.35)	(-0.16)	(0.45)	(1.20)	(-0.04)	(-1.31)	(-1.98)
5 factor α	1.26	0.96	-0.06	0.13	0.71	0.04	-0.40	-0.67
	(3.66)	(3.33)	(-0.19)	(0.48)	(1.31)	(0.09)	(-1.16)	(-1.78)
<adjNOA results>								
Hedge (L-H)	1.13	0.84	0.19	0.22	1.21	0.24	-0.26	-0.45
	(3.98)	(3.78)	(0.95)	(1.10)	(3.20)	(0.79)	(-0.82)	(-0.92)
CAPM α	1.13	0.84	0.18	0.20	1.21	0.24	-0.21	-0.53
	(3.59)	(3.17)	(0.68)	(0.83)	(2.30)	(0.61)	(-0.52)	(-1.25)
3 factor α	1.12	0.90	0.24	0.19	0.77	0.12	-0.29	-0.82
	(3.51)	(3.36)	(0.92)	(0.77)	(1.50)	(0.29)	(-0.72)	(-1.99)
4 factor1 α	1.23	0.91	0.17	0.12	0.89	0.12	-0.19	-0.94
	(3.85)	(3.34)	(0.62)	(0.48)	(1.74)	(0.30)	(-0.46)	(-2.21)
4 factor2 α	1.17	0.91	0.18	0.11	0.80	0.10	-0.22	-0.98
	(3.65)	(3.36)	(0.67)	(0.45)	(1.55)	(0.23)	(-0.54)	(-2.33)
5 factor α	1.22	0.91	0.16	0.12	0.88	0.13	-0.18	-0.91
	(3.82)	(3.32)	(0.59)	(0.47)	(1.73)	(0.32)	(-0.45)	(-2.15)

Table 4. Summary Statistics for Monthly Factor Returns

This table shows the summary statistics for monthly factor returns from January 1987 to December 2005. We first calculate the monthly market excess return (R_m-R_f) and monthly returns of SMB and HML factor, where market excess return is calculated by subtracting the 1-month yield of Monetary Stabilization Bonds (MSBs) maturing 364 days from value-weighted monthly returns of all stocks consisted of factor-mimicking portfolio, SMB and HML which are constructed as Fama and French(1993). And then, we make A_LMH(low accrual minus high accrual) factor of TACC and NOA that are TACC or NOA factor-mimicking portfolio, respectively. TACC is the total accruals measured by net income minus cash flow from operation in year t ($NI_t - CFO_t$). NOA is the net operating assets measured by the difference between operating assets and operating liabilities at year t. TACC and NOA are scaled by lagged total asset (TA_{t-1}). The construction of A_LMH is analogous to that of SMB and HML. At the end of June of each year t, all stocks of non-financial firms with positive book values of equity in the our sample are assigned into two size groups (S or B) based on whether the market value of individual common stock at the end of June is below or above the median of market values of all stocks. Stocks are also sorted independently into three TACC or NOA portfolios (L, M, or H) based on the bottom 30%, middle 40%, and top 30% according to TACC or NOA value at the end of t-1 fiscal year end. After constructing six portfolios (S/L, S/M, S/H, B/L, B/M, and B/H), value-weighted monthly returns on these portfolios are computed from July of year t to June of year t+1. The factor mimicking portfolio for TACC or NOA effect, A_LMH is (S/L+B/L)/2-(S/H+B/H)/2. Panel A reports summary statistics of monthly factor returns and Panel B reports Pearson correlation coefficients between monthly factor returns. Panel C reports the monthly Sharpe ratios of ex-post tangent portfolios constructed by the four factor mimicking portfolios. Portfolio weights are determined by $\Omega^{-1}\mathbf{r}$, where Ω is the sample covariance matrix and $\mathbf{r}$ is the column vector of average excess returns of the factor mimicking portfolios. The t-value is in parenthesis and the p-value is in brackets.

Panel A. Summary statistics of monthly factor returns (%)

Stat.	R_m-R_f	SMB	HML	A_LMH of TACC	Six double-sorted portfolios by size and TACC					
					S/L	S/M	S/H	B/L	B/M	B/H
Mean	0.29	1.87	0.74	0.49	5.07	4.98	4.54	2.83	1.99	2.37
Std. Dev.	9.53	9.11	7.81	6.37	13.89	13.23	13.46	11.01	10.12	11.37
(*t*-value)	(0.46)	(3.10)	(1.42)	(1.16)	(5.51)	(5.69)	(5.10)	(3.87)	(2.97)	(3.14)
Stat.	R_m-R_f	SMB	HML	A_LMH of NOA	Six double-sorted portfolios by size and NOA					
					S/L	S/M	S/H	B/L	B/M	B/H
Mean	0.29	1.87	0.74	0.69	4.87	5.44	3.94	2.69	2.65	2.24
Std. Dev.	9.53	9.11	7.81	5.79	13.71	13.41	12.53	9.55	11.03	10.42
(*t*-value)	(0.46)	(3.10)	(1.42)	(1.80)	(5.37)	(6.13)	(4.75)	(4.25)	(3.63)	(3.24)

Panel B. Pearson correlations

	R_m-R_f	SMB	HML			R_m-R_f	SMB	HML
R_m-R_f	1.00				R_m-R_f	1.00		
	-					-		
SMB	-0.20	1.00			SMB	-0.20	1.00	
	[0.00]	-				[0.00]	-	
HML	0.21	-0.18	1.00		HML	0.21	-0.18	1.00
	[0.00]	[0.01]	-			[0.00]	[0.01]	-
A_LMH of TACC	-0.09	-0.28	0.17		A_LMH of NOA	0.04	0.30	-0.06
	[0.17]	[0.00]	[0.01]			[0.55]	[0.00]	[0.33]

Panel C. Weights and summary statistics of ex-post tangent portfolios

Weights					Summary statistics		
R_m-R_f	SMB	HML	A_LMH of TACC	A_LMH of NOA	Mean	Std. Dev.	Sharpe ratio
1.00					0.29	9.53	0.03
0.24	0.76				1.49	6.83	0.22
0.11	0.55	0.34			1.31	5.26	0.25
0.08	0.42	0.20	0.29		1.11	3.97	0.28
0.10	0.42	0.28		0.20	1.16	4.50	0.26

Table 5. Time Series Regressions for Double-Sorted Portfolios

This table shows the results of time series regressions for the monthly returns of double-sorted portfolios. At the end of June of each year t from 1993 to 2005, all common stocks of non-financial firms with positive book values of common equity at years t and t-1 and with at least 36 months of return data in the previous five years are assigned independently into three size groups (S, M, and B) based on the market values of individual stock and three TACC (or NOA) groups (L, M, and H) based on the TACC (or NOA) value of individual firm measured at the fiscal year end in year t–1. Nine double-sorted portfolios (S/L, S/M, S/H, M/L, M/M, M/H, B/L, B/M, and B/H) are formed as the intersections of these three size and three TACC (or NOA) groups. From July 1993 to December 2005, value-weighted monthly returns of these nine portfolios in excess of the 1-month yield of Monetary Stabilization Bonds (MSBs) maturing 364 days are regressed on the monthly returns of 3 factor, R_m-R_f, SMB and HML, and 4 factor including A_LMH of TACC or NOA. In the tables reported below, size is the value-weighted average market values of common stocks in billion won in a portfolio. TACC and NOA is also the value-weighted average TACC and NOA for the firms in a portfolio. xret is the average monthly excess returns of nine portfolios. Panel A is the results of double-sorted portfolios by size and TACC, where A_LMH factor is constructed based on TACC and Panel B is the results of double-sorted portfolios by size and NOA, where A_LMH factor is constructed based on NOA. All t-values are in parenthesis.

Panel A. The results of double-sorted portfolios by size and TACC

Size/ TACC	Size	TACC	xret (%)	t(xret)	Time series regression results										
					a	b	s	h	c	t(a)	t(b)	t(s)	t(h)	t(c)	adj. R^2
					Regression on 3 factors: $R_{i,t} - R_{f,t} = a_i + b_i(R_{m,t} - R_{f,t}) + s_i SMB_t + h_i HML_t + \varepsilon_{i,t}$										
S/L	26	-0.13	7.05	(4.40)	3.88	1.15	1.18	0.70		(4.01)	(11.75)	(12.43)	(6.36)		0.656
S/M	26	-0.03	5.24	(4.55)	2.71	0.91	0.98	0.38		(4.73)	(15.71)	(17.39)	(5.84)		0.767
S/H	25	0.07	4.69	(3.90)	2.31	1.03	0.91	0.32		(3.59)	(15.75)	(14.42)	(4.43)		0.731
M/L	63	-0.12	5.61	(2.06)	4.22	0.77	0.35	1.09		(1.62)	(2.93)	(1.36)	(3.70)		0.141
M/M	59	-0.03	3.25	(2.97)	1.20	1.01	0.79	0.18		(2.13)	(17.81)	(14.42)	(2.84)		0.753
M/H	58	0.07	2.24	(2.23)	0.47	1.01	0.63	0.36		(1.21)	(25.87)	(16.80)	(8.27)		0.862
B/L	18,351	-0.14	2.21	(2.26)	2.62	1.09	-0.24	-0.22		(8.65)	(35.35)	(-8.06)	(-6.42)		0.909
B/M	2,433	-0.03	1.42	(1.58)	0.95	0.98	0.08	0.22		(2.90)	(29.57)	(2.56)	(5.90)		0.876
B/H	2,011	0.05	1.60	(1.48)	1.31	1.16	0.03	-0.01		(2.42)	(21.08)	(0.52)	(-0.19)		0.763

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Panel A (continued)

Size/ TACC	Size	TACC	xret (%)	t(xret)	Time series regression results										
					a	b	s	h	c	t(a)	t(b)	t(s)	t(h)	t(c)	adj. R^2
					Regression on 4 factors: $R_{i,t} − R_{f,t} = a_i + b_i(R_{m,t} − R_{f,t}) + s_iSMB_t + h_iHML_t + c_i\,A\_LMH_t + \varepsilon_{i,t}$										
S/L	26	-0.13	7.05	(4.40)	2.42	1.15	1.40	0.58	1.17	(3.51)	(16.69)	(20.29)	(7.49)	(12.33)	0.831
S/M	26	-0.03	5.24	(4.55)	2.50	0.91	1.01	0.36	0.17	(4.35)	(15.88)	(17.55)	(5.60)	(2.11)	0.772
S/H	25	0.07	4.69	(3.90)	2.69	1.03	0.85	0.35	-0.31	(4.28)	(16.38)	(13.58)	(5.00)	(-3.54)	0.750
M/L	63	-0.12	5.61	(2.06)	4.48	0.77	0.31	1.11	-0.21	(1.69)	(2.93)	(1.16)	(3.73)	(-0.58)	0.137
M/M	59	-0.03	3.25	(2.97)	1.21	1.01	0.79	0.18	-0.01	(2.12)	(17.75)	(13.85)	(2.83)	(-0.17)	0.751
M/H	58	0.07	2.24	(2.23)	0.69	1.01	0.60	0.38	-0.18	(1.84)	(26.87)	(15.97)	(8.95)	(-3.51)	0.872
B/L	18,351	-0.14	2.21	(2.26)	2.32	1.09	-0.20	-0.24	0.24	(8.53)	(40.00)	(-7.17)	(-8.02)	(6.50)	0.929
B/M	2,433	-0.03	1.42	(1.58)	1.02	0.98	0.07	0.22	-0.06	(3.07)	(29.63)	(2.17)	(6.01)	(-1.22)	0.876
B/H	2,011	0.05	1.60	(1.48)	1.86	1.16	-0.05	0.03	-0.44	(3.86)	(24.05)	(-1.13)	(0.60)	(-6.66)	0.817

Panel B. The results of double-sorted portfolios by size and NOA

Size/ NOA	Size	NOA	xret (%)	t(xret)	Time series regression results										
					a	b	s	h	c	t(a)	t(b)	t(s)	t(h)	t(c)	adj. R^2
					Regression on 3 factors: $R_{i,t} − R_{f,t} = a_i + b_i(R_{m,t} − R_{f,t}) + s_iSMB_t + h_iHML_t + \varepsilon_{i,t}$										
S/L	26	0.59	4.94	(4.26)	2.65	1.02	0.86	0.34		(4.57)	(17.43)	(15.17)	(5.22)		0.764
S/M	26	0.78	7.21	(4.72)	4.01	1.10	1.21	0.65		(4.59)	(12.41)	(14.10)	(6.54)		0.691
S/H	26	0.98	4.83	(3.96)	2.37	0.95	0.95	0.31		(3.34)	(13.26)	(13.68)	(3.86)		0.680
M/L	58	0.60	3.18	(2.99)	1.31	0.98	0.73	0.09		(2.21)	(16.21)	(12.53)	(1.37)		0.706
M/M	60	0.78	2.98	(2.85)	1.09	1.01	0.69	0.34		(2.36)	(21.66)	(15.32)	(6.45)		0.817
M/H	61	0.99	4.44	(1.90)	2.86	0.84	0.43	1.04		(1.34)	(3.88)	(2.05)	(4.28)		0.204
B/L	4,794	0.61	2.27	(2.50)	1.96	0.96	0.03	0.14		(4.80)	(23.32)	(0.69)	(3.04)		0.810
B/M	14,468	0.78	2.16	(2.11)	2.22	1.16	-0.10	-0.15		(5.79)	(29.78)	(-2.64)	(-3.49)		0.867
B/H	9,351	1.01	1.49	(1.61)	1.68	1.00	-0.16	-0.05		(4.65)	(27.30)	(-4.62)	(-1.29)		0.856
					Regression on 4 factors: $R_{i,t} − R_{f,t} = a_i + b_i(R_{m,t} − R_{f,t}) + s_iSMB_t + h_iHML_t + c_i\,A\_LMH_t + \varepsilon_{i,t}$										
S/L	26	0.59	4.94	(4.26)	2.54	1.02	0.82	0.36	0.26	(4.48)	(17.85)	(14.07)	(5.56)	(2.95)	0.775
S/M	26	0.78	7.21	(4.72)	4.09	1.10	1.25	0.64	-0.19	(4.69)	(12.47)	(13.98)	(6.44)	(-1.45)	0.694
S/H	26	0.98	4.83	(3.96)	2.65	0.96	1.08	0.27	-0.66	(4.30)	(15.36)	(17.13)	(3.91)	(-7.01)	0.759
M/L	58	0.60	3.18	(2.99)	1.05	0.97	0.62	0.13	0.61	(2.10)	(19.24)	(12.04)	(2.21)	(7.89)	0.793
M/M	60	0.78	2.98	(2.85)	1.07	1.01	0.69	0.34	0.04	(2.31)	(21.61)	(14.47)	(6.47)	(0.61)	0.816
M/H	61	0.99	4.44	(1.90)	2.84	0.84	0.42	1.04	0.04	(1.32)	(3.86)	(1.93)	(4.26)	(0.11)	0.199
B/L	4,794	0.61	2.27	(2.50)	1.80	0.96	-0.04	0.16	0.37	(5.04)	(26.61)	(-1.19)	(3.97)	(6.78)	0.855
B/M	14,468	0.78	2.16	(2.11)	2.18	1.16	-0.12	-0.15	0.10	(5.71)	(29.96)	(-3.04)	(-3.37)	(1.72)	0.869
B/H	9,351	1.01	1.49	(1.61)	1.79	1.00	-0.12	-0.07	-0.25	(5.30)	(29.33)	(-3.37)	(-1.74)	(-4.80)	0.875

Table 6. Time Series Regressions for Triple-Sorted Portfolios

This table shows the results of time series regressions for the monthly returns of triple-sorted portfolios. At the end of June of each year t from 1993 to 2005, all common stocks of non-financial firms with positive book values of common equity at years t and t-1 and with at least 36 months of return data in the previous five years are assigned independently into three size groups (S, M, and B) based on the market values of individual stock and three TACC (or NOA) groups (L, M, and H) based on the TACC (or NOA) value of individual firm measured at the fiscal year end in year t–1. Nine double-sorted portfolios (S/L, S/M, S/H, M/L, M/M, M/H, B/L, B/M, and B/H) are formed as the intersections of these three size and three TACC (or NOA) groups. The nine portfolios are then each divided into three portfolios (L, M, and H) based on pre-formation A_LMH loading estimated with monthly returns over the previous 60 months at the end of year t-1. If an individual stock has less than 36 monthly returns over the previous 60 months, then estimated loading of the stock is replaced by missing value. Finally, we construct 27 triple-sorted portfolios. From July 1993 to December 2005, value-weighted monthly returns of these 27 portfolios in excess of the 1-month yield of Monetary Stabilization Bonds (MSBs) maturing 364 days are regressed on the monthly returns of 4 factors, R_m-R_f, SMB, HML, and A_LMH of TACC or NOA. In the tables reported below, size is the value-weighted average market values of common stocks in billion won in a portfolio. Loading, TACC and NOA are also the value-weighted average of pre-formation A_LMH loading, TACC and NOA for the firms in a portfolio. xret is the average monthly excess returns of 27 portfolios. Panel A is the results of triple-sorted portfolios by size, TACC, and pre-formation A_LMH loading, where A_LMH factor is constructed by TACC and Panel B is the results of triple-sorted portfolios by size, NOA and pre-formation A_LMH loading, where A_LMH factor is constructed by NOA. All *t*-values are in parenthesis.

Panel A. The results of triple-sorted portfolios by size, TACC and pre-formation A_LMH loading

Size/ TACC/ Loading	Size	TACC	Loading	xret (%)	t(xret)	Time series regression results										
						a	b	s	h	c	t(a)	t(b)	t(s)	t(h)	t(c)	adj. R^2
Regression on 4 factors: $R_{i,t} - R_{f,t} = a_i + b_i(R_{m,t} - R_{f,t}) + s_i SMB_t + h_i HML_t + c_i\,A\_LMH_t + \varepsilon_{i,t}$																
S/L/L	25	-0.13	-0.75	6.66	(3.63)	2.12	1.25	1.52	0.49	0.78	(1.86)	(10.95)	(13.28)	(3.80)	(4.96)	0.644
S/L/M	25	-0.13	-0.06	7.18	(3.37)	1.81	1.23	1.55	1.01	1.40	(1.39)	(9.43)	(11.88)	(6.94)	(7.77)	0.657
S/L/H	24	-0.13	0.60	5.30	(3.80)	2.85	0.86	0.80	0.18	0.47	(2.48)	(7.50)	(6.96)	(1.39)	(2.98)	0.380
S/M/L	27	-0.03	-0.73	5.19	(3.32)	1.78	1.03	1.28	0.42	0.18	(1.73)	(10.00)	(12.41)	(3.65)	(1.26)	0.602
S/M/M	22	-0.03	-0.07	5.09	(4.06)	2.68	0.92	0.86	0.31	0.20	(3.06)	(10.53)	(9.78)	(3.17)	(1.69)	0.553
S/M/H	27	-0.03	0.60	4.63	(3.82)	2.29	0.79	0.86	0.30	0.15	(2.57)	(8.84)	(9.63)	(2.99)	(1.19)	0.503
S/H/L	23	0.07	-0.82	4.51	(3.18)	2.53	1.12	0.85	0.53	-0.43	(2.91)	(12.98)	(9.84)	(5.42)	(-3.59)	0.658
S/H/M	27	0.07	-0.12	5.12	(3.31)	2.93	1.09	0.93	0.36	-0.32	(2.59)	(9.64)	(8.24)	(2.80)	(-2.03)	0.509
S/H/H	23	0.06	0.63	3.77	(3.30)	1.92	0.86	0.77	0.14	-0.12	(2.43)	(10.87)	(9.72)	(1.55)	(-1.13)	0.559
M/L/L	65	-0.11	-0.60	3.55	(2.80)	1.58	1.10	0.79	0.28	-0.17	(2.06)	(14.43)	(10.33)	(3.29)	(-1.60)	0.664
M/L/M	61	-0.11	0.11	3.32	(3.14)	1.55	1.03	0.62	0.30	0.07	(2.89)	(19.19)	(11.55)	(4.93)	(0.88)	0.764
M/L/H	57	-0.13	1.21	7.37	(1.29)	7.31	0.35	-0.23	2.08	-0.44	(1.26)	(0.61)	(-0.40)	(3.20)	(-0.55)	0.059
M/M/L	62	-0.03	-0.69	3.04	(2.31)	0.93	1.19	0.84	0.35	-0.18	(1.28)	(16.42)	(11.56)	(4.33)	(-1.80)	0.722
M/M/M	52	-0.03	-0.01	1.79	(1.72)	0.11	0.98	0.64	0.29	-0.08	(0.21)	(18.32)	(11.90)	(4.74)	(-1.12)	0.754
M/M/H	58	-0.03	0.65	4.07	(2.93)	1.86	0.82	0.84	-0.04	0.22	(1.59)	(7.01)	(7.17)	(-0.33)	(1.37)	0.353
M/H/L	61	0.08	-0.78	2.04	(1.70)	0.83	1.11	0.52	0.39	-0.41	(1.24)	(16.47)	(7.79)	(5.15)	(-4.37)	0.712
M/H/M	56	0.07	-0.06	2.49	(2.22)	0.73	0.99	0.68	0.41	-0.15	(1.19)	(16.08)	(10.94)	(5.90)	(-1.81)	0.721
M/H/H	52	0.06	0.59	1.76	(1.80)	-0.07	0.91	0.64	0.35	0.07	(-0.14)	(18.98)	(13.37)	(6.48)	(1.03)	0.780
B/L/L	1,789	-0.10	-0.67	1.99	(1.91)	1.65	1.14	0.05	0.09	-0.05	(3.48)	(24.06)	(1.10)	(1.75)	(-0.73)	0.811
B/L/M	2,760	-0.12	0.09	2.57	(2.47)	2.52	1.01	-0.13	0.03	0.16	(4.42)	(17.76)	(-2.35)	(0.54)	(1.98)	0.726
B/L/H	22,417	-0.15	0.68	2.13	(2.09)	2.39	1.09	-0.26	-0.33	0.28	(7.16)	(32.68)	(-7.73)	(-8.78)	(6.12)	0.902
B/M/L	1,226	-0.03	-0.71	1.43	(1.34)	0.72	1.02	0.17	0.43	-0.06	(1.33)	(18.79)	(3.05)	(7.04)	(-0.78)	0.761
B/M/M	1,911	-0.03	-0.08	1.98	(2.11)	1.51	0.97	0.09	0.16	0.01	(3.15)	(20.40)	(1.87)	(3.01)	(0.19)	0.762
B/M/H	2,352	-0.03	0.48	1.08	(1.16)	0.96	0.96	0.01	0.10	-0.16	(1.96)	(19.62)	(0.25)	(1.80)	(-2.42)	0.744
B/H/L	870	0.06	-0.91	0.41	(0.39)	0.20	0.96	0.11	0.24	-0.38	(0.31)	(14.77)	(1.69)	(3.29)	(-4.22)	0.641
B/H/M	887	0.05	-0.25	1.91	(1.72)	1.68	1.12	0.05	0.24	-0.24	(2.83)	(18.87)	(0.85)	(3.64)	(-2.88)	0.740
B/H/H	2,551	0.05	0.42	1.77	(1.31)	2.30	1.28	-0.11	-0.25	-0.51	(2.60)	(14.50)	(-1.21)	(-2.55)	(-4.14)	0.608

Panel B. The results of triple-sorted portfolios by size, NOA and pre-formation A_LMH loading

Size/ NOA/ Loading	Size	NOA	Loading	xret (%)	t(xret)	Time series regression results										
						a	b	s	h	c	t(a)	t(b)	t(s)	t(h)	t(c)	adj. R^2
						Regression on 4 factors: $R_{i,t} - R_{f,t} = a_i + b_i(R_{m,t} - R_{f,t}) + s_i SMB_t + h_i HML_t + c_i A\_LMH_t + \varepsilon_{i,t}$										
S/L/L	22	0.59	-0.96	5.09	(3.32)	1.95	1.13	1.17	0.49	0.10	(2.08)	(11.88)	(12.21)	(4.60)	(0.67)	0.649
S/L/M	26	0.59	-0.12	5.56	(4.17)	3.23	1.03	0.75	0.38	0.32	(3.60)	(11.32)	(8.19)	(3.77)	(2.36)	0.573
S/L/H	27	0.59	0.65	3.47	(3.09)	1.63	0.92	0.61	0.20	0.25	(2.15)	(12.05)	(7.86)	(2.29)	(2.17)	0.573
S/M/L	24	0.78	-1.03	7.01	(3.78)	4.03	0.97	1.28	0.78	-0.48	(2.85)	(6.77)	(8.82)	(4.85)	(-2.23)	0.454
S/M/M	26	0.78	-0.21	7.42	(3.36)	3.55	1.33	1.36	0.87	0.24	(2.14)	(7.94)	(8.02)	(4.65)	(0.96)	0.473
S/M/H	24	0.79	0.52	5.42	(4.15)	3.28	0.90	0.99	0.18	-0.40	(3.59)	(9.79)	(10.65)	(1.76)	(-2.84)	0.542
S/H/L	24	0.96	-1.13	4.07	(3.03)	1.90	1.03	1.11	0.18	-0.70	(2.38)	(12.73)	(13.59)	(1.97)	(-5.76)	0.669
S/H/M	24	0.97	-0.26	5.12	(3.53)	3.08	1.02	1.08	0.27	-0.85	(3.20)	(10.52)	(11.01)	(2.48)	(-5.78)	0.587
S/H/H	27	0.99	0.44	4.43	(3.46)	2.15	0.85	1.06	0.35	-0.49	(2.58)	(10.00)	(12.34)	(3.66)	(-3.78)	0.600
M/L/L	52	0.60	-0.58	2.45	(2.25)	0.53	1.02	0.69	0.37	0.02	(1.00)	(18.79)	(12.53)	(6.14)	(0.21)	0.772
M/L/M	61	0.60	0.20	3.14	(2.43)	0.98	0.90	0.58	-0.08	0.86	(1.09)	(9.92)	(6.33)	(-0.75)	(6.28)	0.549
M/L/H	56	0.59	0.84	3.28	(2.82)	1.26	0.98	0.55	0.20	0.60	(1.78)	(13.72)	(7.62)	(2.48)	(5.55)	0.650
M/M/L	62	0.78	-0.74	3.64	(2.65)	1.28	1.18	0.72	0.44	0.39	(1.55)	(14.20)	(8.58)	(4.74)	(3.05)	0.664
M/M/M	55	0.78	0.05	2.05	(1.91)	0.10	0.90	0.82	0.32	-0.25	(0.17)	(15.03)	(13.60)	(4.87)	(-2.76)	0.716
M/M/H	60	0.78	0.68	2.71	(2.52)	1.20	0.93	0.52	0.26	0.07	(1.68)	(12.96)	(7.11)	(3.21)	(0.68)	0.589
M/H/L	58	1.01	-0.78	1.72	(1.52)	-0.13	1.01	0.74	0.36	-0.19	(-0.21)	(15.70)	(11.45)	(4.96)	(-1.99)	0.707
M/H/M	59	0.99	-0.01	2.28	(2.12)	0.64	1.05	0.63	0.34	-0.15	(1.25)	(20.16)	(11.88)	(5.89)	(-1.87)	0.784
M/H/H	63	0.99	0.79	7.28	(1.51)	5.86	0.59	0.10	1.86	0.33	(1.23)	(1.23)	(0.21)	(3.44)	(0.46)	0.076
B/L/L	5,954	0.63	-0.33	2.24	(2.13)	1.40	1.06	0.06	0.27	0.46	(2.84)	(21.26)	(1.18)	(4.78)	(6.10)	0.793
B/L/M	1,167	0.61	0.33	2.18	(2.13)	1.66	0.99	0.04	0.15	0.21	(2.70)	(15.90)	(0.60)	(2.10)	(2.24)	0.661
B/L/H	1,270	0.58	0.94	1.72	(1.89)	1.48	0.85	-0.10	0.06	0.32	(2.67)	(15.26)	(-1.73)	(1.02)	(3.81)	0.653
B/M/L	18,947	0.78	-0.51	1.91	(1.86)	1.82	1.10	-0.06	-0.04	0.01	(3.71)	(22.10)	(-1.15)	(-0.69)	(0.17)	0.784
B/M/M	3,507	0.80	0.14	1.89	(1.81)	1.50	1.05	-0.01	0.02	0.24	(2.49)	(17.25)	(-0.19)	(0.27)	(2.62)	0.687
B/M/H	2,848	0.78	0.88	2.17	(1.55)	2.37	1.37	-0.23	-0.32	0.23	(2.79)	(15.95)	(-2.69)	(-3.32)	(1.79)	0.656
B/H/L	11,244	1.01	-0.76	1.28	(1.42)	1.68	0.88	-0.15	-0.08	-0.24	(3.57)	(18.58)	(-3.16)	(-1.51)	(-3.28)	0.744
B/H/M	3,202	1.02	0.09	1.39	(1.40)	1.08	1.04	0.02	0.11	0.01	(2.21)	(21.03)	(0.41)	(1.92)	(0.18)	0.771
B/H/H	6,566	1.01	0.60	1.79	(1.50)	2.10	1.19	-0.12	-0.12	-0.29	(3.24)	(18.04)	(-1.75)	(-1.66)	(-2.91)	0.719

Table 7. Time Series Regressions for Characteristic-Balanced Portfolios

This table shows the results of time series regressions for the monthly returns of characteristic-balanced portfolios. At the end of June of each year t from 1993 to 2005, all common stocks of non-financial firms with positive book values of common equity at years t and t-1 and with at least 36 months of return data in the previous five years are assigned independently into three size groups (S, M, and B) based on the market values of individual stock and three TACC (or NOA) groups (L, M, and H) based on the TACC (or NOA) value of individual firm measured at the fiscal year end in year t–1. Nine double-sorted portfolios (S/L, S/M, S/H, M/L, M/M, M/H, B/L, B/M, and B/H) are formed as the intersections of these three size and three TACC (or NOA) groups. The nine portfolios are then each divided into three portfolios (L, M, and H) based on pre-formation A_LMH loading estimated with monthly returns over the previous 60 months at the end of year t-1. If an individual stock has less than 36 monthly returns over the previous 60 months, then estimated loading of the stock is replaced by missing value. Finally, we construct 27 triple-sorted portfolios. From July 1993 to December 2005, value-weighted monthly returns of these 27 portfolios in excess of the 1-month yield of Monetary Stabilization Bonds (MSBs) maturing 364 days are calculated from July of year t to June of year t+1. For each of the nine double-sorted portfolios, a characteristic-balanced zero-investment portfolio (HL–LL) is formed by taking a long position in the highest A_LMH loading portfolio and a short position in the lowest A_LMH loading portfolio and a combined characteristic-balanced portfolio is also formed by equal-weighting the above nine characteristic-balanced portfolios. The monthly returns of the characteristic-balanced portfolios are regressed on the monthly returns of 4 factors, R_m-R_f, SMB, HML, and A_LMH for TACC (or NOA). xret is the average monthly excess returns of the characteristic-balanced portfolios. Panel A is the results of double-sorted portfolios by size and TACC, where A_LMH factor is constructed by TACC and Panel B is the results of double-sorted portfolios by size and NOA, where A_LMH factor is constructed by NOA. All *t*-values are in parenthesis.

Panel A. The results of characteristic-balanced portfolios sorted by size and TACC

Size/ TACC	xret (%)	t(xret)	a	b	s	h	c	t(a)	t(b)	t(s)	t(h)	t(c)	adj. R^2
			Regression on 4 factors: $(HL - LL)_{i,t} - R_{f,t} = a_i + b_i(R_{m,t} - R_{f,t}) + s_iSMB_t + h_iHML_t + c_i\,A\_LMH_t + \varepsilon_{i,t}$										
S/L	-1.35	(-0.75)	0.73	-0.39	-0.72	-0.31	-0.31	(0.41)	(-2.17)	(-4.00)	(-1.53)	(-1.25)	0.097
S/M	-0.56	(-0.40)	0.51	-0.24	-0.42	-0.12	-0.03	(0.35)	(-1.68)	(-2.92)	(-0.76)	(-0.17)	0.041
S/H	-0.74	(-0.67)	-0.60	-0.26	-0.08	-0.39	0.31	(-0.56)	(-2.43)	(-0.76)	(-3.21)	(2.04)	0.110
M/L	3.82	(0.67)	5.73	-0.75	-1.03	1.80	-0.27	(0.99)	(-1.31)	(-1.78)	(2.78)	(-0.34)	0.059
M/M	1.03	(0.72)	0.93	-0.37	0.00	-0.40	0.40	(0.65)	(-2.61)	(-0.02)	(-2.47)	(2.03)	0.092
M/H	-0.28	(-0.33)	-0.90	-0.20	0.12	-0.04	0.47	(-1.08)	(-2.36)	(1.40)	(-0.43)	(4.10)	0.115
B/L	0.14	(0.20)	0.74	-0.05	-0.31	-0.42	0.33	(1.20)	(-0.82)	(-5.05)	(-6.12)	(3.89)	0.323
B/M	-0.35	(-0.45)	0.24	-0.06	-0.15	-0.33	-0.11	(0.31)	(-0.72)	(-1.98)	(-3.80)	(-0.99)	0.093
B/H	1.36	(1.20)	2.10	0.32	-0.22	-0.49	-0.13	(1.89)	(2.90)	(-1.94)	(-3.94)	(-0.83)	0.120
Combined	0.34	(0.39)	1.05	-0.22	-0.31	-0.08	0.07	(1.22)	(-2.58)	(-3.62)	(-0.81)	(0.62)	0.093

Panel B. The results of characteristic-balanced portfolios sorted by size and NOA

Size/ NOA	xret (%)	t(xret)	a	b	s	h	c	t(a)	t(b)	t(s)	t(h)	t(c)	adj. R^2
			Time series regression results										
			Regression on 4 factors: $(HL - LL)_{i,t} - R_{f,t} = a_i + b_i(R_{m,t} - R_{f,t}) + s_iSMB_t + h_iHML_t + c_i A\_LMH_t + \varepsilon_{i,t}$										
S/L	-1.62	(-1.38)	-0.32	-0.20	-0.56	-0.29	0.15	(-0.29)	(-1.80)	(-4.89)	(-2.30)	(0.90)	0.138
S/M	-1.58	(-0.92)	-0.75	-0.07	-0.28	-0.60	0.09	(-0.44)	(-0.38)	(-1.61)	(-3.05)	(0.33)	0.046
S/H	0.35	(0.33)	0.26	-0.18	-0.05	0.17	0.22	(0.23)	(-1.64)	(-0.48)	(1.36)	(1.31)	0.009
M/L	0.84	(0.95)	0.73	-0.03	-0.13	-0.17	0.59	(0.85)	(-0.39)	(-1.54)	(-1.79)	(4.49)	0.125
M/M	-0.93	(-0.85)	-0.08	-0.25	-0.21	-0.18	-0.31	(-0.08)	(-2.25)	(-1.83)	(-1.48)	(-1.85)	0.067
M/H	5.56	(1.17)	5.99	-0.42	-0.64	1.50	0.53	(1.25)	(-0.86)	(-1.31)	(2.78)	(0.72)	0.045
B/L	-0.51	(-0.73)	0.08	-0.20	-0.16	-0.20	-0.14	(0.12)	(-2.95)	(-2.26)	(-2.63)	(-1.31)	0.112
B/M	0.27	(0.25)	0.55	0.27	-0.18	-0.28	0.22	(0.51)	(2.47)	(-1.60)	(-2.30)	(1.33)	0.060
B/H	0.51	(0.62)	0.43	0.30	0.04	-0.04	-0.05	(0.52)	(3.68)	(0.43)	(-0.45)	(-0.43)	0.063
Combined	0.32	(0.44)	0.76	-0.09	-0.24	-0.01	0.14	(1.05)	(-1.18)	(-3.26)	(-0.13)	(1.29)	0.046

Table 8. Cross-Sectional Regressions for Individual Stock

This table reports the results of Fama and MacBeth(1973) cross-sectional regressions using monthly returns of individual stock from January 1992 to December, 2005. Monthly individual stock returns are regressed on LnSize, LnB/M, Ret(-1:-1), Ret(-12:-2), Ret(-36:-13), TACC (or NOA), and pre-formation factor loadings (β_{Market}, β_{SMB}, β_{HML} and β_{A_LMH}). LnSize is the log of market value of stock at the end of previous June, LnB/M is the log of book-to-market ratio of individual firm at the end of fiscal year t-1, Ret(-1:-1) is the previous month's return, Ret(-12:-2) is the return from month -12 to month -2, and Ret(-36:-13) is the return from month -36 to month -13. TACC is the total accruals measured by net income minus cash flow from operation in year t ($NI_t - CFO_t$), NOA is the net operating assets measured by the difference between operating assets and operating liabilities at year t. both are scaled by lagged total asset (TA_{t-1}). The pre-formation factor loadings in Panel A and C are estimated by regressing the previous 60 months returns of nine portfolios sorted by size and TACC (or NOA) on the returns of four factors, $R_m - R_f$, SMB, HML and A_LMH of TACC or NOA, but the pre-formation factor loadings in Panel B and D are estimated by regressing the previous 60 months returns of individual stock on the returns of four factors. In the cross-sectional regression of Panel A and C, each individual stock is assigned the factor loadings of one of nine portfolios it belongs to. Avg. R^2 is time series mean of adjusted R^2. Panel A and B (C and D) report the results for TACC (NOA). All t-values, in parenthesis, are adjusted for autocorrelation in the estimates, as multiplying the standard errors of the average parameters by $[(1+\rho)/(1-\rho)]^{0.5}$, where ρ is the first-order autocorrelation in monthly parameter estimates.

Panel A. The results of the cross-sectional regressions using TACC and factor loadings of nine portfolios sorted by size and TACC

Model	Intercept	LnSize	LnBtM	Ret(-1:-1)	Ret(-12:-2)	Ret(-36:-13)	TACC	β_{Market}	β_{SMB}	β_{HML}	β_{A_LMH}	Avg. R^2
1	1.7539										1.9407	0.0063
	(1.58)										(6.03)	
2	-0.6940							1.4868	1.3293	0.4011	1.2803	0.0283
	(-0.28)							(0.64)	(2.17)	(0.50)	(3.09)	
3	-0.2477	-0.1430	0.7250	-0.0752	-0.0122	-0.0034		1.0454	0.3489	-0.3231	1.7326	0.0812
	(-0.10)	(-0.63)	(3.11)	(-6.60)	(-1.65)	(-0.74)		(0.48)	(0.83)	(-0.44)	(4.84)	
4	1.9224	-0.3904	0.7760	-0.0756	-0.0121	-0.0031	-6.8323					0.0792
	(1.20)	(-1.55)	(3.27)	(-6.66)	(-1.61)	(-0.66)	(-4.67)					
5	-1.9486	-0.1503	0.7652	-0.0754	-0.0124	-0.0032	-4.2407	2.5474	0.5525	-0.2665	0.8809	0.0825
	(-0.68)	(-0.66)	(3.21)	(-6.63)	(-1.66)	(-0.69)	(-2.57)	(1.02)	(1.32)	(-0.31)	(2.06)	

Panel B. The results of the cross-sectional regressions using TACC and factor loadings of individual stocks

Model	Intercept	LnSize	LnBtM	Ret(-1:-1)	Ret(-12:-2)	Ret(-36:-13)	TACC	β_{Market}	β_{SMB}	β_{HML}	β_{A_LMH}	Avg. R^2
1	1.8736										0.7233	0.0228
	(1.71)										(1.21)	
2	1.4717							-0.4326	1.0100	0.6960	0.0270	0.0619
	(1.57)							(-0.84)	(1.80)	(2.29)	(0.04)	
3	2.9079	-0.4326	0.5000	-0.0738	-0.0093	-0.0061		-0.3501	-0.2911	0.3651	0.5824	0.1039
	(1.98)	(-1.55)	(2.49)	(-6.82)	(-1.59)	(-1.12)		(-0.69)	(-0.51)	(1.14)	(1.08)	
4	1.9224	-0.3904	0.7760	-0.0756	-0.0121	-0.0031	-6.8323					0.0792
	(1.20)	(-1.55)	(3.27)	(-6.66)	(-1.61)	(-0.66)	(-4.67)					
5	2.7023	-0.4474	0.5935	-0.0751	-0.0103	-0.0056	-5.9459	-0.3383	-0.2432	0.3429	0.4609	0.1063
	(1.87)	(-1.64)	(2.97)	(-6.91)	(-1.72)	(-1.04)	(-4.31)	(-0.68)	(-0.44)	(1.06)	(0.86)	

Panel C. The results of the cross-sectional regressions using NOA and factor loadings of nine portfolios sorted by size and NOA

Model	Intercept	LnSize	LnBtM	Ret(-1:-1)	Ret(-12:-2)	Ret(-36:-13)	NOA	β_{Market}	β_{SMB}	β_{HML}	β_{A_LMH}	Avg. R^2
1	1.8206										-0.2037	0.0024
	(1.62)										(-0.49)	
2	-2.6074							3.4843	1.4059	1.0060	0.2991	0.0247
	(-1.28)							(1.75)	(2.36)	(0.98)	(0.84)	
3	-3.3993	-0.1294	0.6930	-0.0745	-0.0115	-0.0033		4.1341	0.6161	0.8198	0.6871	0.0784
	(-1.35)	(-0.57)	(2.90)	(-6.57)	(-1.60)	(-0.70)		(2.21)	(2.06)	(0.98)	(2.29)	
4	3.2485	-0.2992	0.7748	-0.0749	-0.0119	-0.0034	-1.9156					0.0771
	(2.12)	(-1.15)	(3.26)	(-6.63)	(-1.60)	(-0.70)	(-4.30)					
5	-2.1435	-0.0971	0.7496	-0.0750	-0.0119	-0.0030	-2.2188	4.5762	0.3761	0.9384	-0.2334	0.0798
	(-0.87)	(-0.43)	(3.19)	(-6.64)	(-1.64)	(-0.63)	(-3.60)	(2.52)	(1.19)	(1.12)	(-0.60)	

Panel D. The results of the cross-sectional regressions using NOA and factor loadings of individual stocks

Model	Intercept	LnSize	LnBtM	Ret(-1:-1)	Ret(-12:-2)	Ret(-36:-13)	NOA	β_{Market}	β_{SMB}	β_{HML}	β_{A_LMH}	Avg. R^2
1	1.8505										0.3087	0.0119
	(1.64)										(1.02)	
2	1.6369							-0.5134	0.8568	0.8325	0.3163	0.0559
	(1.54)							(-0.99)	(1.63)	(1.79)	(1.32)	
3	3.2175	-0.4990	0.4753	-0.0758	-0.0093	-0.0053		-0.3525	-0.5889	0.5747	0.3271	0.1001
	(2.21)	(-1.85)	(2.28)	(-6.78)	(-1.34)	(-1.01)		(-0.68)	(-1.06)	(1.20)	(1.37)	
4	3.2485	-0.2992	0.7748	-0.0749	-0.0119	-0.0034	-1.9156					0.0771
	(2.12)	(-1.15)	(3.26)	(-6.63)	(-1.60)	(-0.70)	(-4.30)					
5	4.1306	-0.4281	0.5798	-0.0764	-0.0101	-0.0050	-1.6456	-0.3433	-0.5005	0.5875	0.3169	0.1013
	(2.78)	(-1.58)	(2.81)	(-6.83)	(-1.45)	(-0.94)	(-3.79)	(-0.65)	(-0.92)	(1.22)	(1.33)	