Do Anomalies Exist Ex Ante?

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Motivation

Many anomalies have been shown to exist ex post

The average realized returns do not necessarily converge to the expected returns in finite sample

Objective

Estimate ex ante expected returns to trading strategies based on the following anomalies

The value premium

Momentum: Price and earnings momentum

Distress, Campbell, Hilscher and Szilagyi (2008)

The investment and asset growth anomalies

- The abnormal investment anomaly, Titman, Wei, and Xie (2004)
- The asset growth anomaly, Cooper, Gulen, and Schill (2008)

The external financing anomalies

- The composite issuance measure, Daniel and Titman (2006)
- The net stock issues, Fama and French (2008)

News

The dividend discounting model delivers precise expected return estimates that are largely similar in magnitude with average ex post returns (except for price momentum)

The residual income model delivers substantially different estimates

In horse races, the estimates from the dividend discounting model dominate the estimates from the residual income model

Outline

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Dividend Discounting Model

Estimation methods

Based on the Gordon's dividend discounting model:

$$E[r_{t+1}] = E[D_{t+1}/P_t] + E[r^P_{t+1}]$$

Fama and French (2002):

$$r^{DD} = E[D_{t+1}/P_t] + E[g_{t+1}]$$

Conditional version, Blanchard (1993):

$$r^{DD}_t = E_t[D_{t+1}/P_t] + E_t[Ag_{t+1}], \quad Ag_{t+1} \equiv \left[\frac{\bar{r} - \bar{g}}{1 + \bar{r}}\right] \sum_{j=0}^{\infty} \left[\frac{1 + \bar{g}}{1 + \bar{r}}\right] g_{t+j+1}$$

Dividend Discounting Model

Results: Part I

	$\bar{r}$	$E[r_t^{DD}]$	$\bar{r}$	$E[r_t^{DD}]$
	Book-to-market		F-prob	
Low	11.2	9.4	14.4	13.4
2	12.3	12.2	13.6	10.7
3	13.0	11.6	13.3	12.2
4	15.1	14.0	12.5	11.1
High	16.4	15.4	7.5	5.2
H−L	5.2	6.0	−6.9	−8.2
ste	2.0	0.1	1.9	0.1
	Prior returns		Earnings surprises	
Low	8.6	8.6	12.7	10.7
2	12.1	10.4	13.0	10.5
3	11.7	10.6	13.9	10.1
4	12.6	11.8	15.8	12.1
High	15.7	8.3	16.6	12.1
H−L	7.1	−0.3	3.9	1.4
ste	1.6	0.1	0.8	0.2

Dividend Discounting Model

Results: Part II

	$\bar{r}$	$E[r_t^{DD}]$	$\bar{r}$	$E[r_t^{DD}]$
	Abnormal investment		Asset growth	
Low	14.4	13.1	15.7	14.7
2	13.8	11.9	13.0	12.4
3	13.0	11.4	12.1	10.8
4	12.2	12.5	12.6	11.8
High	10.7	9.7	10.7	9.2
H−L	−3.9	−3.3	−5.0	−5.5
ste	1.9	0.4	1.8	0.2
	Composite issuance		Net stock issues	
Low	14.1	12.8	11.9	11.4
2	13.5	12.1	11.8	11.8
3	11.8	10.5	14.2	9.8
4	11.8	11.2	11.0	11.1
High	9.9	9.6	8.5	8.8
H−L	−4.2	−3.2	−3.4	−2.6
ste	1.5	0.2	1.5	0.1

Dividend Discounting Model

Results: Robustness

	Book-to-market		Prior returns		Earnings surprises	
	$\bar{r}$	$E[r_t^{DD}]$	$\bar{r}$	$E[r_t^{DD}]$	$\bar{r}$	$E[r_t^{DD}]$
	the first half of sample					
Low	11.1	10.2	9.7	9.5	14.5	11.5
2	11.8	12.9	11.9	11.7	14.2	11.4
3	12.8	12.5	11.2	11.6	15.4	11.3
4	15.3	15.0	13.4	12.6	17.1	12.8
High	18.1	16.6	16.9	9.0	18.7	13.4
H−L	7.0	6.4	7.2	−0.5	4.2	1.8
ste	2.8	0.1	2.2	0.2	1.4	0.2
	the second half of sample					
Low	11.4	8.6	6.9	7.7	10.9	9.8
2	12.7	11.6	11.9	9.2	11.7	9.6
3	13.2	10.7	11.8	9.6	12.4	9.0
4	14.9	13.0	11.5	11.0	14.5	11.4
High	14.7	14.2	14.5	7.6	14.5	10.8
H−L	3.3	5.6	7.6	−0.1	3.6	1.0
ste	2.7	0.1	2.6	0.1	1.0	0.1

Outline

Residual Income Model

Estimation methods

Following the Gebhardt, Lee, and Swaminathan (2001)

$$P_t = B_t + \frac{FROE_{t+1} - r^{RI}}{1 + r^{RI}} B_t + \frac{FROE_{t+2} - r^{RI}}{(1 + r^{RI})^2} B_{t+1} + TV$$

where

$$B_{t+i} = B_{t+i-1} + FEPS_{t+i} - FDPS_{t+i}$$

$$TV = \sum_{i=3}^{T-1} \frac{FROE_{t+i} - r^{RI}}{(1 + r^{RI})^i} B_{t+i-1} + \frac{FROE_{t+T} - r^{RI}}{r^{RI}(1 + r^{RI})^{T-1}} B_{t+T-1}$$

Residual Income Model

Results: Part I

	$\bar{r}$	$E[r^{RI}]$	$\bar{r}$	$E[r^{RI}]$
	Book-to-market		F-prob	
Low	13.6	7.5	14.2	8.2
2	13.8	8.9	13.6	9.2
3	14.8	9.8	14.0	10.3
4	15.9	10.8	12.7	11.2
High	17.8	12.9	6.5	11.7
H−L	4.2	5.4	−7.7	3.6
ste	2.4	0.3	2.2	0.1
	Prior returns		Earnings surprises	
Low	11.8	10.1	12.4	9.1
2	15.0	9.5	12.7	9.3
3	14.3	9.2	13.2	9.1
4	14.2	8.9	15.1	8.9
High	16.6	8.7	15.8	9.0
H−L	4.3	−1.4	3.4	−0.0
ste	2.3	0.1	1.0	0.1

Residual Income Model

Results: Part II

	$\bar{r}$	$E[r^{RI}]$	$\bar{r}$	$E[r^{RI}]$
	Abnormal investment		Asset growth	
Low	15.8	9.4	17.1	9.5
2	14.8	9.2	14.3	9.2
3	15.2	9.1	13.6	8.9
4	15.6	8.9	14.5	8.6
High	11.7	8.8	11.4	8.5
H−L	−4.0	−0.6	−5.8	−1.0
ste	1.9	0.3	1.9	0.3
	Composite issuance		Net stock issues	
Low	15.8	9.8	15.1	9.0
2	15.1	8.8	13.1	8.8
3	14.3	8.9	16.7	9.1
4	14.1	9.0	12.7	9.2
High	11.3	9.2	9.4	9.1
H−L	−4.5	−0.5	−5.7	0.1
ste	1.1	0.3	2.2	0.1

Outline

The Cross-sectional Regression

Results: Dividend discounting Model

	Int.	r_t^{DD}	r^6	log (B/M)	log (ME)	R^2
	Monthly realized returns as the dependent variable					
	0.00	0.08				0.11
$t_{\text{Bias}=0}$		−0.15				
	0.00	0.06	0.01	0.00	0.00	0.32
$t_{\text{Bias}=0}$		−1.64				
	12-month realized returns as the dependent variable					
	0.05	0.91				0.13
$t_{\text{Bias}=0}$		−0.44				
	0.04	0.59	0.17	0.00	0.00	0.41
$t_{\text{Bias}=0}$		−2.23				
	36-month realized returns as the dependent variable					
	0.33	1.49				0.14
$t_{\text{Bias}=0}$		−2.50				
	0.52	1.03	0.44	0.00	−0.03	0.37
$t_{\text{Bias}=0}$		−3.30				

The Cross-sectional Regression

Results: Residual Income Model

	Int.	r_t^{DD}	r^6	log (B/M)	log (ME)	R^2
	Monthly realized returns as the dependent variable					
	0.00	0.08				0.09
$t_{\text{Bias}=0}$		−0.01				
	−0.02	0.18	0.01	0.00	0.00	0.40
$t_{\text{Bias}=0}$		2.40				
	12-month realized returns as the dependent variable					
	0.12	0.18				0.20
$t_{\text{Bias}=0}$		−1.37				
	−0.09	0.93	0.18	0.00	0.02	0.43
$t_{\text{Bias}=0}$		−0.27				
	36-month realized returns as the dependent variable					
	0.33	1.70				0.17
$t_{\text{Bias}=0}$		−0.91				
	0.20	2.07	0.48	0.00	0.01	0.34
$t_{\text{Bias}=0}$		−1.03				

Horse Races

Results

Int.	r_t^{DD}	r_t^{RI}	r^6	log (B/M)	log (ME)	R^2
Monthly realized returns as the dependent variable						
0.00	0.06	0.07				0.11
−0.02	0.04	0.17	0.01	0.00	0.00	0.41
12-month realized returns as the dependent variable						
0.06	0.67	0.06				0.30
−0.08	0.48	0.67	0.11	0.00	0.01	0.46
36-month realized returns as the dependent variable						
0.24	1.03	1.48				0.26
0.25	0.62	0.00	0.35	0.37	−0.01	

Summary

The dividend discounting model delivers precise expected return estimates that are largely similar in magnitude with average ex post returns (except for price momentum)

The residual income model delivers substantially different estimates

In horse races, the estimates from the dividend discounting model dominate the estimates from the residual income model