Skin in the Game:
Operating Growth, Firm Performance, and Future Stock Returns

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Background & Motivation

Background:

The firm-level growth examined by prior studies focused primarily on capital provided by capital market participants such as debt and equity investors (i.e., "financing growth").

Other types of capital providers play different economic roles, and their lending decisions may have different implications for future firm performance. For example, the growth financed by product market stakeholders.

Background & Motivation

Motivation:

Product market stakeholders have distinct information advantage and stronger incentives to screen their partners.

For information advantage:

i) More timely;   ii) More specific;   iii) Less biased

For stronger incentives:

i) No diversification; ii) Susceptible to firm default risk

Therefore, product market stakeholders often choose firms with better performance to finance, and operating growth could serve as a proxy and have implications on future performance.

Primary Problems

- ➤ Part 1
- • Definition of growth variables
- ➤ Part 2
- • Implications of op growth on future earnings and stock returns
- • Do analysts underestimate the effects of operating growth on future earnings and stock returns?
- ➤ Part 3
- • Tests regarding product market stakeholders' information advantage and bargaining power

Conclusions

- ➢ Con 1

- • Op growth have positive implications on future earnings and stock returns.

- ➢ Con 2

- • Analysts underestimate the high future profitability associated with operating growth and they gradually correct their error-in-expectations.

- • Stock prices behave as if investors also underestimate the high future returns predicted by operating growth.
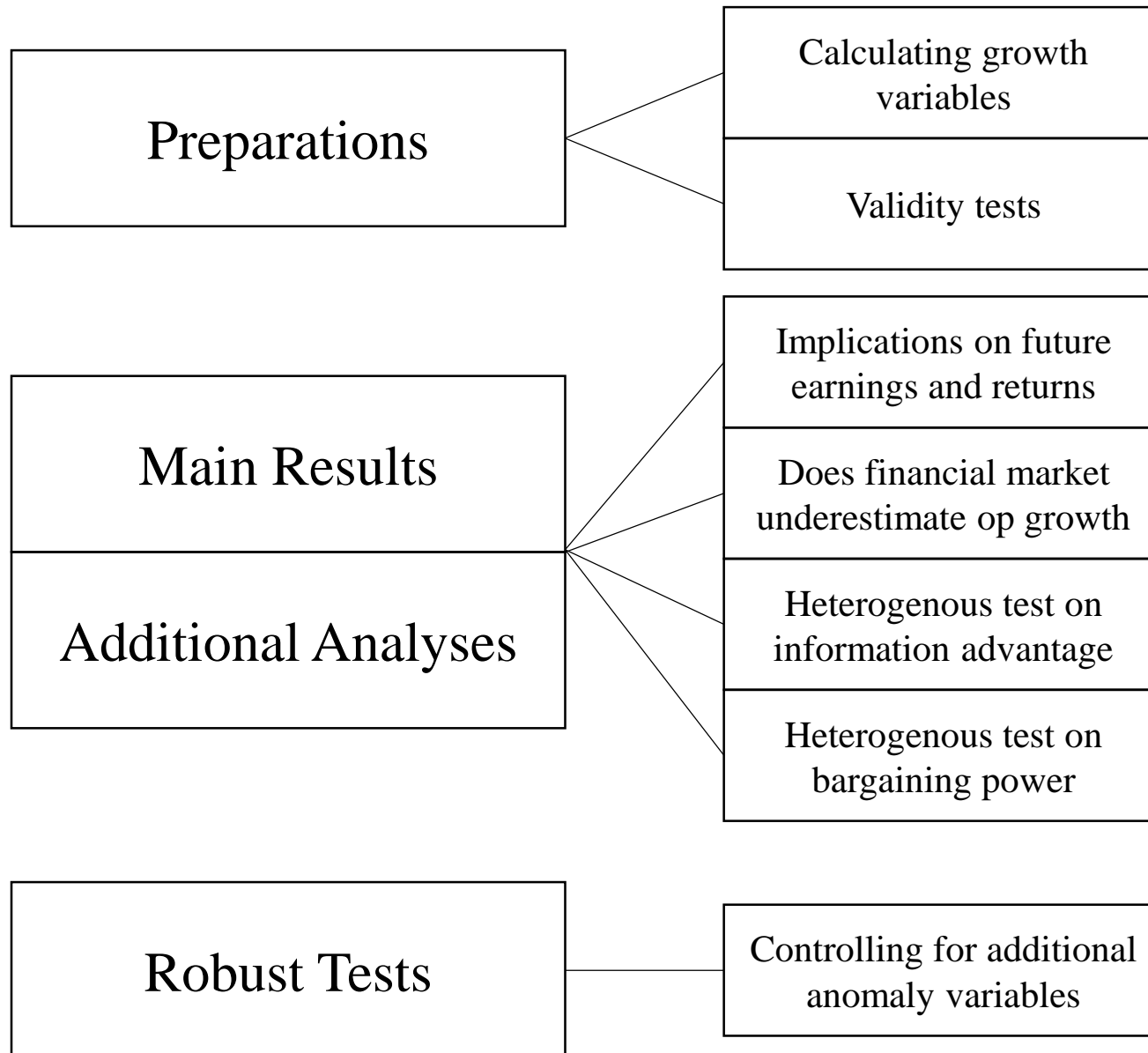
Conclusions

➤ Con 3

• Return predictability is stronger when product market stakeholders' information advantage is larger and bargaining power is stronger.

➤ Con 4

• Robust tests confirms operating growth's predictability on future stock returns

Framework

Preparations

- Calculating growth variables
- Validity tests

Main Results
Additional Analyses

- Implications on future earnings and returns
- Does financial market underestimate op growth
- Heterogenous test on information advantage
- Heterogenous test on bargaining power

Robust Tests

- Controlling for additional anomaly variables

Samples and main variable

- **Source:**

Compustat for accounting data; CRSP for financial data

- **Sample:**

For the fiscal period 1971 – 2017, all firms excluding:

i) Firms in the utility industries and financial industries;

ii) Firms with stock price less than $5 or total assets below $10m at the end of the fiscal year.

iii) The first 2 years when a firm first appear on Compustat

iv) Firms missing key data

Samples and main variable

- Main variable:

$$\boldsymbol{Asset\ growth_t} = Financing\ growth_t + Nonfinancing\ growth_t$$

$$\boldsymbol{Financing\ growth_t} = \Delta Debt_t + \Delta Equity_t$$

$$\boldsymbol{Operating\ growth_t}$$
$$= Asset\ growth_t - Financing\ growth_t - \Delta(A/P)_t - \Delta Taxes_t$$

- All Those above are deflated by average total asset of year t, and A/P is the short of accounts payable.

- A/P growth and taxes growth have different natures compared with other operating items.

Validity Test

Purpose:

Confirm that operating growth variable captures product market stakeholders' "skin in the game".

Regression:

$$Op\ growth_t = \alpha + \beta growth\ supplier_t\ /growth\ customer_t + \varepsilon$$

Where growth supplier or growth customer is a dummy variable equal 1 if the firm adds a new major supplier or customer and 0 otherwise.

Results:

Estimated β is significantly positive for growth supplier and growth customer.

Main Results: 1. Descriptive Evidence

Results:

We do not observe strong correlations between op growth and selected firm characteristics.

Note that the negative correlations with BM indicate that high op growth firms have the option of capital market financing.

OPERATING_ GROWTH_Decile	OPERATING_ GROWTH	SIZE	BM	EARNINGS	ACCRUALS	CASH_ FLOWS	FINANCING_ GROWTH	AP_ GROWTH	TAX_ GROWTH
Low	−0.057	1,764	0.749	0.023	0.022	0.001	0.051	0.002	0.003
1	−0.011	2,533	0.794	0.041	0.013	0.028	0.051	0.005	0.003
2	−0.003	2,470	0.776	0.045	0.013	0.033	0.059	0.007	0.003
3	0.003	2,634	0.770	0.050	0.014	0.036	0.067	0.008	0.004
4	0.008	3,069	0.714	0.055	0.016	0.039	0.079	0.010	0.004
5	0.013	4,131	0.695	0.057	0.016	0.041	0.091	0.011	0.005
6	0.020	3,640	0.653	0.058	0.017	0.041	0.106	0.012	0.006
7	0.029	3,137	0.621	0.052	0.017	0.035	0.123	0.015	0.006
8	0.046	3,467	0.585	0.051	0.015	0.035	0.147	0.017	0.007
High	0.122	2,862	0.544	0.013	−0.004	0.015	0.170	0.018	0.006
Mean	0.017	2,971	0.690	0.045	0.014	0.031	0.094	0.010	0.005
Median	0.010	1,549	0.588	0.052	0.015	0.034	0.083	0.010	0.004
Corr. with OPERATING_ GROWTH		0.006	−0.095	−0.082	−0.123	−0.008	0.125	0.133	0.034

Main Results: 2. Implications for Future Earnings

Methods:

- Group analyses: 10 groups sorted by $op\ growth_t$, report both equal-weighted and value-weighted earnings spread.

- Yearly Fama-Macbeth regression:

- $Earnings_{t+1} = \alpha + \beta_1 Op\ growth_t + \beta_2 Earnings_t + \sum \beta_x X_t + \varepsilon$

Variable :

- $Earnings_t$ is calculated as income before extraordinary items in year t, deflated by average total assets in year t.

Main Results: 2. Implications for Future Earnings

Result1:

The equal-weighted spread is 2.07% of total assets with t = 4.92;

and the valued-weighted ones are 1.71% and 3.81

Panel A. Firm Performance (ΔEARNINGS) by Decile Portfolios of Operating Growth

OPERATING_GROWTH_Decile	Equal-Weighted ΔEARNINGS		Value-Weighted ΔEARNINGS	
	t	$t+1$	t	$t+1$
Low	0.0147	−0.0088	0.0166	−0.0003
1	0.0030	−0.0061	0.0072	−0.0007
2	0.0032	−0.0022	0.0098	0.0032
3	0.0064	−0.0004	0.0109	0.0055
4	0.0076	0.0013	0.0102	0.0072
5	0.0089	0.0008	0.0111	0.0072
6	0.0122	0.0024	0.0144	0.0056
7	0.0094	0.0042	0.0161	0.0108
8	0.0117	0.0043	0.0233	0.0121
High	0.0008	0.0119	0.0071	0.0168
High–Low	−0.0139	0.0207***	−0.0095	0.0171***
(*t*-stat)	(−1.47)	(4.92)	(−1.51)	(3.81)

Main Results: 2. Implications for Future Earnings

Result2:

Op growth has significant positive earnings predictability and this predictability is incremental to those of other growth variables.

Panel B. Regression of 1-Year-Ahead Earnings (EARNINGS$_{t+1}$)

Model	EARNINGS	OPERATING_ GROWTH	FINANCING_ GROWTH	ACCRUALS	AP_ GROWTH	TAX_ GROWTH	R^2
1	0.772*** (63.59)	0.104*** (4.59)					0.520
2	0.788*** (64.54)	0.094*** (4.42)		−0.080*** (−10.14)			0.526
3	0.805*** (71.77)	0.148*** (10.12)	−0.072*** (−22.06)				0.535
4	0.808*** (71.54)	0.143*** (9.48)	−0.066*** (−17.89)	−0.027*** (−3.35)			0.538
5	0.806*** (73.07)	0.141*** (8.85)	−0.068*** (−16.70)	−0.028*** (−3.40)	0.019 (1.29)	0.070** (2.31)	0.540

Main Results: 3. Implications for Future Stock Returns

Method1:

- Group analysis with subgroups sorted by market capitalization.

- Figure analysis

Variables1 :

- 1-year-ahead average monthly raw returns, periods starts from the fourth month after the end of fiscal year t.

- 1-year-ahead average monthly abnormal returns, same period, using models such as FF4, FF5, M4, C14.

- 1-year-ahead annualized abnormal returns using C14.

Main Results: 3. Implications for Future Stock Returns

Result 1:

- Returns are higher in high groups and lower in low groups, with a spread 16.69bps EW(13.75bps VW) .

- Small firms have the largest spread while big firms have the smallest, indicating a stronger pattern in small firms due to poor information condition and higher transaction costs.

Panel A. Raw Returns by Operating Growth Quintiles

Raw	1(Low)	2	3	4	5(High)	Spread (5–1)	t(Spread)
			Equal-Weighted Raw Returns				
All firms	0.9048	1.0475	1.0605	1.0994	1.0717	0.1669**	(2.08)
Small	0.8318	1.0575	1.0715	1.1251	1.0739	0.2421***	(3.27)
Medium	1.0033	1.0506	1.1951	1.1070	1.0869	0.0836	(0.79)
Large	0.9799	1.0588	1.0129	1.0489	1.0453	0.0655	(0.46)
			Value-Weighted Raw Returns				
All firms	0.9207	0.9683	0.9649	0.9079	1.0581	0.1375	(1.05)
Small	0.8337	1.0924	1.1091	1.1491	1.1077	0.2740***	(3.20)
Medium	1.0072	1.0562	1.1640	1.1167	1.0826	0.0754	(0.63)
Large	0.9115	1.0460	0.8604	0.9365	1.0274	0.1159	(0.80)

Main Results: 3. Implications for Future Stock Returns

Result 2:

- Using abnormal returns doesn't change the main conclusions

Panel B. Abnormal Returns by Operating Growth Quintiles

	1(Low)	2	3	4	5(High)	Spread (5–1)	t(Spread)
			Equal-Weighted Abnormal Returns				
FF4	−0.1190	0.0547	0.0749	0.1525	0.1436	0.2626***	(3.97)
FF5	−0.2450	−0.1094	−0.0840	0.0338	0.1515	0.3964***	(6.00)
M4	−0.1265	−0.0112	0.0573	0.1678	0.3102	0.4367***	(4.51)
C14	−0.3522	−0.2005	−0.0951	0.0182	0.1651	0.5173***	(7.06)
			Value-Weighted Abnormal Returns				
FF4	−0.0270	0.1429	0.1351	0.1326	0.2661	0.2931***	(2.78)
FF5	−0.2206	−0.0616	−0.0139	0.0370	0.3215	0.5421***	(5.42)
M4	−0.1428	0.0662	0.1403	0.1335	0.4143	0.5572***	(3.99)
C14	0.0662	0.1146	0.2478	0.2486	0.5130	0.4468***	(3.63)

Main Results: 3. Implications for Future Stock Returns

Result 3:

- High-growth firms outperform low-growth firms in EW portfolios 91% of the years; with VW portfolios 80% of the years

FIGURE 1

Time Series of Annual Returns for Operating Growth Portfolios
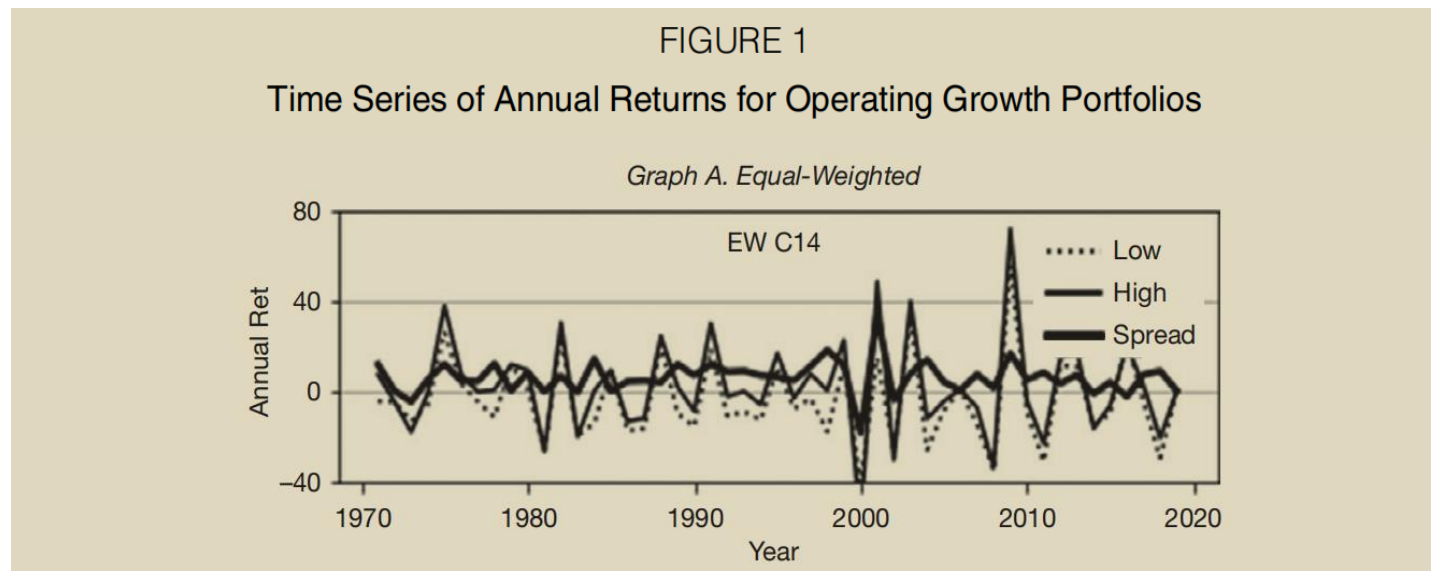
Main Results: 3. Implications for Future Stock Returns

Method2:

- FM regression:

- $Ret_{t+1} / EA_{ret_{t+1}} = \alpha + \beta_1 op\_growth_t + \beta_2 f\_growth_t + \sum \beta_x X_t + \varepsilon$

- All independent variables are converted to ranks and scaled to a [-0.5,0.5] range.

Variables2 :

- Ret_{t+1}, 12 month buy-and-hold return starting from the fourth month after the end of fiscal year t.

- EA_ret_{t+1}, sum of four 3-day returns around each quarterly earnings announcement in year t+1.

Main Results: 3. Implications for Future Stock Returns

Result1:

- Whether Controlling for other variables or not, op growth have a significantly positive probability for future stock returns defined before.(And the parameters are regarded as spread.)

Panel A. Regression in Full Sample

Model	Dep. Variable	OPERATING_GROWTH	FINANCING_GROWTH	ACCRUALS	AP_GROWTH	TAX_GROWTH	EA_RET$_t$	RET $(-6, -1)$	SIZE	BM	R^2
1	RET$_{t+1}$	3.781*** (4.02)						6.760** (2.50)	−0.477 (−0.22)	7.582*** (2.77)	0.049
2	EA_RET$_{t+1}$	0.782** (2.24)					1.247*** (3.78)	1.239*** (3.83)	0.334 (0.78)	2.176*** (5.58)	0.017
3	RET$_{t+1}$	5.229*** (5.69)	−8.567*** (−7.28)					6.312** (2.38)	−0.600 (−0.27)	5.372* (2.00)	0.055
4	EA_RET$_{t+1}$	1.067*** (2.87)	−2.017*** (−6.14)				1.297*** (3.94)	1.113*** (3.66)	0.450 (1.31)	1.661*** (4.97)	0.020
5	RET$_{t+1}$	5.039*** (6.04)	−6.750*** (−6.15)	−3.462*** (−3.18)				6.134** (2.32)	−0.982 (−0.43)	5.323* (1.98)	0.057
6	EA_RET$_{t+1}$	0.884* (1.70)	−1.181*** (−2.99)	−1.069* (−1.78)			1.551*** (3.29)	0.959*** (3.64)	0.089 (0.16)	1.724*** (4.71)	0.023
7	RET$_{t+1}$	5.626*** (6.36)	−6.420*** (−5.93)	−3.481*** (−3.15)	−3.502*** (−3.49)	2.376*** (2.80)		5.922** (2.26)	−1.251 (−0.55)	5.095* (1.92)	0.064
8	EA_RET$_{t+1}$	1.004** (2.08)	−1.028** (−2.51)	−1.050* (−1.86)	−0.607** (−2.39)	−0.095 (−0.35)	1.690*** (2.86)	0.889*** (3.33)	0.052 (0.09)	1.689*** (4.75)	0.025

Main Results: 3. Implications for Future Stock Returns

Result2:

- In model 2, the average daily spread around earnings announcement is 6.5bps(78.2bps /12 days). Annualizing we get return of 16%(0.65%*250), much higher than that of actual returns(3.78%).

- Return concentration indicate the results may be driven by underreaction of the market instead of risk compensation.

Main Results: 4. Does financial market underestimate it ?

Method1:

- Former results may be consistent with investors' error-in-expectation.

- Whether sell-side financial analysts fully incorporate the implication of op growth for future earnings in their earnings forecasts.

- FM regression:

- $F\ error_{m,t+1} = \alpha + \beta_1 op\ growth_t + \beta_2 f\ growth_t + \varepsilon_{t+1}$

Variable1:

$F\ error_{m,t+1}$, calculated as real earnings for year t+1 less the IBES median earnings forecast in month m, scaled by stock price in month 1

Main Results: 4. Does financial market underestimate it ?

Result1:

- The significantly positive coefficients of op growth indicate that analysts do underreact to the implication of op growth for future earnings.

- However, the magnitude of coefficients for op growth is declining with the increasing of the month, suggesting analysts gradually correct their error-in-expectations.

Month	OPERATING_GROWTH
1	1.253*** (3.09)
2	1.191*** (3.07)
3	1.105*** (2.83)
4	1.012*** (2.77)
5	0.959** (2.57)
6	0.871** (2.31)
7	0.773** (2.11)
8	0.705* (2.02)
9	0.619* (1.93)
10	0.512* (1.98)
11	0.468* (1.80)

Main Results: 4. Does financial market underestimate it ?

Method2:

- To further rule out the alternative explanation of risk premium, examine the patterns of earnings announcement returns over year t+1

- There shouldn't be an equal distribution of the returns in each quarter.

- FM regression:

- $EA\ ret_{q,t+1} = \alpha + \beta_1 op\ growth_t + \beta_2 f\ growth_t + \sum \beta_x X_t + \varepsilon$

Variable2:

$EA\ ret_{q,t+1}$, 3-day return around earnings announcement in year t+1 of quarter q.

Main Results: 4. Does financial market underestimate it ?

Result 2:

TABLE 6
A Declining Pattern of Subsequent Quarterly Earnings Announcement Returns

Table 6 presents coefficients (t-stats) from regressions of quarterly earnings announcement return on growth variables. The dependent variable EA_RET$_{q,t+1}$ is the 3-day return around earnings announcement of quarter q in the year $t+1$. $q = 1, 2, 3,$ and 4 for the first, second, third, and fourth quarters, respectively. EA_RET$_t$ is the four earnings announcement returns in the year t, calculated as the sum of four 3-day returns around each quarterly earnings announcements in year t. EA_RET$_{q-1}$, EA_RET$_{q-2}$, EA_RET$_{q-3}$, and EA_RET$_{q-4}$ are the 3-day returns around earnings announcements of the previous one, two, three, and four quarters, respectively. All independent variables are converted to ranks and scaled to a [−0.5,0.5] range. FINANCING_GROWTH is defined as ΔDEBT_INCLUDED_IN_CURRENT_LIABILITIES (DLC) + ΔLONG_TERM_DEBT (DLTT) + ΔMINORITY_INTERESTS (MIB + MIBN) + ΔPREFERRED_STOCKS (PSTK) + Δ COMMON_EQUITY (CEQ), deflated by average TOTAL_ASSETS_(AT) measured at the beginning and the end of year. OPERATING_GROWTH is defined as ΔTOTAL_ASSETS (AT) − ΔAccounts Payable (AP) − ΔINCOME_TAXES_PAYABLE (TXP) − ΔDEFERRED_TAXES_AND_INVESTMENT_TAX_CREDIT (TXDITC) − FINANCING_GROWTH, deflated by average TOTAL_ASSETS (AT) measured at the beginning and the end of the year. RET(−6, −1) is the past 6-month buy-and-hold return. SIZE is defined as log(market cap) by the end of the fiscal year. BM is defined as book equity divided by market cap by the end of the fiscal year. Fama and MacBeth (1973) coefficients (t-stats) are reported. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Model	Dep. Variable	OPERATING_GROWTH	FINANCING_GROWTH	EA_RET$_t$	EA_RET$_{q-1}$	EA_RET$_{q-2}$	EA_RET$_{q-3}$	EA_RET$_{q-4}$	RET (−6,−1)	SIZE	BM	R^2
1	EA_RET$_{q,t+1}$ ($q = 1$)	0.474*** (4.35)	−0.506*** (−4.42)	0.214 (1.64)					0.373** (2.51)	0.553*** (4.33)	0.189 (1.20)	0.015
2	EA_RET$_{q,t+1}$ ($q = 2$)	0.313*** (2.84)	−0.602** (−2.12)	0.555*** (3.13)					0.578** (2.60)	0.123 (0.84)	0.523*** (3.06)	0.017
3	EA_RET$_{q,t+1}$ ($q = 3$)	0.211 (1.31)	−0.528*** (−3.24)	0.308** (2.63)					0.308** (2.58)	−0.052 (−0.32)	0.199 (0.80)	0.013
4	EA_RET$_{q,t+1}$ ($q = 4$)	0.126 (1.19)	−0.240 (−1.49)	0.190* (1.79)					−0.011 (−0.09)	0.124 (0.80)	0.550*** (3.56)	0.009
5	EA_RET$_{q,t+1}$ ($q = 1$)	0.472*** (4.34)	−0.496*** (−4.21)		−0.073 (−0.60)	−0.030 (−0.15)	0.287*** (3.09)	0.281 (1.60)	0.448*** (3.15)	0.533*** (4.27)	0.257 (1.30)	0.023
6	EA_RET$_{q,t+1}$ ($q = 2$)	0.233 (1.41)	−0.683* (−1.79)		0.521*** (4.49)	−0.094 (−0.29)	0.790* (1.74)	−0.331 (−0.86)	0.553** (2.43)	0.340* (1.85)	0.567*** (2.74)	0.030
7	EA_RET$_{q,t+1}$ ($q = 3$)	0.165 (0.89)	−0.500*** (−3.14)		0.577*** (5.02)	0.416** (2.03)	0.193 (1.29)	−0.116 (−0.76)	0.304*** (2.95)	0.018 (0.13)	0.239 (1.24)	0.023
8	EA_RET$_{q,t+1}$ ($q = 4$)	0.195 (1.60)	−0.097 (−0.38)		0.308** (2.39)	0.552*** (3.17)	0.633* (1.94)	0.150 (1.65)	−0.022 (−0.18)	0.037 (0.22)	0.497*** (3.46)	0.021

Main Results: 4. Does financial market underestimate it ?

Result 2:

- The coefficients of op growth for the four quarters in the model 1-4 are showing a declining pattern, which support the error-in-expectation hypothesis.

- Results are similar when controlling for four lagged 3-day earnings announcement returns in model 5-8

Model	Dep. Variable	OPERATING_GROWTH
1	EA_RET$_{q,t+1}$ ($q=1$)	0.474*** (4.35)
2	EA_RET$_{q,t+1}$ ($q=2$)	0.313*** (2.84)
3	EA_RET$_{q,t+1}$ ($q=3$)	0.211 (1.31)
4	EA_RET$_{q,t+1}$ ($q=4$)	0.126 (1.19)
5	EA_RET$_{q,t+1}$ ($q=1$)	0.472*** (4.34)
6	EA_RET$_{q,t+1}$ ($q=2$)	0.233 (1.41)
7	EA_RET$_{q,t+1}$ ($q=3$)	0.165 (0.89)
8	EA_RET$_{q,t+1}$ ($q=4$)	0.195 (1.60)

Additional Analyses

Method 1:

- Should the predictability of op growth varies among product market stakeholders with different information advantage?

- FM regression:

- $ret_{t+1} = \alpha + \beta_1 op\ growth_t + \beta_2 op\ growth_t * proxy_t + \beta_3 f\ growth_t + \beta_4 f\ growth_t * proxy_t + \beta_5 proxy_t + \sum \beta_x X_t + \varepsilon$

Variable 1:

- $hetero_t$, the number of business segments of the firm in year t;

- $seg\ sales\ vol_t$, the EW volatility of the sales to asset ratio of each business segment of the firm during the 8-year period ending in year t

- Code the proxies as -0.5 for the bottom and 0.5 for the top.

Additional Analyses

Mechanism 1:

- For $hetero_t$, when a firm has more segments, there can be more diverse business performances contributing to the firm's performance, ending in relatively small information advantage, we expect a negative coefficient.

- For $seg\ sales\ vol_t$, when the sales of the firm's business are more volatile, the demand for the product is more uncertain, therefore private information gained by the stakeholders become more valuable, we expect a positive coefficient.

Additional Analyses

Result 1:

- As expected, we can observe the negative coefficient for $op\ growth_t * hetero_t$ and positive coefficient for $op\ growth_t * seg\ sales\ vol_t$, which indicates that the return predictability is higher for stakeholders with larger information advantage.

Panel A. Effects by Business Heterogeneity (HETERO)

Dep. Variable	OPERATING_ GROWTH	OPERATING_ GROWTH × HETERO	FINANCING_ GROWTH	FINANCING_ GROWTH × HETERO	HETERO	Control	R^2
RET_{t+1}	3.505*** (3.45)	−4.483** (−2.68)	−7.958*** (−6.42)	1.390 (0.95)	0.106 (0.15)	Yes	0.046

Panel B. Effects by Segment-Level Sales Volatility (SEG_SALES_VOL)

Dep. Variable	OPERATING_ GROWTH	OPERATING_GROWTH × SEG_SALES_VOL	FINANCING_ GROWTH	FINANCING_GROWTH × SEG_SALES_VOL	SEG_SALES_VOL	Control	R^2
RET_{t+1}	5.160*** (5.26)	2.175** (2.06)	−8.685*** (−6.30)	−1.638 (−1.40)	−0.274 (−0.41)	Yes	0.045

Additional Analyses

Method 2:

- Should the predictability of op growth varies among product market stakeholders with different bargaining power?

- FM regression:

- $ret_{t+1} = \alpha + \beta_1 op\ growth_t + \beta_2 op\ growth_t * proxy_t + \beta_3 f\ growth_t + \beta_4 f\ growth_t * proxy_t + \beta_5 proxy_t + \sum \beta_x X_t + \varepsilon$

Variable 2:

- $ind\ exit_t$, the fraction of exiting firms to the total number of firms in an industry averaged over the 3-year period ending year t, a firm is defined as an exiting firm if it is the last 2 years in Compustat

Additional Analyses

Variable 2:

- $relative\ sales_t$, the average relative sales of top25% supplier and customer industries, relative sales is defined as the average sales of all the suppliers in the industry divided by the firm's sales , reverse for the customer industry.

- Code the proxies as 0 for the bottom and 1 for the top.

Mechanism 2:

- For $ind\ exit_t$, higher means more competitive and thus more bargaining power for stakeholders.

- For $relative\ sales_t$, higher means stakeholders rely more on the firm and thus less bargaining power for stakeholders.

Additional Analyses

Result 2:

- As expected, we can observe the positive coefficient for $op\ growth_t * ind\ exit_t$ and negative coefficient for $op\ growth_t * relative\ sales_t$, which indicates that the return predictability is higher for stakeholders with larger bargaining power.

Panel C. Effects by Industry Exit Rate (IND_EXIT)

Dep. Variable	OPERATING_ GROWTH	OPERATING_ GROWTH × IND_EXIT	FINANCING_ GROWTH	FINANCING_ GROWTH × IND_EXIT	IND_EXIT	Control	R^2
RET_{t+1}	5.546*** (5.73)	3.859*** (3.18)	−8.470*** (−7.20)	−0.497 (−0.25)	0.441 (0.84)	Yes	0.064

Panel D. Effects by Relative Sales (RELATIVE_SALES)

Dep. Variable	OPERATING_ GROWTH	OPERATING_GROWTH × RELATIVE_SALES	FINANCING_ GROWTH	FINANCING_GROWTH × RELATIVE_SALES	RELATIVE_ SALES	Control	R^2
RET_{t+1}	3.633 (1.48)	−4.459* (−1.83)	−6.996** (−2.76)	−4.862 (−0.89)	0.486 (0.16)	Yes	0.053

Robust Test

Method:

- As robust test, we need to check the predictability of op_growth under the existence of other accounting anomaly variables and corporate events

Variables:

- Accounting anomaly: Net operating assets, profitability, gross profit, total accruals;

- Corporate events: Growth in R&D, share repurchase announcement, dividend initiations, stock split announcement.

Result:

- The effect of operating growth continues to be significant in all cases.