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DO EARNINGS BENCHMARKS INTENSIFY THE EFFECT OF FINANCIAL REVENUES AND NET FINANCIAL PAYOUTS ON INVESTMENT EFFICIENCY?

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Abstract
We studied the interacting effect of financial revenues, net financial payouts and earnings benchmarks on investment efficiency. We deployed twenty years of panel data of US non-financial corporations from 1999 to 2018 to investigate the objectives. We estimated the results through the cumulant estimator and found that financial revenues harm the investment efficiency and increase the underinvestment. In contrast, net financial payouts improve the investment efficiency while reducing the underinvestment. In addition, earnings benchmarks intensify the negative effect of financial revenues on investment efficiency. However, earnings benchmarks moderate the relationship between financial revenues and investment efficiency during uncertainty. Earnings benchmarks also increase the positive effect of financial revenues on underinvestment, and this relationship is further strengthened during uncertainty. The interacting role of earnings benchmarks weakens the effect of financial revenues on investment efficiency and underinvestment when financial constraints are reduced. On the other side, earnings benchmarks strongly moderate the effect of net financial payouts on investment efficiency and underinvestment. These results are consistent during high and low uncertainty and financial constraints. Results are robust when the reverse causality issue is resolved. Results suggest that higher earnings benchmarks coupled with higher financial revenues and net financial payouts are harmful for long-term investment efficiency.

1. Introduction

Organizational short-term objectives are critical to organizational investment. One of the prime short-term objectives of public firms is to achieve the current period earnings benchmarks. The existing literature finds that 73.5% of American chief financial officers agree that earnings targets are the most critical performance targets (Graham et al., 2005).

Firms are eager to attain their current earnings targets to meet investors' expectations. The investors' expectations are important for firms because the stock return and the executive remuneration depend on the investors' expectations. Additionally, failing to achieve the earnings benchmarks is also detrimental to executives' careers, as such failure may result in the dismissal of executives. Similarly, a threat of a firm takeover is also possible (Biden, 2016; Lazonick & O'Sullivan, 2000; Milano, 2018). Therefore, achieving earnings benchmarks is one of the leading objectives of firms.

Though, this priority toward the achievement of earnings benchmarks impairs investment

efficiency. Graham, et. al. (2005) report that 78% of American financial executives agree to forgo economic value to achieve short-term earnings forecasts. The higher propensity for attaining the earnings benchmarks distorts the investment efficiency and leads to underinvestment.

The above statement is justifiable because the motive to achieve the earnings benchmarks encourages firms to make myopic corporate decisions. Hence, firms transfer the cash flows to short-term corporate decisions. Therefore, short-term corporate decisions help firms to achieve the earnings benchmarks, but at the cost of investment efficiency, as the inclination to short-term corporate decisions diverts the cash flows away from real investments, hence firms underinvest (Almeida et al., 2016). These short-term decisions may include financial revenues and financial payouts (Nasir et al., 2022, 2024)

The existing studies exerted their efforts to explore the relationship between financing and investment. These studies are divided into two strands. One group of studies investigates the financing-real investment nexus (Auvray & Rabinovich, 2019; Nasir et al., 2022, 2024; Tori & Onaran, 2020). These studies are interested in how firms divert their funds from real investments. These studies claim that firms are increasing financial revenues and financial payouts at the expense of real investments.

Another group of researchers focuses on a corporate governance perspective, investigating why firms underinvest. These studies claim that NFCs want to achieve short-term earnings benchmarks for stock-based compensation; hence, they ignore investment opportunities and thus underinvest (Almeida, 2019; Harford et al., 2018).

We combine both approaches in one larger framework. Hence, the current study investigates whether financial revenues and net financial payouts reduce the investment efficiency of underinvesting firms to achieve earnings benchmarks.

This perspective of combining both approaches is similar to (Almeida et al., 2016). They evaluated the interacting effect of shares repurchases and earnings benchmarks on real investments. Nonetheless, this study expands the investigation; therefore, we interact the net financial payouts (a comprehensive proxy of financial payouts) with earnings benchmarks to explain the investment efficiency, mainly focusing on underinvesting firms. In addition, this study examines the interacting effect of financial revenues (another proxy for short-term decisions) with earnings benchmarks to determine whether these interactions systematically affect the investment efficiency of underinvesting firms. This combined approach will help us to understand the larger framework of short-term corporate decisions, short-term corporate motivations, and their effect on the investment efficiency of underinvesting US NFCs. This knowledge will assist in understanding that financial revenues and financial payouts reduce investment efficiency because of earnings benchmarks. Investment efficiency is critical for both corporate strategic and tactical decisions. Therefore, with this knowledge, policymakers may realign corporate short-term decisions and goals with long-term real investment strategies.

We collected twenty years panel data of American Non-financial corporations (NFCs) from 1999 to 2018 to investigate the proposed model. This study estimated the data through the cumulant estimator (Erickson et al., 2014). We reexamined our results through the Generalized method of moment estimator to ensure robustness. This study re-estimated the model after classifying the sample into high and low uncertainty and financially constrained and unconstrained firms.

Our results provide eleven important findings 1) Financial revenues harm the investment efficiency once reverse causality issue is resolved, 2) Financial revenues increase the underinvestment, 3) Net financial payouts enhance the investment efficiency, 4) Net financial payouts reduce the underinvestment, 5) Earnings benchmarks moderates or intensify the effect of financial revenues on investment efficiency, 6)

Earnings benchmarks moderates or intensify the effect of financial revenues on underinvestment as well, 7) Earnings benchmarks improve the effect of financial revenues on investment efficiency during high uncertainty, while 8) the interaction between financial revenues and earnings benchmarks increases the underinvestment during high uncertainty, 9) the earnings benchmarks weaken the effect of financial revenues on investment efficiency as the financial constraints reduce, 10) The interactions of net financial payouts, net equity payouts and net shares repurchases with zero level of earnings benchmarks are negatively related to investment efficiency and 11) The interaction between net financial payouts and earnings benchmarks increases the underinvestment problem.

Our study results contribute to three considerable aspects of corporate finance. First, financial revenues reduce investment efficiency and lead to underinvestment. This knowledge will help explain to firms and investors that aggressive enhancement in financial revenues impairs investment efficiency. Second, this study investigates whether net financial payouts impair investment efficiency. This information is also crucial for firms and investors. Third and most importantly, earnings benchmarks motivate the firms to increase the financial revenues and net financial payouts, while resulting in a reduced level of investment efficiency and higher underinvestment. These results are very important for stakeholders seeking long-term organizational sustainability. The higher earnings benchmarks, coupled with higher financial revenues and financial payouts harm the long-term investments. These factors and their underlying relationships need to be realigned by the practitioners in response to the results of our study.

The remainder of the paper is designed as follows. Section 2 deals with the study methodology. Section 3 includes the results and discussion and the fourth section concludes the article.

2. Methodology

2.1 Sample and Data

This study employs annual panel firm-level data for Non-Financial Corporations (NFCs) of the United States of America (US) from 1999 to 2018. Twenty years time series, starting from 1999 to 2018 is considered because real investments were extensively reduced with respect to investment opportunities during these years (Peters & Taylor, 2017).

This study collected data from Thomson Reuters Eikon. This study excluded the utility sector data because utility companies differently report their financial statements compared to other non-financial corporations (Gunny, 2010). Additionally, firm-year observations with less than $1,000,000 in total assets are excluded to mitigate the size effect (Almeida et al., 2004; Duchin et al., 2010). Afterward, the data is winsorized at 1st and 100th percentile, and observations with the negative market-to-book ratio and leverage greater than one are dropped.

Besides, there are a massive amount of missing values. Therefore, cross-sections with less than four non-missing time series in the variables of interest (real investments, Tobin's *q*, financial revenues, net financial payouts and market to book ratio) are dropped. Finally, a maximum of 14,054 panel observations remains for the study.

2.2 Model Specification

Real Investment Analysis

This study deploys the real investment model proposed by Goodman et al. (2014) to derive the investment efficiency proxy. Investment efficiency refers to the real investment behavior of firms derived from potential investment opportunities. Following Goodman et al. (2014) and Mcnichols & Stubben (2008), this study considers Tobin's *q* as the proxy for investment opportunities (Gutiérrez & Philippon, 2017; Tobin, 1969). Thus, following Goodman et al. (2014), this study includes the beginning of the year *q*, cash flows, beginning of the year asset growth and lagged real investments in the model of real investments, and constructs the

investment efficiency measure through equation (1).

$$I_{ijt} = \alpha_{ijt} + \beta_1 I_{ij,t-1} + \beta_2 q_{ij,t-1} + \beta_3 CF_{ijt} + \beta_4 AG_{ij,t-1} + \gamma_t + \mu_j + \varepsilon_{ijt} \quad (1)$$

I reflects the real investments, *q* is Tobin's *q*, *CF* represents the operating cash flow, *AG* is the asset growth, α represents the intercept of the model, βs are the coefficients of the explanatory variables, ε represents the error term of the model, i, j, and t represent the firm, industry, and time, γ represent the time indicator and μ is the industry indicator.

In the model, the current research considers the residuals *(IE)* as the measure of investment efficiency. Absolute values of all the residuals are multiplied by (-1) and the product is taken to measure investment efficiency. With this proxy of investment efficiency, investment efficiency increases from negative to zero (Goodman et al., 2014). All firm-year observations with negative residuals are considered for the analysis of underinvestment *(UI)* (Goodman et al., 2014). The absolute of residuals is taken for underinvestment equations so that underinvestment increases with the increase in residuals.

Investment Efficiency/ Underinvestment Analysis

This study investigates the outlined framework initially for the whole investment efficiency sample. Once the investment efficiency equation is determined, the investigation is broadened to the underinvestment sub-sample.

Equation (2) determines the role of earnings benchmarks in investigating the effect of financial revenues and net financial payouts on investment efficiency.

$$IE_{ijt} = a_{ijt} + \beta_1 FR_{ijt} + \beta_2 NFP_{ijt} + \beta_3 FR_{ijt} \times EB_{ijt} + \beta_4 NFP_{ijt} \times EB_{ijt} + \beta_5 EB_{ijt} + \beta_6 TA_{ijt} + \beta_7 MB_{ijt} + \beta_8 FL_{ijt} + \beta_9 SR_{ijt} + \beta_{10} ROA_{ijt} + \beta_{11} ROAv_{ijt} + \beta_{12} SRv_{ijt} + \mu_j + \gamma_t + \varepsilon_{ijt} \quad (2)$$

IE stands for investment efficiency, *FR* represents the financial revenues, *NFP* means net financial payouts, *EB* is the earnings benchmarks, *TA* is the log of total assets, *MB* reflects the market to book ratio, *FL* stands for financial leverage, *SR* is the stock return, *ROA* is the return on assets, *ROAv* is the return on assets volatility, *SRv* is the stock return volatility and all other terms are explained under equation (1). This study generates the proxy for investment efficiency from equation (1). The equation controls the firm size, market-to-book ratio, financial leverage, stock return, return on assets, return on assets volatility and stock return volatility (Goodman et al., 2014). Variables are defined in Table A1.

2.3 Estimation Method

This study deploys the method of cumulant estimator proposed by Erickson, Jiang, & Whited (2014) for the analysis of data. This estimator is applicable when there are mismeasured regressors in the model. Equation (1) incorporates Tobin's *q*, which comprises measurement error. Tobin's *q* is indulged with measurement error problem because measurable average Q conceptually mismatches with marginal unobservable *q* (Bond and Reenen, 2007; Erickson and Whited, 2012). Equation (2) include market to book ratio, which also indulges with the measurement error problem.

The cumulant estimator deals with the higher-order cumulants and resolves the error in mismeasured variables in the equation with a closed-form solution (Erickson et al., 2014; Peters & Taylor, 2017).

3. Results and Discussion

3.1. Descriptive Statistics

Table 1 presents the descriptive statistics of variables. The average real investments are merely 5% of total assets, while the mean Tobin's Q (1.8355) data reveal that investment opportunities are approximately 180 percent of replacement cost. These data reveal that, on average, the high level of investment opportunities does not translate into real investments.

Additionally, the cash flow data explains how firms are not utilizing their cash flows on real investments. The mean cash flows are 9% of

total assets, which is 4% greater than the size of real investments. This low real investment level shows that firms utilize approximately half of their internal cash flows on real investments. At the same time, firms utilize the remaining 4% on net financial payouts (4% of total assets) and financial investments. Remember that external financing from creditors and shareholders is already subtracted from the financial payouts in the measure of net financial payouts. Therefore, financial payouts utilize all the external financing and approximately half of the internal financing, thus leaving only half of the cash flows for real investments.

Table 1 shows that financial revenues are positive on average (0.0047), representing that firms are earning profits on average on investments in financial assets. Positive average net financial payouts (0.0433) reflect that the size of external financial payouts is greater than external financing. This high value of financial payouts implies that firms utilize external financing to satisfy the payouts.

The investment efficiency and underinvestment observations are found after regressing the equation (1). The mean investment efficiency and underinvestment values are -0.0323 and 0.0291 with standard deviations of 0.0369 and 0.0268, respectively. These results show that firm level real investments are inefficient on average by approximately 3% of Total Assets. While both investment efficiency and underinvestment observations are widely disbursed from 0% to 4%. The averages and standard deviations are consistent with the previous studies (Biddle et al., 2009; Goodman et al., 2014; Huang, 2022; Lin et al., 2021; Peters & Taylor, 2017; Richardson, 2006).

Table 1: Summary Statistics

	Variables	Obs	Mean	Median	Standard Deviation	Min	Max
I_{ijt}	Real Investment	13148	0.0591	0.0430	0.0709	0.0000	0.5503
q_{ijt}	Tobin's q	13508	1.8355	1.6153	1.3578	0.1844	22.244
CF_{ijt}	Cash Flow	13145	0.0926	0.0818	0.1304	-1.8996	0.5224
AG_{ijt}	Asset Growth	13202	0.1058	0.0580	0.3620	-0.5616	3.6602
FR_{ijt}	Financial Revenues	10978	0.0047	0.0029	0.0139	-0.0772	0.1474
NFP_{ijt}	Net Financial Payout	8914	0.0433	0.0516	0.2065	-1.2406	0.8206
SR_{ijt}	Stock Return	11528	0.1625	0.0400	0.5797	-0.94	5.67
ROA_{ijt}	Return on Assets	13898	0.0419	0.0400	0.1263	-1.93	0.48
EPS_{ijt}	Earnings per share	13778	0.6053	0.4400	12.1303	-166.99	11.23
SBC_{ijt}	Stock-based Compensation	2416	0.0239	0.0244	0.0799	0.0009	1.1419
TA_{ijt}	Firm Size/Log Total Assets	14054	20.959	20.188	2.0651	14.166	24.873
MB_{ijt}	Market to Book Ratio	12218	3.3910	3.1300	6.9187	0.0000	124.88
FL_{ijt}	Financial Leverage	14054	0.3374	0.3100	0.2361	0.0000	1.000
SRv_{ijt}	Stock Return Volatility	13062	0.1120	0.1011	0.0814	0.0075	0.7636
ROA_{ijt}	Return on Assets Volatility	13115	0.0401	0.0357	0.0576	0.0000	0.6926
IE_{ijt}	Investment Efficiency	11986	-0.032	-0.028	0.0369	-0.4107	0.0000
UI_{ijt}	Underinvestment	8296	0.0291	0.0151	0.0268	0.0000	0.4107

The observations of investment efficiency and underinvestment are derived from the residuals of equation (1). Net financial payouts is the comprehensive proxy derived from equation 3.5.

3.2. Empirical Results and Discussion

3.2.1. Primary Results

Real Investment Model Results

Table 2 reports the results of equation (1). The model examines the effect of investment opportunities on real investments after controlling for lagged real investments, cash flows and lagged asset growth. Tobin's q is considered the proxy for investment opportunities, and the coefficient of Tobin's q is negative and insignificant. The results show that Tobin's q does not significantly explain the size of real investments.

These results are consistent with recent claims that real investments (I) are insensitive to investment opportunities (Furman, 2015; Gutiérrez & Philippon, 2017). According to Gutiérrez & Philippon (2017), real investments have been weak relative to Tobin's q since the early 2000s. According to them, short-termism is a significant reason for this weak relationship. This study investigates whether financial revenues, net financial payouts and earnings benchmarks explain the residuals of the real investment – q model.

This study finds the residuals after regressing the equation (1). Positive residuals correspond to overinvestment and negative residuals represent underinvestment (Richardson, 2006).

Table 2: Cumulant Estimator: Dependent Variable - Real Investment

Variables	Results
$q_{ij,t-1}$	-0.0170
	(0.0140)
$I_{ij,t-1}$	0.7125***
	(0.0313)
CF_{ijt}	0.0565***
	(0.0200)
$AG_{ij,t-1}$	-0.0139***
	(0.0036)
γ_t	Yes
Industry-Year Demeaned	Yes
ρ^2	0.481
N	11975

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. q is Tobin's q, I is the real investments, CF stands for the cash flows, AG means asset growth, γ is the time indicator, ρ^2 is the R-squared, N is the sample size, i, j and t represent the firm, industry and time.

Investment Efficiency Model Results

Table 3 reports the results of equation (2). Models 1, 3 and 5 report the interactions of earnings per share benchmarks of panels that meet the lagged EPS (EPS difference earnings benchmark) under the models, including net shares repurchases, net equity payouts and net financial payouts, respectively. While, Models 2, 4 and 6 report the interactions of earnings per share benchmarks of panels that meet the zero EPS (EPS zero earnings benchmarks) under the models, including net shares repurchases, net equity payouts and net financial payouts, respectively.

Gunny (2010) highlights that among the historical earnings benchmarks, firms either tend to harmonize the earnings by achieving the prior-year earnings level (difference earnings benchmarks) or they exert their efforts to achieve the zero earnings level (zero earnings benchmarks). Both these earnings benchmarks help firms maintain a short-term

reputation (Gunny, 2010; Roychowdhury, 2006). Considering these justifications, this study examines both the proxies of earnings benchmarks for EPS, including the EPS difference earnings benchmark and the EPS zero earnings benchmark.

In examining the relationship between financial revenues and investment efficiency, this study finds that the coefficients of interactions between financial revenues and EPS difference earnings benchmarks are insignificant in models 1, 3 and 5. These results show that firms' motivation to achieve the prior years' EPS figure does not explain the relationship between financial revenues and investment efficiency.

However, coefficients of interactions between financial revenues and EPS zero earnings benchmarks are significant and positive in models 2, 4 and 6 (β=0.2040, p<0.1, β=0.3281, p<0.1, and β=0.3744, p<0.05 respectively). Therefore, we accept the H_1 that earnings benchmarks influence the effect of financial revenues on investment efficiency.

The results show a significant negative relationship between financial revenues and investment efficiency when they are directly regressed (model 2, β=-0.1706, model 4, β=-0.2850, model 6, β=-0.2738, p<0.05). Conversely, the interaction coefficients become positive and significant when financial revenues and EPS zero earnings benchmarks interact to explain the investment efficiency.

As per these results, financial revenues significantly improve investment efficiency in zero EPS-achieving firms. Hence, intending to achieve the zero EPS target, the financial revenues complement the real investments in enhancing investment efficiency. Firms either exploit investment opportunities through financial revenues to reduce underinvestment, or they transfer funds from real investments to financial investments to minimize overinvestment. In both these cases, investment efficiency improves.

These results contradict the standard short-termism hypothesis, which assumes that firms redirect their financings toward short-term investments instead of exploiting long-term real investment opportunities to achieve higher profitability (Stein, 1989; Tornell, 1990). However, these results are similar to the claim of Seo, et. al. (2016), who indicate that financial revenues complement real investments in achieving the earnings benchmarks.

According to Seo, et. al. (2016), with financial liberalization, firms prefer to invest in financial assets as the financial revenues are higher and less risky than the return on real investments. Nonetheless, firms may utilize the financial revenues on real investments whenever they face an opportunity to exploit a better earning goal through investment opportunities.

Additionally, in line with Orhangazi (2008), if firms intend to achieve long-term earnings goals, then financial revenues will be invested in real assets for continuously achieving the earnings benchmarks. Investment in real assets allows firms to enjoy long-term higher profits compared to financial assets. In this manner, firms may achieve their EPS benchmarks consistently in the long run.

The studies of Demir (2009b) and Zhang & Zheng (2020) provide another possible justification for the relationship. According to these studies, the firms' investment decision is a portfolio choice between real and financial assets, dependent on the risk and return difference between both options. Firms might utilize the financial revenues on investment opportunities to achieve the EPS benchmarks when the risk (return) of financial assets becomes higher (lower).

Both situations are possible because the dot com crisis (2001-2002) and the global financial crisis (2007-2009) occurred during the current study period. Therefore, it is justifiable that firms prioritize real investments over financial investments to achieve the earnings benchmarks during the financial crisis, while the opposite works in the ordinary course of business.

In comparison to the reduction of underinvestment, the interaction between financial revenues and EPS zero earnings benchmarks may also help in reducing overinvestment. Firms opt to reduce overinvestment and invest in financial assets if they cannot achieve the zero EPS level

(Demir, 2009b; Jensen, 1986; Zhang & Zheng, 2020).

Like the financial revenues, the coefficients of interactions between net financial payouts and earnings benchmarks in models 1, 3 and 5 are also insignificant. These results show that net financial payouts do not distort the investment efficiency to meet the lagged EPS. However, the coefficient of interaction between net shares repurchases and EPS difference earnings benchmarks in model 2 is negative and significant (β=-0.0266, p<0.01). Results demonstrate that EPS-motivated net shares repurchases impair investment efficiency. The EPS amplifies the detrimental effect of net shares repurchases on investment efficiency since firms increase the net shares repurchases at the cost of investment efficiency to meet the zero EPS benchmarks.

The results are similar when considering the net equity payouts and net financial payouts in models 4 and 6. The coefficients of interaction between net financial payouts and zero EPS benchmarks in models 4 and 6 are negative and significant as well (model 4, β=-0.0411, p<0.01, model 6, β=-0.0274, p<0.05). Hence, we accept the H_2 that the EPS zero earnings benchmarks influence the effect of net financial payouts on investment efficiency.

These results strengthen the perspective of the existing theoretical and empirical studies of short-termism (Almeida, 2019; Almeida et al., 2016; Brav et al., 2005; Miller & Rock, 1985; Stein, 1989; Tori & Onaran, 2020). Firms utilize their internal and external financing on the payouts to achieve the EPS benchmarks. However, the higher net financial payouts result in lower investment efficiency.

Table 3: Role of Earnings Benchmarks - Cumulant Estimator - Dependent Variable: Investment Efficiency

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
FR_{ijt}	-0.1040	-0.1706**	-0.1562	-0.2850**	-0.1277	-0.2738**
	(0.0949)	(0.0801)	(0.1073)	(0.1114)	(0.1146)	(0.1235)
NFP_{ijt}	0.0047	0.0222***	0.0061	0.0357***	0.0101*	0.0298***
	(0.0059)	(0.0055)	(0.0086)	(0.0138)	(0.0059)	(0.0101)
$FR_{ijt} \times EB_{ijt}$	0.1225	0.2040*	0.1569	0.3281*	0.1612	0.3744**
	(0.0951)	(0.1119)	(0.1056)	(0.1724)	(0.1103)	(0.1913)
$NFP_{ijt} \times EB_{ijt}$	0.0015	-0.0266***	-0.0003	-0.0411***	-0.0020	-0.0274**
	(0.0062)	(0.0085)	(0.0084)	(0.0157)	(0.0069)	(0.0108)
EB_{ijt}	-0.0005	0.0058**	-0.0002	0.0004	-0.0005	0.0023
	(0.0009)	(0.0023)	(0.0008)	(0.0021)	(0.0009)	(0.0021)
TA_{ijt}	0.0022***	0.0021***	0.0017***	0.0016***	0.0018***	0.0017***
	(0.0005)	(0.0005)	(0.0004)	(0.0004)	(0.0005)	(0.0005)
MB_{ijt}	-0.0010***	-0.0005	-0.0005	-0.0005	-0.0012***	-0.0012***
	(0.0013)	(0.0009)	(0.0008)	(0.0008)	(0.0001)	(0.0001)
ROA_{ijt}	-0.0133*	-0.0144*	-0.0150*	-0.0143*	-0.0190**	-0.0196**
	(0.0080)	(0.0086)	(0.0077)	(0.0076)	(0.0080)	(0.0077)
FL_{ijt}	-0.0082*	-0.0103	-0.0079	-0.0077	-0.0048	-0.0048
	(0.0045)	(0.0069)	(0.0068)	(0.0070)	(0.0046)	(0.0046)
SR_{ijt}	0.0038***	0.0032**	0.0030**	0.0030**	0.0035***	0.0034***
	(0.0009)	(0.0014)	(0.0013)	(0.0013)	(0.0011)	(0.0011)
$ROAv_{ijt}$	-0.0321**	-0.0365**	-0.0330**	-0.0315*	-0.0303	-0.0308*
	(0.0152)	(0.0163)	(0.0168)	(0.0164)	(0.0186)	(0.0180)
SRv_{ijt}	-0.0194**	-0.0128	-0.0228*	-0.0210*	-0.0246*	-0.0214
	(0.0096)	(0.0096)	(0.0123)	(0.0126)	(0.0139)	(0.0138)
γ_t	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year Demean	Yes	Yes	Yes	Yes	Yes	Yes

ρ^2	0.050	0.050	0.037	0.044	0.048	0.056
N	7852	7852	6360	6360	5613	5613

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. *FR* stands for financial revenues, *NFP* is the net financial payouts, *EB* is the earnings benchmarks, *SR* means stock return, *ROA* is the return on assets, *TA* is the log total assets/ firm size, *MB* reflects the market to book ratio, *FL* represents the financial leverage, *SRv* stands for stock return volatility, *ROAv* is the return on assets volatility, γ is the time indicator, ρ^2 is the R-squared, *N* is the sample size and *i*, *j* and *t* reflect the firm, industry and time. Models 1 and 2 report the net shares repurchases, models 3 and 4 report the net equity payouts and models 5 and 6 report the net financial payouts. Similarly, the interactions work accordingly in each model. Models 1, 3 and 5 report the EPS benchmark where current year EPS meets the lagged EPS, while models 2, 4 and 6 report the zero EPS benchmarks. In models 1, 2 and 5 the 5th cumulant is considered since τ^2 is irrational for 3rd cumulant. The Sargan J test is insignificant when using the 5th cumulant.

Underinvestment Model Results

Table 4 reports the results of underinvestment equation. Models 1, 3 and 5 report the interactions of EPS difference earnings benchmarks of models, including net shares repurchases, net equity payouts and net financial payouts, respectively, while models 2, 4 and 6 report the interactions of EPS zero earnings benchmarks in the same order.

The coefficients of interactions between financial revenues and earnings benchmarks are insignificant in all cases. Therefore, this study cannot accept the H_{1A} that EPS earnings benchmarks influence the effect of financial revenues on underinvestment. The results show that the earnings benchmarks do not intensify or moderate the effect of financial revenues on underinvestment.

These results agree with Seo, et. al. (2016), Orhangazi (2008), Demir (2009b) and Zhang & Zheng (2020), who indicate that financial revenues are not related to real investments. According to the second perspective of these studies, financial revenues also complement real investments in achieving earnings goals. It is because firms invest the financial revenues in real investment opportunities to exploit the higher comparative profitability of real investment opportunities or to divert from higher risky financial assets to lower risky real assets. Hence, firms' decision to invest the financial revenues in financial or real assets becomes irrelevant when firms intend to achieve the earnings benchmarks.

Besides, the coefficients of interactions between net financial payouts and earnings benchmarks in models 1, 3 and 5 are also insignificant. These results show that net financial payouts do not result in underinvestment to meet the lagged EPS.

However, the coefficient of interaction between net financial payouts and EPS zero benchmarks in model 6 is positive and significant (β=0.0194, $p<0.1$). Thus, we accept the H_{2A} that EPS benchmarks intensify the positive effect of net financial payouts on underinvestment.

The results show that net financial payouts reduce the underinvestment in the direct relationship. However, the coefficients of EPS-induced net financial payouts increase the underinvestment. The results are similar when we consider the net equity payouts as the proxy of net financial payouts. The coefficient of interaction between net equity payouts and EPS zero earnings benchmarks in model 4 is positive and significant (β=0.0378, $p<0.01$).

Finally, the coefficient of interaction between net shares repurchases and EPS zero earnings benchmarks in model 2 is also positive and significant (β=0.0174, $p<0.05$). These results justify the existing theoretical and empirical studies of short-termism (Almeida, 2019; Almeida et al., 2016; Brav et al., 2005; Miller & Rock, 1985; Stein, 1989; Tori & Onaran, 2020). Firms utilize their internal and external financing on the payouts to achieve the EPS benchmarks; however, the higher net financial payouts result in higher underinvestment.

Table 4: Role of Earnings Benchmark - Cumulant Estimator - Dependent Variable: Underinvestment

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
FR_{ijt}	0.1530	0.1375***	0.2246**	0.3015**	0.2159**	0.2961**
	(0.1042)	(0.0476)	(0.0904)	(0.1200)	(0.1036)	(0.1313)
NFP_{ijt}	-0.0128**	-0.0170***	-0.0063	-0.0293**	-0.0061	-0.0194**
	(0.0059)	(0.0050)	(0.0072)	(0.0139)	(0.0049)	(0.0093)
$FR_{ijt} \times EB_{ijt}$	-0.1160	-0.0980	-0.1481	-0.2646	-0.1646	-0.2992
	(0.1053)	(0.1015)	(0.0960)	(0.2010)	(0.1052)	(0.2255)
$NFP_{ijt} \times EB_{ijt}$	0.0060	0.0174**	0.0034	0.0378***	0.0012	0.0194*
	(0.0072)	(0.0077)	(0.0084)	(0.0148)	(0.0057)	(0.0100)
EB_{ijt}	0.0007	-0.0053***	0.0010	-0.0012	0.0009	-0.0029**
	(0.0007)	(0.0016)	(0.0007)	(0.0013)	(0.0007)	(0.0014)
TA_{ijt}	-0.0007*	-0.0007*	-0.0005	-0.0004	-0.0005	-0.0004
	(0.0004)	(0.0004)	(0.0003)	(0.0003)	(0.0004)	(0.0004)
MB_{ijt}	0.0017***	0.0017***	0.0017***	0.0016***	0.0015***	0.0014***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
ROA_{ijt}	-0.0136*	-0.0122	-0.0183**	-0.0172**	-0.0164	-0.0133
	(0.0082)	(0.0079)	(0.0077)	(0.0076)	(0.0111)	(0.0107)
FL_{ijt}	-0.0091**	-0.0094**	-0.0109**	-0.0106**	-0.0092*	-0.0089*
	(0.0046)	(0.0046)	(0.0047)	(0.0048)	(0.0052)	(0.0054)
SR_{ijt}	-0.0058***	-0.0057***	-0.0057***	-0.0056***	-0.0052***	-0.0050***
	(0.0011)	(0.0011)	(0.0012)	(0.0012)	(0.0013)	(0.0013)
$ROAv_{ijt}$	0.0360**	0.0333**	0.0371***	0.0353***	0.0335*	0.0326**
	(0.0143)	(0.0134)	(0.0143)	(0.0133)	(0.0180)	(0.0166)
SRv_{ijt}	0.0042	-0.0021	0.0050	0.0018	0.0022	-0.0020
	(0.0066)	(0.0065)	(0.0072)	(0.0067)	(0.0074)	(0.0069)
γ_t	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year Demean	Yes	Yes	Yes	Yes	Yes	Yes
ρ^2	0.134	0.141	0.160	0.176	0.143	0.157

N	5316	5316	4346	4346	3797	3797

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. *FR* stands for financial revenues, *NFP* is the net financial payouts, *EB* is the earnings benchmarks, *SR* means stock return, *ROA* is the return on assets, *TA* is the log total assets/ firm size, *MB* reflects the market to book ratio, *FL* represents the financial leverage, *SRv* stands for stock return volatility, *ROAv* is the return on assets volatility, γ is the time indicator, ρ^2 is the R-squared, *N* is the sample size and *i, j* and *t* reflect the firm, industry and time. Models 1 and 2 report the net shares repurchases, models 3 and 4 report the net equity payouts and models 5 and 6 report the net financial payouts. Similarly, the interactions work accordingly in each model. Models 1, 3 and 5 report the EPS benchmark where current year EPS meets the lagged EPS, while models 2, 4 and 6 report the zero EPS benchmarks.

3.2.2. Extended Analysis

Investment Efficiency Analysis Under Uncertainty

This study extends the analysis to evaluate whether the moderating role of earnings benchmarks while influencing the effect of financial revenues and net financial payouts on investment efficiency and underinvestment changes with various levels of uncertainty. These existing studies suggest that uncertaincty increases the underinvestment, hence reduces the investment efficiency (Bernanke, 1983; Bulan, 2005; Myers & Majluf, 1984).

The return on assets volatility *(ROAv)* is considered the proxy for uncertainty (Bulan, 2005). In the section, we divided the sample among high and low uncertain panels based on the median *ROAv*. Observations above the median value are considered high uncertain panels and low uncertain panels otherwise (Khan et al., 2017).

Investment Efficiency Model Results

Table 5 reports the results of equation (2) for both highly uncertain and low uncertain firms. The first three models in Table 5 show the role of EPS zero earnings benchmarks, including net shares repurchases, net equity payouts and net financial payouts, respectively for high uncertain sub-samples. While the subsequent three models report in the same order for low uncertain sub-samples. The coefficients of interaction between financial revenues and earnings benchmarks in high uncertain firms are significant and positive (Model 1, β=0.2834, $p<0.05$, Model 2, β=0.4133, $p<0.1$, Model 3, β=0.4361, $p<0.1$). These findings reflect the main results. While the coefficients of interactions between financial revenues and earnings benchmarks in low uncertain firms are insignificant, and these outcomes are like the results of underinvestment within the primary model.

In addition, the coefficients of net financial payouts in high uncertain panels are negative and significant (Model 1, net shares repurchase, β=-0.0184, $p<0.05$, Model 2, net equity payouts, β=-0.0384, $p<0.05$, Model 3, net financial payouts, β=-0.0247, $p<0.05$). However, the same coefficients are insignificant in low uncertain panels, including models 4 through 6 for net shares repurchases, net equity payouts and net financial payouts, respectively. The results of highly uncertain panels are in the same direction as the primary model.

Nonetheless, the low uncertain panel results do not confirm the conclusions drawn by the primary model. These results show that earnings benchmarks do not modify the effect of net financial payouts on investment efficiency under a low uncertain situation. It is because investors' perceptions reflect the firm's performance when uncertainty is low (Bernanke, 1983; Bulan, 2005). Hence, firms may not have to achieve the earnings benchmarks to enhance investor perception. Therefore, the earnings benchmarks do not influence the relationship between net financial payouts and investment efficiency in low uncertain firms.

Table 5: Classification by Level of Uncertainty - Role of Earnings Benchmarks - Cumulant Estimator - Dependent Variable: Investment Efficiency

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Highly Uncertain Panels			Low Uncertain Panels		
FR_{ijt}	-0.1751**	-0.3331***	-0.3185**	-0.1332	0.0426	0.0085
	(0.0791)	(0.1221)	(0.1330)	(0.3181)	(0.1305)	(0.3647)
NFP_{ijt}	0.0176***	0.0345**	0.0320***	0.0849	0.0165	-0.0137
	(0.0054)	(0.0149)	(0.0099)	(0.1100)	(0.0265)	(0.1221)
$FR_{ijt} \times EB_{ijt}$	0.2834**	0.4133*	0.4361*	-0.0556	-0.0814	0.1352
	(0.1294)	(0.2207)	(0.2488)	(0.2454)	(0.1473)	(0.8394)
$NFP_{ijt} \times EB_{ijt}$	-0.0184**	-0.0384**	-0.0247**	-0.0714	-0.0222	0.0350
	(0.0093)	(0.0174)	(0.0111)	(0.0795)	(0.0331)	(0.2305)
EB_{ijt}	0.0057**	-0.0007	0.0005	0.0040	0.0002	0.0125
	(0.0023)	(0.0022)	(0.0024)	(0.0035)	(0.0032)	(0.0489)
TA_{ijt}	0.0028***	0.0021***	0.0024***	0.0014**	0.0011**	0.0006
	(0.0006)	(0.0006)	(0.0007)	(0.0006)	(0.0005)	(0.0027)
MB_{ijt}	-0.0010*	-0.0009*	-0.0008	0.0028	-0.0005	-0.0197
	(0.0006)	(0.0005)	(0.0006)	(0.0088)	(0.0019)	(0.0857)
ROA_{ijt}	-0.0064	-0.0038	-0.0095	-0.0888	-0.0123	0.4838
	(0.0082)	(0.0073)	(0.0091)	(0.1766)	(0.0293)	(2.3523)
FL_{ijt}	-0.0107*	-0.0082	-0.0104	-0.0307	-0.0044	0.1486
	(0.0055)	(0.0064)	(0.0070)	(0.0643)	(0.0150)	(0.6867)
SR_{ijt}	0.0040***	0.0037***	0.0030**	-0.0027	0.0015	0.0248
	(0.0013)	(0.0013)	(0.0014)	(0.0107)	(0.0029)	(0.1031)
$ROAv_{ijt}$	-0.0338**	-0.0411**	-0.0415**	-0.2723	0.0437	2.1747
	(0.0157)	(0.01644)	(0.0197)	(0.7392)	(0.1385)	(9.9278)
SRv_{ijt}	-0.0086	-0.0143	0.0120	-0.0094	-0.0325*	-0.0634
	(0.0093)	(0.0116)	(0.0125)	(0.0273)	(0.0195)	(0.1403)

γ_t	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year Demean	Yes	Yes	Yes	Yes	Yes	Yes
ρ^2	0.076	0.072	0.072	0.002	0.027	0.167
N	3462	2622	2276	4390	3738	3337

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. *FR* stands for financial revenues, *NFP* is the net financial payouts, *EB* is the earnings benchmarks, *SR* means stock return, *ROA* is the return on assets, *TA* is the log total assets/ firm size, *MB* reflects the market to book ratio, *FL* represents the financial leverage, *SRv* stands for stock return volatility, *ROAv* is the return on assets volatility, γ is the time indicator, ρ^2 is the R-squared, *N* is the sample size and *i*, *j* and *t* reflect the firm, industry and time. Models 1 and 4 report the net shares repurchases, models 2 and 5 report the net equity payouts and models 3 and 6 report the net financial payouts. Similarly, the interactions work accordingly in each model. Models 1-3 report the high uncertain panels, while models 4-6 depict the low uncertain panels.

Underinvestment Model Results

After investigating the investment efficiency according to the level of uncertainty, this study proceeds to the evaluation of underinvestment by distributing the sample into high and low uncertain panels.

Table 6 depicts the role of EPS zero earnings benchmarks for underinvestment analysis. The sample is distributed for high and low uncertain panels. The first three models investigate the high uncertain panels, including net shares repurchases, net equity payouts and net financial payouts, respectively, and the following three models report the low uncertain panels in the same order.

The coefficients of interaction between financial revenues and earnings benchmarks are insignificant in most of the models in both high and low uncertain panels. However, it is positive and significant in model 4 (β=0.2138, p<0.1). This specific result shows that as the uncertainty decreases, financial revenues increase underinvestment to achieve earnings benchmarks.

During the uncertainty, firms might prefer to invest only in positive net present value projects and ignore all negative net present value projects to sustain efficient investment for long-term survival. The uncertainty reduces their tendency toward the financial market; with uncertainty, the financial constraints increase and firms' access to financial markets reduces (Fazzari et al., 1988). Nonetheless, as the level of uncertainty reduces, financial constraints reduce. Thus firms freely decide their fates and prefer to invest in financial assets to achieve the earnings benchmarks through financial revenues and underinvest in real assets (Orhangazi, 2008).

Moreover, the coefficients of the interaction of net equity payouts and net financial payouts with earnings benchmarks are positive and significant in models 2 and 3 (Model 2, β=0.0436, p<0.01, Model 3, β=0.0198, p<0.1), but insignificant in low uncertain panels. This shows that uncertainty influences the role of earnings benchmarks in explaining the relationship between net financial payouts and underinvestment.

Table 6: Classification by Level of Uncertainty - Role of Earnings Benchmarks - Cumulant Estimator - Dependent Variable: Underinvestment

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	High Uncertain Panels			Low Uncertain Panels		
FR_{ijt}	0.1494***	0.3441**	0.3468**	-0.0342	-0.0192	-0.0283
	(0.0493)	(0.1394)	(0.1503)	(0.0931)	(0.0986)	(0.1083)
NFP_{ijt}	-0.0159***	-0.0318**	-0.0192*	-0.0142	0.0050	-0.0109
	(0.0056)	(0.0154)	(0.0102)	(0.0150)	(0.0198)	(0.0129)
$FR_{ijt} \times EB_{ijt}$	-0.1919	-0.3604	-0.3816	0.2138*	0.1193	-0.0636
	(0.1363)	(0.2665)	(0.2965)	(0.1106)	(0.1062)	(0.1114)
$NFP_{ijt} \times EB_{ijt}$	0.0162	0.0436***	0.0198*	0.0129	-0.0026	0.0089
	(0.0092)	(0.0167)	(0.0115)	(0.0165)	(0.0201)	(0.0151)
EB_{ijt}	-0.0055***	0.0003	-0.0019	-0.0039**	-0.0040**	-0.0050
	(0.0021)	(0.0016)	(0.0017)	(0.0017)	(0.0019)	(0.0032)
TA_{ijt}	-0.0009*	-0.0006	-0.0008*	-0.0004	-0.0002	-0.0001
	(0.0005)	(0.0004)	(0.0005)	(0.0006)	(0.0004)	(0.0004)
MB_{ijt}	0.0017***	0.0015***	0.0014***	0.0022*	0.0024***	0.0034
	(0.0004)	(0.0004)	(0.0004)	(0.0013)	(0.0009)	(0.0041)
ROA_{ijt}	-0.0118	-0.0143*	-0.0140	-0.0212	-0.0344***	-0.0763
	(0.0089)	(0.0084)	(0.0108)	(0.0215)	(0.0094)	(0.1548)
FL_{ijt}	-0.0104**	-0.0092	-0.0072	-0.0123	-0.0171**	-0.0280
	(0.0048)	(0.0063)	(0.0071)	(0.0115)	(0.0067)	(0.0396)
SR_{ijt}	-0.0059***	-0.0054***	-0.0048***	-0.0054**	-0.0066***	-0.0085
	(0.0011)	(0.0014)	(0.0015)	(0.0027)	(0.0020)	(0.0069)
$ROAv_{ijt}$	0.0316**	0.0400**	0.0305	-0.0205	-0.0353	-0.1342
	(0.0153)	(0.0177)	(0.0201)	(0.0655)	(0.0373)	(0.4192)
SRv_{ijt}	0.0041	0.0098	0.0045	-0.0114	-0.0090	-0.0161
	(0.0086)	(0.0100)	(0.0102)	(0.0093)	(0.0078)	(0.0133)

γ_t	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year Demean	Yes	Yes	Yes	Yes	Yes	Yes
ρ^2	0.157	0.189	0.173	0.149	0.200	0.238
N	2353	1799	1533	2963	2547	2264

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. *FR* stands for financial revenues, *NFP* is the net financial payouts, *EB* is the earnings benchmarks, *SR* means stock return, *ROA* is the return on assets, *TA* is the log total assets/ firm size, *MB* reflects the market to book ratio, *FL* represents the financial leverage, *SRv* stands for stock return volatility, *ROAv* is the return on assets volatility, γ is the time indicator, ρ^2 is the R-squared, *N* is the sample size and *i*, *j* and *t* reflect the firm, industry and time. Models 1 and 4 report the net shares repurchases, models 2 and 5 report the net equity payouts and models 3 and 6 report the net financial payouts. Similarly, the interactions work accordingly in each model. Models 1-3 report the high uncertain panels, while models 4-6 depict the low uncertain panels.

Investment Efficiency Analysis Under Financial Constraints

In addition to the uncertainty, this study extends the investment efficiency analysis by classifying the sample according to the financial constraints. The existing studies claim that financial constraints lead to underinvestment and impair investment efficiency (Almeida & Campello, 2007; Fazzari et al., 1988; Hecht, 2014; Lewellen & Lewellen, 2016; Shin & Stulz, 1998).

This study considers the KZ index developed by Kaplan & Zingles (1997) to measure financial constraints. The KZ index is the most widely accepted proxy for financial constraints (Schauer et al., 2019).

The sample is divided into high and low financial constraints according to the median value of financial constraints (KZ index). The firm-year observations above median financial constraints are considered financially constrained firms, while the opposite works for the low level of financial constraints (Khan et al., 2017).

Investment Efficiency Model Results

Table 7 presents the results for the role of EPS zero earnings benchmarks after classifying the sample into financially constrained and unconstrained firms. Models 1 through 3 report the net shares repurchases, net equity payouts and net financial payouts for financially constrained panels and the remaining three models provide the results of financially unconstrained panels in the same order.

The interaction coefficients between financial revenues and earnings benchmarks are positive and significant in models 1 and 2 (Model 1, β =0.3891, p=0.05, Model 2, β=0.6166, p=0.05) and insignificant in model 3, while insignificant in all models of financially unconstrained panels. These results show that in financially constrained firms, earnings benchmarks improve the positive effect of financial revenues on investment efficiency.

These results are concurrent with the direct relationship between financial revenues and investment efficiency. In the direct relationship, this study finds that financial revenues impair investment efficiency in financially unconstrained firms. In contrast, in Table 7, this study finds that earnings benchmarks help financial revenues improve investment efficiency in financially constrained firms. These results, in combination, show that as the financial constraints increase, firms transfer their priorities to improve investment efficiency through financial revenues.

It is because financially constrained firms must improve short- and long-term objectives to access the financial market. For this purpose, they exploit the positive net present value projects for their long-term survival and simultaneously achieve the earnings benchmarks by increasing the financial revenues.

In the case of overinvestment, firms transfer the funds toward financial investments, which enhance both the financial revenues and investment efficiency. While firms utilize the financial revenues to exploit the investment opportunities during underinvestment again to improve the investment efficiency (Jensen, 1986; Kaplan, 2018; Orhangazi, 2008).

Additionally, the coefficients of net financial payouts are negative and significant in all financially constrained panels (Model 1, net shares repurchases, β =-0.0454, p=0.01, Model 2, net equity payouts, β =-0.0438, p=0.1, Model 3, net financial payouts, β =-0.0569, p=0.1). While the coefficients are insignificant for net shares repurchases and net equity payouts in models 4 and 5, respectively, for financially unconstrained firms but negative and significant in model 6 for net financial payouts (β=-0.0127, p=0.1). These results justify that earnings benchmarks influence the effect of net financial payouts on investment efficiency irrespective of financial constraints, as earnings benchmarks' influence is significant in both financially constrained and unconstrained panels. The results are parallel to the main model.

Table 7: Classification by Level of Financial Constraints - Role of Earnings Benchmarks - Cumulant Estimator - Dependent Variable: Investment Efficiency

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Financially Constrained Panels			Financially Unconstrained Panels		
FR_{ijt}	-0.1977*	-0.3821*	-0.3714	-0.1768***	-0.1735***	-0.1599***
	(0.1085)	(0.2126)	(0.2399)	(0.0582)	(0.0556)	(0.0470)
NFP_{ijt}	0.0209***	0.0533**	0.0506**	0.0132***	0.0098	0.0138**
	(0.0070)	(0.0211)	(0.0208)	(0.0042)	(0.0115)	(0.0069)
$FR_{ijt} \times EB_{ijt}$	0.3891**	0.6166**	0.5385	0.0595	0.0589	0.0633
	(0.1534)	(0.2979)	(0.3772)	(0.1016)	(0.1010)	(0.1037)
$NFP_{ijt} \times EB_{ijt}$	-0.0454***	-0.0438*	-0.0569*	-0.0094	-0.0173	-0.0127*
	(0.0131)	(0.0259)	(0.0334)	(0.0059)	(0.0132)	(0.0075)
EB_{ijt}	0.0087***	0.0011	-0.0022	0.0029	0.0024	0.0020
	(0.0028)	(0.0030)	(0.0069)	(0.0019)	(0.0019)	(0.0019)
TA_{ijt}	0.0032***	0.0029***	0.0027***	0.0004	0.0005	0.0005
	(0.0006)	(0.0007)	(0.0007)	(0.0005)	(0.0005)	(0.0005)
MB_{ijt}	-0.0038***	-0.0024***	0.0032	-0.0013***	-0.0012***	-0.0011**
	(0.0013)	(0.0005)	(0.0063)	(0.0004)	(0.0004)	(0.0005)
ROA_{ijt}	-0.0152	-0.0327***	-0.0502**	0.0005	0.0044	-0.0023
	(0.0105)	(0.0121)	(0.0236)	(0.0081)	(0.0083)	(0.0087)
FL_{ijt}	-0.0004	-0.0041	-0.0297	0.0040	0.0036	0.0022
	(0.0079)	(0.0077)	(0.0323)	(0.0064)	(0.0064)	(0.0070)
SR_{ijt}	0.0061***	0.0040**	-0.0027	0.0043***	0.0044***	0.0039***
	(0.0017)	(0.0018)	(0.0075)	(0.0009)	(0.0009)	(0.0009)
$ROAv_{ijt}$	-0.0271	-0.0388	-0.1026	-0.0115	-0.0101	-0.0184
	(0.0245)	(0.0298)	(0.0771)	(0.0152)	(0.0155)	(0.0150)
SRv_{ijt}	-0.0188	-0.0269	-0.0233	0.0003	-0.0023	-0.0023
	(0.0122)	(0.0174)	(0.0193)	(0.0110)	(0.0106)	(0.0114)

γ_t	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year Demean	Yes	Yes	Yes	Yes	Yes	Yes
ρ^2	0.079	0.062	0.054	0.112	0.111	0.102
N	4778	3286	2983	3074	3074	2630

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. *FR* stands for financial revenues, *NFP* is the net financial payouts, *EB* is the earnings benchmarks, *SR* means stock return, *ROA* is the return on assets, *TA* is the log total assets/ firm size, *MB* reflects the market to book ratio, *FL* represents the financial leverage, *SRv* stands for stock return volatility, *ROAv* is the return on assets volatility, γ is the time indicator, ρ^2 is the R-squared, *N* is the sample size and *i*, *j* and *t* reflect the firm, industry and time. Models 1 and 4 report the net shares repurchases, models 2 and 5 report the net equity payouts and models 3 and 6 report the net financial payouts. Similarly, the interactions work accordingly in each model. Models 1-3 report the financially constrained panels, while models 4-6 depict the financially unconstrained panels. In model 1, the 4th cumulant is considered, while in model 2, the 5th cumulant is taken since τ^2 is irrational for 3rd cumulant in these models. The Sargan J test is insignificant when using the 4th and 5th cumulants.

Underinvestment Model Results

Table 8 reports the role of EPS zero earnings benchmarks for both financially constrained and unconstrained panels. Models 1 through 3 include the proxies of net shares repurchases, net equity payouts and net financial payouts, respectively, for financially constrained panels, and subsequent models report the proxies in the same order for financially unconstrained panels.

Similar to the main models, the coefficients of the interaction of financial revenues and earnings benchmarks are insignificant in all the models. These results show that earnings benchmarks do not alter the relationship between financial revenues and underinvestment, and financial constraints do not influence this role of earnings benchmarks.

In addition, the interaction coefficient between net shares repurchases and earnings benchmarks is positive and significant in model 1 of financially constrained panels (β =0.0222, p=0.1). The coefficient is also positive and significant in model 6 for net financial payouts of financially unconstrained panels (β =0.0163, p=0.05) and insignificant in the remaining models.

These results show that earnings benchmarks influence the effect of net shares repurchases on the underinvestment within financially constrained firms. However, this influence disappears as dividends and debt financings are added to the proxy of net financial payouts. However, in the financially unconstrained panels, the earnings benchmarks alter the effect of the composite proxy of net financial payouts on the underinvestment.

These results justify that in financially constrained firms, managers conduct repurchases to achieve the EPS zero earnings benchmarks. Though, the inclination of cash flows toward shares repurchases limits the funds, and firms underinvest in real assets. However, the management of dividends and issuance of debt finance eliminates the underinvestment increasing effect of net shares repurchases. Hence, among the financially constrained panels, the effect of net equity payouts and net financial payouts are insignificant when interacting with the earnings benchmarks (Fried & Wang, 2019). Conversely, the market pressure for achiving short-term earnings benchmarks is higher in the financially unconstrained panels. Hence, the net financial payouts upsurge the underinvestment when net financial payouts are deployed for earnings benchmarks (Farre-mensa et al., 2024; Tori & Onaran, 2020).

Table 8: Classification by Level of Financial Constraints - Role of Earnings Benchmarks - Cumulant Estimator - Dependent Variable: Underinvestment

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Financially Constrained Panels			Financially Unconstrained Panels		
FR_{ijt}	0.1161**	0.4240*	0.4491*	0.1854***	0.1764***	0.1533***
	(0.0569)	(0.2203)	(0.2478)	(0.0566)	(0.0536)	(0.0415)
NFP_{ijt}	-0.0176***	-0.0384	-0.0167	-0.0114***	-0.0136	-0.0180***
	(0.0067)	(0.0234)	(0.0145)	(0.0036)	(0.0092)	(0.0064)
$FR_{ijt} \times EB_{ijt}$	-0.1991	-0.5426	-0.5878	-0.0182	-0.0099	-0.0329
	(0.1544)	(0.3762)	(0.4248)	(0.1046)	(0.1041)	(0.1046)
$NFP_{ijt} \times EB_{ijt}$	0.0222*	0.0256	0.0132	0.0022	-0.0138	0.0163**
	(0.0134)	(0.0339)	(0.0194)	(0.0057)	(0.0109)	(0.0068)
EB_{ijt}	-0.0069***	-0.0020	-0.0041**	-0.0024	-0.0020	-0.0025
	(0.0020)	(0.0020)	(0.0018)	(0.0019)	(0.0018)	(0.0019)
TA_{ijt}	-0.0010*	-0.0002	-0.0003	-0.0004	-0.0004	-0.0004
	(0.0006)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
MB_{ijt}	0.0023**	0.0022*	0.0019**	0.0013***	0.0014***	0.0011**
	(0.0009)	(0.0011)	(0.0009)	(0.0004)	(0.0004)	(0.0005)
ROA_{ijt}	-0.0170*	-0.0381***	-0.0423***	-0.0066	-0.0104	-0.0014
	(0.0101)	(0.0108)	(0.0140)	(0.0095)	(0.0097)	(0.0129)
FL_{ijt}	-0.0101*	-0.0116**	-0.0098	-0.0076	-0.0079	-0.0059
	(0.0051)	(0.0059)	(0.0061)	(0.0072)	(0.0070)	(0.0082)
SR_{ijt}	-0.0062***	-0.0058**	-0.0050*	-0.0060***	-0.0060***	-0.0054***
	(0.0018)	(0.0027)	(0.0027)	(0.0010)	(0.0010)	(0.0010)
$ROAv_{ijt}$	0.0471**	0.0691***	0.0594**	0.0076	0.0079	0.0098
	(0.0220)	(0.0256)	(0.0294)	(0.0144)	(0.0142)	(0.0157)
SRv_{ijt}	0.0042	0.0098	0.0061	0.0036	0.0049	0.0076
	(0.0080)	(0.0089)	(0.0103)	(0.0120)	(0.0119)	(0.0130)

γ_t	Yes	Yes	Yes	Yes	Yes	Yes
Industry Year Demean	Yes	Yes	Yes	Yes	Yes	Yes
ρ^2	0.162	0.258	0.229	0.169	0.168	0.152
N	2752	1782	1602	2564	2564	2195

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. *FR* stands for financial revenues, *NFP* is the net financial payouts, *EB* is the earnings benchmarks, *SR* means stock return, *ROA* is the return on assets, *TA* is the log total assets/ firm size, *MB* reflects the market to book ratio, *FL* represents the financial leverage, *SRv* stands for stock return volatility, *ROAv* is the return on assets volatility, γ is the time indicator, ρ^2 is the R-squared, *N* is the sample size and *i*, *j* and *t* reflect the firm, industry and time. Models 1 and 4 report the net shares repurchases, models 2 and 5 report the net equity payouts and models 3 and 6 report the net financial payouts. Similarly, the interactions work accordingly in each model. Models 1-3 report the financially constrained panels, while models 4-6 depict the financially unconstrained panels.

3.2.3. Robustness Test

Endogeneity Issues and Alternative Estimation Method

In this section, this study deploys the generalized method of moment (GMM) estimator to deal with the reverse causality issue (Arellano & Bover, 1995; Blundell & Bond, 1998; Wintoki et al., 2012). Tori & Onaran (2020) hint that the relationships of financial revenues and financial payouts with real investments involve the reverse causality issue. According to them, the higher financial revenues and financial payouts might result from a slowdown in real investments.

Therefore, Tori & Onaran (2020) suggest the employment of the GMM estimator to address this reverse causality issue. The cumulant estimator does not address the issue of reverse causality, as in their article, Erickson et al. (2014) do not tackle the reverse causality issue while building the cumulant estimator.

This is why the current study investigates whether the GMM estimator improves the effect of financial revenues, net financial payouts and their interactions on investment efficiency and underinvestment.

Investment Efficiency Model Results

Table 9 reports the results of the GMM estimator to estimate the role of earnings benchmarks in determining the relationship between financial revenues and net financial payouts with investment efficiency. Models 1, 3 and 5 report the interactions of EPS difference earnings benchmarks, including net shares repurchases, net equity payouts and net financial payouts, respectively. Models 2, 4 and 6 report the interactions of EPS zero earnings benchmarks in the same order.

The coefficients of interactions between financial revenues and earnings benchmarks are negative and significant in models 3 and 5 (Model 3, β=-1.3061, p<0.01, Model 5, β=-1.2909, p<0.01) but insignificant in models 1, 2, 4 and 6. These results are interesting and oppose the main results. These results show that under the dynamic environment, the coefficient of interaction between financial revenues and EPS difference benchmarks is negative and significant, at least in two equations.

The significant results justify that firms divert their financial revenues toward financial assets to meet the prior year's EPS level and distort investment efficiency. These results are in line with the short-termism theory that explains that the short-term profitability motive encourages firms to prioritize short-term investment at the cost of long-term investments (Stein, 1989). These results are also parallel to the studies on financialization. The financialization studies also find that financial revenues reduce real investments for short-term profitability (Davis, 2018; Demir, 2009b, 2009a; Hecht, 2014; Orhangazi, 2008; Stockhammer, 2004; Tori & Onaran, 2020, 2018)

Further, the coefficients of interaction between net financial payouts and earnings benchmarks are insignificant in models 1, 2, 3 and 5, while the coefficients are negative and significant in models 4 and 6 (Model 4, net shares repurchases, β=-0.0915, p<0.05, Model 6, net financial payouts, β=-0.0430, p<0.05). These GMM results justify the main results, and this study concludes that earnings benchmarks significantly affect the relationship between net financial payouts and investment efficiency.

Table 9: Role of Earnings Benchmark - GMM Estimator: Dependent Variable: Investment Efficiency

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
FR_{ijt}	0.1504	-0.1656	0.6349***	0.1183	0.6236**	0.1198
	(0.1769)	(0.1869)	(0.2376)	(0.1973)	(0.2701)	(0.1697)
NFP_{ijt}	-0.0009	0.0034	0.0078	0.0780**	0.0080	0.0380**
	(0.0112)	(0.0133)	(0.0148)	(0.0344)	(0.0143)	(0.0182)
$FR_{ijt} \times EB_{ijt}$	-0.3278	0.1812	-1.3061***	-0.2388	-1.2909***	-0.2966
	(0.2828)	(0.2907)	(0.4090)	(0.2931)	(0.4087)	(0.2327)
$NFP_{ijt} \times EB_{ijt}$	0.0066	-0.0024	-0.0162	-0.0915**	-0.0144	-0.0430**
	(0.0205)	(0.0185)	(0.0238)	(0.0379)	(0.0220)	(0.0208)
EB_{ijt}	0.0001	-0.0015	-0.0043**	0.0019	0.0042**	0.0012
	(0.0012)	(0.0014)	(0.0020)	(0.0014)	(0.0019)	(0.0017)
TA_{ijt}	-0.0037	-0.0039	-0.0002	-0.0008	0.0023	0.0033
	(0.0027)	(0.0030)	(0.0085)	(0.0062)	(0.0052)	(0.0055)
MB_{ijt}	-0.0002***	-0.0002***	-0.0001*	-0.0001	-0.0001*	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
ROA_{ijt}	0.0074	0.0092	0.0158	-0.0055	0.0072	0.0113
	(0.0147)	(0.0121)	(0.0150)	(0.0114)	(0.0169)	(0.0189)
FL_{ijt}	0.0104**	0.0089*	0.0099	0.0043	0.0080	0.0061
	(0.0044)	(0.0046)	(0.0066)	(0.0080)	(0.0055)	(0.0065)
SR_{ijt}	-0.0006	-0.0006	0.0002	0.0002	0.0003	0.0001
	(0.0007)	(0.0007)	(0.0014)	(0.0011)	(0.0010)	(0.0011)
$ROAv_{ijt}$	-0.0061	-0.0018	-0.0141	-0.0002	0.0002	0.0142

	(0.0121)	(0.0113)	(0.0190)	(0.0123)	(0.0175)	(0.0130)
SRv_{ijt}	0.0026	0.0030	-0.0023	0.0014	-0.0003	0.0021
	(0.0035)	(0.0036)	(0.0046)	(0.0041)	(0.0052)	(0.0047)
IE_{ijt-1}	-0.4842***	-0.5043***	-0.3791	-0.3936	-0.4537***	-0.3874**
	(0.0881)	(0.0949)	(0.2804)	(0.2428)	(0.1343)	(0.1691)
λ_t	Yes	Yes	Yes	Yes	Yes	Yes
η_i	Yes	Yes	Yes	Yes	Yes	Yes
p(AC)	0.853	0.838	0.885	0.951	0.665	0.723
p(H)	0.213	0.215	0.568	0.226	0.211	0.174
F	Yes	Yes	Yes	Yes	Yes	Yes
N	7391	7391	5986	5986	5278	5278

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. *FR* stands for financial revenues, *NFP* is the net financial payouts, EB stands for earnings benchmarks, *SR* means stock return, *ROA* is the return on assets, *TA* is the log total assets/ firm size, *MB* reflects the market to book ratio, *FL* represents the financial leverage, *SRv* stands for stock return volatility, *ROAv* is the return on assets volatility, *IE* reflects the investment efficiency, λ is the time indicator, η is the industry indicator, *p(AC)* is the level of significance of 2nd order autocorrelation, *p(H)* is the level of significance of Hensen test, *F* represents the forward orthogonal deviation, *N* is the sample size and *i, j* and *t* reflects the firm, industry and time. Models 1 and 2 report the net shares repurchases, models 3 and 4 report the net equity payouts and models 5 and 6 report the net financial payouts. Similarly, the interactions work accordingly in each model. Models 1, 3 and 5 report the EPS benchmark where current year EPS meets the lagged EPS, while models 2, 4 and 6 report the zero EPS benchmarks.

Underinvestment Model Results

Table 10 reports the role of earnings benchmarks under the GMM estimator. Models 1, 3 and 5 report the interactions of EPS difference earnings benchmarks, including net shares repurchases, net equity payouts and net financial payouts, respectively. Models 2, 4 and 6 report the interactions of EPS zero earnings benchmarks in the same order.

The coefficient of interaction between financial revenues and earnings benchmarks is positive and significant in model 5 (β =0.4587, p<0.05) but insignificant in models 1 through 4 and 6. The significant results justify that firms divert their financial revenues toward financial assets by underinvesting in real assets to meet the prior year's EPS level. These results are in line with the short-termism theory that explains that the short-term profitability motive encourages firms to prioritize short-term investment at the cost of long-term investments (Stein, 1989).

Additionally, the coefficients of interaction between net financial payouts and earnings benchmarks are negative and significant in models 1 and 3 (Model 1, net shares repurchases, β =-0.0362, p<0.05, Model 3, net financial payouts, β =-0.0568, p<0.05), positive and insignificant in models 2, 4 and 5 and positive and significant in models 6 (net financial payouts, β =0.1890, p<0.05). These results provide mixed support to the main results.

First, firms manage the net equity payouts and net shares repurchases to achieve the prior year's EPS benchmark while reducing underinvestment. These results are consistent with Fried & Wang (2019, 2021), who claim that net equity payouts do not impair investment efficiency even for achieving the earnings benchmarks. According to their study, firms manage the earnings goals in parallel to efficient investment by effectively engaging in equity payouts and issuances.

Second, the interaction of net financial payouts and EPS zero benchmarks opposes the above relationship. It shows that when debt financing and payouts are added to the proxy of net financial payouts, the EPS zero earnings benchmarks expedite the underinvestment-increasing relationship of net financial payouts with the investment efficiency of underinvesting firms.

These results provide some interesting insights. According to these results, to achieve the earnings benchmarks, firms manage the equity payouts and financings in favor of investment efficiency. However, when debt financing is included, the composite net financial payouts increase the underinvestment for achieving zero EPS. These results go with Farre-mensa et al. (2024), who claim that firms finance both dividends and repurchases through external financing and firms trying to meet the earnings benchmarks and want to achieve managerial remuneration, finance the payouts through debts.

The higher debt financings urge firms to achieve the earnings benchmarks, as with the higher debts, the pressure for profitability increases by the financial markets, and zero EPS becomes a necessity. This pressure to achieve zero EPS impulses firms to underinvest in real assets by increasing the equity payouts (Barradas, 2017; Palley, 2008). Finally, the interaction of net financial payouts and EPS difference benchmark becomes insignificant, which justifies the famous finance irrelevance theory (Miller & Modigliani, 1961; Modigliani & Miller, 1958).

Table 10: Role of Earnings Benchmark - GMM Estimator: Dependent Variable: Underinvestment

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
FR_{ijt}	-0.0514	0.2794	-0.0059	0.4415	-0.0386	0.4658**
	(0.0916)	(0.1862)	(0.1398)	(0.2730)	(0.1063)	(0.2167)
NFP_{ijt}	0.0093	-0.0151	0.0390**	-0.0060	0.0135	-0.0158**
	(0.0088)	(0.0116)	(0.0176)	(0.0197)	(0.0130)	(0.0073)
$FR_{ijt} \times EB_{ijt}$	0.2657	-0.4388	0.2491	-0.5470	0.4587**	-0.3891
	(0.1662)	(0.3844)	(0.1771)	(0.4224)	(0.1920)	(0.2830)
$NFP_{ijt} \times EB_{ijt}$	-0.0362**	0.0196	-0.0568**	-0.0188	-0.0211	0.1890**
	(0.0170)	(0.0250)	(0.0286)	(0.0247)	(0.0197)	(0.0086)
EB_{ijt}	0.0005	0.0036**	0.0031**	0.0033	0.0004	0.0028
	(0.0012)	(0.0018)	(0.0016)	(0.0024)	(0.0018)	(0.0019)
TA_{ijt}	0.0019	0.0017	0.0008	-0.0001	0.0004	-0.0001
	(0.0034)	(0.0029)	(0.0057)	(0.0068)	(0.0045)	(0.0057)
MB_{ijt}	-0.0003	-0.0002	-0.0004	-0.0003*	-0.0010***	-0.0008**
	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0004)	(0.0003)
ROA_{ijt}	-0.0648***	0.0575***	-0.0643***	-0.0682***	-0.0670***	-0.0801***
	(0.0140)	(0.0202)	(0.0160)	(0.0154)	(0.0004)	(0.0148)
FL_{ijt}	-0.0011	0.0004	0.0073	0.0060	0.0182*	0.0172
	(0.0083)	(0.0080)	(0.0065)	(0.0064)	(0.0109)	(0.0121)
SR_{ijt}	0.0029***	0.0029***	0.0035***	0.0034***	0.0043***	0.0046***
	(0.0009)	(0.0009)	(0.0012)	(0.0012)	(0.0017)	(0.0017)
$ROAv_{ijt}$	0.0415	0.0425	0.0684*	0.0790	-0.0023	0.0215
	(0.0263)	(0.0282)	(0.0379)	(0.0496)	(0.0337)	(0.0348)
SRv_{ijt}	0.0067	0.0044	0.0048	-0.0012	0.0074	0.0026
	(0.0067)	(0.0071)	(0.0066)	(0.0080)	(0.0049)	(0.0086)
UI_{ijt-1}	0.2964*	0.2589	0.2439*	0.2442	0.0740	0.0538

	(0.1589)	(0.1609)	(0.1283)	(0.1487)	(0.1614)	(0.1725)
λ_t	Yes	Yes	Yes	Yes	Yes	Yes
η_i	Yes	Yes	Yes	Yes	Yes	Yes
p(AC)	0.274	0.111	0.278	0.232	0.356	0.103
p(H)	0.299	0.819	0.377	0.461	0.689	0.134
F	Yes	Yes	Yes	Yes	Yes	Yes
N	2301	2301	1958	1958	1752	1752

*** significant at 0.01. ** significant at 0.05. * significant at 0.1. Standard Error in parenthesis. *FR* stands for financial revenues, *NFP* is the net financial payouts, EB stands for earnings benchmarks, *SR* means stock return, *ROA* is the return on assets, *TA* is the log total assets/ firm size, *MB* reflects the market to book ratio, *FL* represents the financial leverage, *SRv* stands for stock return volatility, *ROAv* is the return on assets volatility, *IE* reflects the investment efficiency, λ is the time indicator, η is the industry indicator, *p(AC)* is the level of significance of 2nd order autocorrelation, *p(H)* is the level of significance of Hensen test, *F* represents the forward orthogonal deviation, *N* is the sample size and *i, j* and *t* reflects the firm, industry and time. Models 1 and 2 report the net shares repurchases, models 3 and 4 report the net equity payouts and models 5 and 6 report the net financial payouts. Models 1, 3 and 5 report the EPS benchmark where current year EPS meets the lagged EPS, while models 2, 4 and 6 report the zero EPS benchmarks.

4. Conclusion

This study examines the interacting effect of financial revenues, net financial payouts and earnings benchmarks on investment efficiency with a particular focus on underinvesting US non-financial corporations. This study assumes that the earnings benchmarks should intensify the detrimental effect of financial revenues and net financial payouts on the investment efficiency of underinvesting firms.

Results suggest that the interacting effect of financial revenues and earnings benchmarks on investment efficiency is negative and significant. Therefore, this study concludes that financial revenues impair investment efficiency because firms intend to achieve earnings benchmarks. For this purpose, firms divert the proceeds from financial revenues toward financial investments. In this process, they ignore the investment opportunities and thus weaken the investment efficiency. Likewise, the interaction of financial revenues and earnings benchmarks also increases underinvestment. Similar results are found for low-uncertainty firms.

In continuation, the interaction of net financial payouts and earnings benchmarks negatively affects investment efficiency. Along the same line, this interaction of net financial payouts and earnings benchmarks also increases underinvestment. These results are strongly consistent almost across all the models. These results are similar for all the proxies of net financial payouts. These statistics depict that firms utilize shares repurchases, dividends and interest expenses to achieve earnings benchmarks by ignoring investment opportunities.

These results are robust for EPS zero earnings benchmarks but not for EPS difference earnings benchmarks. Hence, according to these results, firms manage the net financial payouts to achieve the zero EPS. In this process, they impair investment efficiency and lead to underinvestment.

Based on the results, this study recommends that there should be policies against the aggressive tendency of firms toward achieving the earnings benchmarks. For example, the analysts' forecasts for organizational performance should base on an index of multiple measures of profitability and growth, such as ROA, EPS, stock return and sales growth (Almeida, 2019).

In addition, firms should not prioritize the single benchmark policy. To achieve the single benchmark (e.g.,, EPS in our case), firms enhance the financial revenues and net financial payouts and ignore the investment opportunities, and thus leading to the distortion of investment efficiency. Instead of a single benchmark policy, firms may opt for achieving multiple benchmarks, or they may target a combination of short and long-term benchmarks (Almeida, 2019). Such a combination helps firms to manage both short-term decisions (e.g.,, financial revenues and financial payouts) and long-term objectives (e.g.,, investment efficiency). In parallel to firms, the investors should also pressure firms to prioritize such earnings benchmarks, which help firms manage both short- and long-term objectives.

Reference

Almeida, H. (2019). Is it time to get rid of earnings-per-Share (EPS)? *Review of Corporate Finance Studies*, *8*(1), 174–206. https://doi.org/10.1093/rcfs/cfy010

Almeida, H., & Campello, M. (2007). Financial constraints, asset tangibility, and corporate investment. *Review of Financial Studies*, *20*(5), 1429–1460. https://doi.org/10.1093/rfs/hhm019

Almeida, H., Campello, M., & Weisbach, M. S. (2004). The cash flow sensitivity of cash. *Journal of Finance*, *59*(4), 1777–1804. https://doi.org/https://doi.org/10.1111/j.1540-6261.2004.00679.x

Almeida, H., Fos, V., & Kronlund, M. (2016). The real effects of share repurchases. *Journal of Financial Economics*, *119*(1), 168–185. https://doi.org/10.1016/j.jfineco.2015.08.008

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, *68*(1), 29–51. https://doi.org/10.1016/0304-4076(94)01642-D

Auvray, T., & Rabinovich, J. (2019). The financialisation–offshoring nexus and the capital accumulation of US non-financial firms. *Cambridge Journal of Economics*, *43*, 1183–1218. https://doi.org/10.1093/cje/bey058

Barradas, R. (2017). Financialization and real investment in the European Union: beneficial or prejudicial effects? *Review of Political Economy*, *29*(3), 376–413.

Bernanke, B. S. (1983). Irreversibility, uncertainty, and cyclical investment. *Quarterly Journal of Economics*, *98*(1), 85–106. https://doi.org/10.2307/1885568

Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality improve investment efficiency? *Journal of Accounting and Economics*, *48*(2–3), 112–131. https://doi.org/10.2139/ssrn.1146536

Biden, J. (2016, September 26). How short-termism saps the economy: Paying CEOs so much in stock puts their focus on the share price instead of building for the long run. *Wall Street Journal*. https://www.wsj.com/articles/how-short-termism-saps-the-economy-1475018087

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*(1), 115–143. https://doi.org/10.1016/S0304-4076(98)00009-8

Bond, S., & Reenen, J. Van. (2007). Microeconometric Models of Investment and Employment. In *Handbook of econometrics* (6A ed., pp. 4417–4498). Elsevier. http://www.sciencedirect.com/science/article/pii/S1573441207060655

Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2005). Payout policy in the 21st century. *Journal of Financial Economics*, *77*(3), 483–527. https://doi.org/10.1016/j.jfineco.2004.07.004

Bulan, L. T. (2005). Real options, irreversible investment and firm uncertainty: New evidence from U.S. firms. *Review of Financial Economics*, *14*, 255–279. https://doi.org/10.1016/j.rfe.2004.09.002

Davis, L. E. (2018). Financialization and the non-financial corporation : An investigation of firm-level investment behavior in the United States. *Metroeconomica*, *69*(1), 270–307. https://doi.org/10.1111/meca.12179

Demir, F. (2009a). Capital market imperfections and financialization of real sectors in emerging markets: Private investment and cash flow relationship revisited. *World Development*, *37*(5), 953–964. https://doi.org/10.1016/j.worlddev.2008.09.003

Demir, F. (2009b). Financial liberalization, private investment and portfolio choice: Financialization of real sectors in emerging markets. *Journal of Development Economics*, *88*(2), 314–324. https://doi.org/https://doi.org/10.1016/j.jdeveco.2008.04.002

Duchin, R., Ozbas, O., & Sensoy, B. A. (2010). Costly external finance, corporate investment, and the subprime mortgage credit crisis. *Journal of Financial Economics*, *97*, 418–435. https://doi.org/10.1016/j.jfineco.2009.12.008

Erickson, T., Jiang, C. H., & Whited, T. M. (2014). Minimum distance estimation of the errors-in-variables model using linear cumulant equations. *Journal of Econometrics*, *183*(2), 211–221. https://doi.org/10.1016/j.jeconom.2014.05.011

Erickson, T., & Whited, T. M. (2012). Treating measurement Error in Tobin's q. *Review of Financial Studies*, *25*(4), 1286–1329. https://doi.org/https://doi.org/10.1093/rfs/hhr120

Farre-mensa, J., Michaely, R., & Schmalz, M. (2024). Financing Payouts. *Journal of Financial and Quantitative Analysis*, 1263. https://doi.org/doi:10.1017/S0022109024000231

Fazzari, S. M., Hubbard, R. G., & Petersen, B. C. (1988). Financing constraints and corporate investment. *Brookings Papers on Economic Activity*, *1988*(1), 141–206. https://doi.org/10.3386/w2387

Fried, J. M., & Wang, C. C. Y. (2019). Short-termism and capital flows. *Review of Corporate Finance Studies*, *8*(1), 207–233. https://doi.org/10.1093/rcfs/cfy011

Fried, J. M., & Wang, C. C. Y. (2021). Short-termism, shareholder payouts, and investment in the EU. *European Financial Management*, *27*(3), 544. https://doi.org/10.2139/ssrn.3706499

Furman, J. (2015). *Business investment in the United States: Facts, explanations, puzzles, and policies*.

Goodman, T. H., Neamtiu, M., Shroff, N., & White, H. D. (2014). Management forecast quality and capital investment decisions. *Accounting Review*, *89*(1), 331–365. https://doi.org/10.2308/accr-50575

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, *40*(1), 3–73. https://doi.org/https://doi.org/10.1016/j.jacceco.2005.01.002

Gunny, K. A. (2010). The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks. *Contemporary Accounting Research*, *27*(3), 855–888. https://doi.org/10.1111/j.1911-3846.2010.01029.x

Gutiérrez, G., & Philippon, T. (2017). Investmentless growth: An empirical investigation. *Brookings Papers on Economic Activity*, 89–190. https://doi.org/10.1353/eca.2017.0013

Harford, J., Kecskés, A., & Mansi, S. (2018). Do long-term investors improve corporate decision making? *Journal of Corporate Finance*, *50*, 424–452. https://doi.org/10.1016/j.jcorpfin.2017.09.022

Hecht, J. (2014). Is net stock issuance relevant to capital formation? Comparing heterodox models of firm-level capital expenditures across the advanced and largest developing economies. *Cambridge Journal of Economics*, *38*, 1171–1206. https://doi.org/10.1093/cje/bet070

Huang, S. (2022). Does FinTech improve the investment efficiency of enterprises? Evidence from China's small and medium-sized enterprises. *Economic Analysis and Policy*, *74*, 571–586.

https://doi.org/10.1016/j.eap.2022.03.014

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review*, *76*(2), 323–339. https://doi.org/10.2139/ssrn.99580

Kaplan, S. N. (2018). Are US companies too short-term oriented? Some thoughts. *Journal of Applied Corporate Finance*, *30*(4), 8–18. https://doi.org/10.1086/694409

Kaplan, S. N., & Zingles, L. (1997). Do financing constraints explain why investment is correlated with cash flow? *Quarterly Journal of Economics*, *112*, 168–216. https://doi.org/10.3386/w5267

Khan, M. K., He, Y., Akram, U., & Sarwar, S. (2017). Financing and monitoring in an emerging economy: Can investment efficiency be increased? *China Economic Review*, *45*, 62–77. https://doi.org/10.1016/j.chieco.2017.05.012

Ladika, T., & Sautner, Z. (2020). Managerial short-termism and investment: Evidence from accelerated option vesting. *Review of Finance*, *24*(2), 2286789. https://doi.org/10.2139/ssrn.2286789

Lazonick, W., & O'Sullivan, M. (2000). Maximizing shareholder value: a new ideology for corporate governance. *Economy and Society*, *29*(1), 13–35.

Lewellen, J., & Lewellen, K. (2016). Investment and cash flow: New evidence. *Journal of Financial and Quantitative Analysis*, *51*(4), 1135–1164. https://doi.org/10.1017/S0022109016000650X

Lin, Li, Y.-W., Cheng, T. Y., & Lam, K. (2021). Corporate social responsibility and investment efficiency: Does business strategy matter? *Inernational Review of Financial Analysis*, *73*, 101585. https://doi.org/10.1016/j.irfa.2020.101585

Mcnichols, M. F., & Stubben, S. R. (2008). Does earnings management affect firms' investment decisions? *Accounting Review*, *83*(6), 1571–1603. https://doi.org/10.2308/accr.2008.83.6.1571

Milano, G. (2018). Corporate short-termism and how it happens. *Journal of Applied Corporate Finance*, *30*(4), 27–35. https://doi.org/10.1111/jacf.12315

Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *Journal of Business*, *34*(4), 411–433. https://doi.org/https://www.jstor.org/stable/2351143

Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *Journal of Finance*, *40*(4), 1031–1051. https://doi.org/https://doi.org/10.1111/j.1540-6261.1985.tb02362.x

Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, *48*(3), 261–297.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221. https://doi.org/https://doi.org/10.1016/0304-405X(84)90023-0

Nasir, A. M., Ahmed, R., Muhammad Ayyoub, & Muhammad, M. (2024). Impact of financial revenues and net financial payouts on investment efficiency: Evidence from U.S. non-financial firms. *IRASD Journal of Economics*, *6*(2), 529–554.

https://doi.org/10.52131/joe.2024.0602.0222

Nasir, A. M., Zainudin, R., & Shahrin. (2022). Financial revenues, financial leverage, debt maturity, uncertainty and the underinvestment problem. *Finance a Úvěr-Czech Journal of Economics and Finance*, *72*(1), 71–101. https://doi.org/https://doi.org/10.32065/CJEF.2022.01.04

Orhangazi, O. (2008). Financialization and capital accumulation in the nonfinancial corporate sector: A theoretical and empirical investigation on the US economy, 1973-2004. *Cambridge Journal of Economics*, *32*(6), 149. https://doi.org/https://doi.org/10.1093/cje/ben009

Palley, T. I. (2008). *Financialization: What it is and Why it Matters* (04/2008; IMK Working Paper).

Peters, R. H., & Taylor, L. A. (2017). Intangible capital and the investment-q relation. *Journal of Financial Economics*, *123*(2), 251–272. https://doi.org/10.1016/j.jfineco.2016.03.011

Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, *11*(2–3), 159–189. https://doi.org/10.1007/s11142-006-9012-1

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, *42*(3), 335–370. https://doi.org/10.1016/j.jacceco.2006.01.002

Schauer, C., Elsas, R., & Breitkopf, N. (2019). A new measure of financial constraints applicable to private and public firms. *Journal of Banking & Finance*, *101*, 270–295. https://doi.org/https://doi.org/10.1016/j.jbankfin.2019.01.008

Seo, H. J., Kim, H. S., & Kim, J. (2016). Does shareholder value orientation or financial market liberalization slow down Korean real investment? *Review of Radical Political Economics*, *48*(4), 633–660. https://doi.org/10.1177/0486613415603159

Shin, H.-H., & Stulz, R. M. (1998). Are internal capital markets efficient? *Quarterly Journal of Economics*, *113*(2), 531–552. https://doi.org/10.1162/003355398555676

Stein, J. C. (1989). Efficient capital markets, inefficient firms: a model of myopic corporate behavior. *Quarterly Journal of Economics*, *104*, 655–669. https://doi.org/https://doi.org/10.2307/2937861

Stockhammer, E. (2004). Financialisation and the slowdown of accumulation. *Cambridge Journal of Economics*, *28*(5), 719–741. https://doi.org/10.1093/cje/beh032

Tobin, J. (1969). A general equilibrium approach to monetary theory. *Journal of Money, Credit and Banking*, *1*(1), 15–29. https://doi.org/10.2307/1991374

Tori, D., & Onaran, O. (2020). Financialization, financial development and investment. Evidence from European non-financial corporations. *Socio-Economic Review*, *18*(3), 681–718. https://doi.org/10.1093/ser/mwy044

Tori, D., & Onaran, Ö. (2018). The effects of financialization on investment: evidence from firm-level data for the UK. *Cambridge Journal of Economics*, *42*, 1393–1416. https://doi.org/10.1093/cje/bex085

Tornell, A. (1990). Real vs. financial investment: Can Tobin taxes eliminate the irreversibility distortion? *Journal of Development Economics*, *32*(2), 419–444. https://doi.org/10.1016/0304-3878(90)90045-D

Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, *105*(3), 581–606. https://doi.org/10.1016/j.jfineco.2012.03.005

Zhang, C., & Zheng, N. (2020). Monetary policy and financial investments of nonfinancial firms: New evidence from China. *China Economic Review*, *60*, 101420. https://doi.org/10.1016/j.chieco.2020.101420

Appendix

Table A1: Variables Description

Abbreviation	Variables	Definition
	Dependent Variables	
I	Real Investments	Cash outflows for the sum of purchase of fixed assets, acquisition of intangibles and software development costs divided by lag total assets
IE	Investment efficiency	Absolute values of residuals derived by (Goodman et al., 2014) model of real investment
UI	Underinvestment	Absolute values of negative residuals derived by (Goodman et al., 2014) model of real investment.
	Independent Variables	
Q	Tobin's *q*	Sum of market capitalization and total liabilities divided by replacement cost (Total Asset)
CF	Cash Flow	Operating Cash flows divided by lag total assets
AG	Asset Growth	The difference in total assets with lag total assets discounted by the lag total assets
FR	Financial Revenues	Cash inflow for the sum of interest income, dividend income and capital gain from the sale of securities divided by lag total assets
NFP	Net Financial Payouts	Sum of cash flows from shares repurchases, cash dividends and interest paid minus new equity issuances and net of debt issuance and payments divided by lag total assets
	Interaction variables	
EB	Earnings Benchmarks	EPS Difference Earnings Benchmark = An indicator variable that becomes one if the current-year EPS is greater than or equal to last year's EPS, otherwise zero. EPS Zero Earnings Benchmark = An indicator variable that becomes one if the current-year EPS is greater than or equal to zero, otherwise zero.

EPS	Earnings Per Share	Net Income after tax divided by the number of outstanding shares.
	Other Control Variables	
TA	Firm Size/ Log Total Assets	Log of total assets
MB	Market to Book Ratio	The closing price of shares divided by book value per share
ROA	Return on Assets	Net income after tax divided by average total assets
SR	Stock Return	52-week total stock return
FL	Financial Leverage	Total Liabilities divided by Total Assets
ROAv	Return on Assets volatility	The last three years' standard deviation of return on assets
SRv	Stock Return Volatility	Annualized standard deviation calculated from daily stock returns