

**A REVIEW OF SHORT-TERMISM AND ITS RELATIONSHIP
WITH INVESTMENT EFFICIENCY**

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Abstract

This study reviews the extant literature on short-termism and its effect on real investments and investment efficiency. To do so, we gathered, review and represented the major literature explaining the short-termism and its effect on real investments and investment efficiency. With the help of detailed literature, we found that short-term decisions and short-term objectives lead to underinvestment and explain the short-termism phenomenon. However, this study identified that firms take myopic decisions to achieve their short-term objectives. By achieving the short-term objectives, they ignore the long-term investment decisions; therefore, they end up with underinvestment. Based on this justification, this study proposed that short-term decisions and short-term objectives simultaneously affect the investment efficiency through one larger framework. The existing study lacks the identification of the combined framework of short-term decisions, short-term objectives and investment efficiency. The future research may investigate the proposed framework to empirically understand the phenomena.

Key Words: Short termism, Investment Efficiency, Financial Revenues, Financial Payouts, Earnings Benchmarks, Stock-based Compensation

Introduction

In recent decades, the behavior of corporate managers has been transmitted toward the short-termism approach of real investments more specifically in high-income countries. In a short-termism scenario, corporate managers, investors and analysts join hands to enhance the short-term results and impair the long-term organizational benefits (Dallas, 2011; Marginson & Mcaulay, 2008). Managers misallocate cash flows in inefficient projects that provide short-term higher benefits (Admati, 2017). However, such exploitation of cash flows impairs long-term organizational goals. This study reviews the current knowledge on short-termism, and propose new paradigm for future research in understanding the short-termism and its relationship with investment efficiency.

The existing studies exerted their efforts to investigate the real investment issue through short-termism perspective. These studies are divided into two strands. One group of studies investigates the financing-real investment nexus (Auvray & Rabinovich, 2019; Tori & Onaran, 2020, 2018). 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 and stock-based compensation; hence, they ignore investment opportunities and thus underinvest (Almeida, 2019; Harford et al., 2018). This study reviews both approaches and then propose a combine approach in one larger framework.

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. 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 reviewed the major literature initiating from famous finance research of (Modigliani & Miller, 1958) to date, to understand the comprehensive nature of investment efficiency in relation to short-termism. This literature includes the theoretical relationship between short-termism and real investment, and the empirical nexus of real investments with short-term decisions, financing, short-term objectives and corporate governance. Based on the existing literature, this study proposes a conceptual framework for future research.

The remainder of the article is distributed as follows. Section 2 discusses extant literature regarding current short-termism practices in advanced countries. We review the major theoretical investigations in relation to short-termism in section 3. Section 4 examines the extant literature regarding short-term decisions and their relationship with real investments. Section 5 discusses the literature on short-term objectives that may explain the behavior of real investments. We propose the combined framework in section 6, and section 7 provides the conclusion and recommendations for future research.

Short Termism and Factors Explaining the Investment Efficiency

“Short-termism” represents the firms’ preference for short-term returns at the cost of long-term goals. Firms inflate short-term profitability and reduce real investments despite extant investment opportunities. Firms reap short-term profits because a significant percentage of executive remuneration is a function of current profitability. Besides, short-horizon shareholders also compel firms to enhance their current profitability (Narayanan, 1985a; Stein, 1989).

The extant literature indicate three interlinked phenomena, which explain the short-termism. First, Businesses make myopic corporate choices¹. For instance, firms increase financial investments (investment in financial market securities) for higher financial revenues. Companies also increase financial payouts (Miller & Rock, 1985; Tori & Onaran, 2018). Second, managers make these choices to meet immediate organizational objectives, such as achieving earnings benchmarks (Gunny, 2010) or enhancing managers’ stock-based compensation (Edmans, Fang, et al., 2017). Finally, these decisions distort investment efficiency and lead to underinvestment (Gutiérrez & Philippon, 2017, 2018).

During short-termism, profitability leads the organizational objective, while growth is ignored (Liao, 1975). Barkai (2020) found that profits replaced both the labor share and capital share within the production function of the US since 1997. The decline in capital share is 22%, while the decline in labor share is 11%, and the share of pure profits increased by 13.5% during the same period. In absolute figures, profits increased by \$1.2 trillion from 1997 to 2014. This substantial increase in profits at the cost of the share of labor and capital would reduce production and real investments.

Studies show that real investments are reduced in comparison to investment opportunities and cash flows (Gutiérrez & Philippon, 2017; Tori & Onaran, 2020). The real investment slowdown is inconsistent with low-interest levels, high business confidence and a recovery in the unemployment rate (Biden, 2016; Fernald et al., 2017). Detailed analysis reveals that real investment slowdown is not reflected even by the financial crisis but reduction in the growth of total factor productivity and labor force participation. This scenario existed even before the crisis (Fernald et al., 2017). The slowdown in real investments impairs workers and wage productivity (Biden, 2016; Furman, 2015).

Biden (2016) argues that this reduction in real investments is due to short-termism and short-termism derived from policies and practices, which have drastically reduced the firm value. The higher executive compensation, extremely high unregulated shares repurchase, investment destroying activist investors and culture of quarterly profitability, all are examples of value eroding policies and practices. Among others, financial payouts are some of the most important factors that explain the underinvestment in US NFCs.

¹ Corporate myopia is interchangeably used with short-termism in the existing literature, which refers to the preference for short-term returns at the cost of long-term goals (Laverty, 2004).

Lazonick (2014) claims that shares repurchases and dividends constitute 91% of net income in the S&P 500 firms, which impairs real investments. According to Furman (2015), payouts of nonfinancial corporations account for approximately half of their cashflows. Fried & Wang (2019, 2021) inform that even net financial payouts (financial payouts minus external financing) are 41% of net income. Gutiérrez & Philippon (2018) suggest that financial payout is a significant reason for underinvestment.

In addition to the financial payouts, firms are also selecting the short-term option to invest the cash flows. This selection is motivated to enhance the firms' short-term profitability. Among others, one primary short-term investment method is the investment in financial assets. Financial investments are made because they help firms realize rapid financial revenues. Hence, firms enhance their financial revenues at the cost of investment efficiency (van der Zwan, 2014).

This shift toward financial revenues and financial payouts at the cost of investment opportunities results from short-term earnings benchmarks. According to Graham, Harvey, & Rajgopal (2005), 78% of American financial executives agree to forgo economic value to achieve short-term earnings forecasts. They are eager to achieve short-term earnings benchmarks because this is what is demanded by the financial markets. Almeida (2019) concludes through a meta-analysis that short-term investors pressure firms to enhance short-term profitability. Firms, in response, forgo profitable investment opportunities and underinvest to facilitate short-term earnings benchmarks. This aggressive short-term behavior of investors has emerged through an evolutionary process. Lazonick & O'Sullivan (2000) explain that before 1970s, 90% of the stock market was led by households, who were patient investors. Nevertheless, since the post-70s, impatient, active and quick results-oriented institutional investors took the lead, which changed the planning horizon of NFCs. The shareholding of households decreased to 42% in 2000 and ownership of institutional investors increased to 46% during the same period. While institutional investors increased short-term stock trading from 20% in the 1960s to more than 100% in 2002, which drastically improved the capital gains and made the long-term organizational performance irrelevant even for rational long-term investors (Aalbers, 2017; Crotty, 2003; Lazonick & O'Sullivan, 2000). Guillén (2014) asserts that increasing the short-term stock price is now the prominent objective of NFCs.

In parallel to the investors' paradigm, there is an evolutionary process to executive selection and remuneration. Lazonick & O'Sullivan (2000) explain that managers in the early nineteenth century were selected from the internal hierarchy of firms. The executives were rewarded through the regular reward system of firms. Conversely, since 1970s, the selection of top managers started from outside the organization. The stock option and stock awards became a prominent reward system for managers, and both these rewards were dependent on the current stock performance (Aalbers, 2017; Lazonick & O'Sullivan, 2000). Biden (2016) states that stock-based compensation within the executive compensation drastically increased from 25% in 1980s to 60% in 2008 within the S&P 500 firms, which indicates a high proportionality in executive pay with the share price. This extreme proportionality of executive remuneration with

the short-term stock price led firms to prioritize short-term returns over investment opportunities. The managers' motivation for short-term profitability is stock-based compensation. Ladika & Sautner (2020) reveal that managers are prone to short-termism and reduce real investments when they are entitled to realize their stock-based compensation.

To sum up this section, the detailed theoretical and practical review of the real investment behavior of firms reveals that they have drastically underinvested in recent years. While short-termism is one prominent reason for this underinvestment. Short-termism is motivated by stock-based compensation and the motivation to enhance the short-term earnings benchmarks. The enhancement of financial payouts, short-term investments (e.g., financial investments) and short-term revenues (e.g., financial revenues) are prominent methods for achieving the earnings benchmarks and to improve the stock based compensation.

Review of Short-termism theory

According to the short-termism theory, firms prioritize short-term benefits over long-term goals. The justification for such a behavior is interpreted differently by different theorists of short-termism. This discussion of short-termism includes two components. First, what short-term actions do firms take that escalate the short-term objectives at the cost of long-term benefits? Second, what short-term objectives lead firms to ignore those long-term benefits?

One of the short-term actions is investing in financial assets and maximizing its subsequent financial revenues. In this context, Tobin (1965) states that, as per neo-classical theorists, real investment is the only option for the corporate investment portfolio. However, he argues that when investors have a portfolio investment choice between real and financial assets, they may shift to financial assets if they do not receive the warranted rates of return from the real investments. This phenomenon would reduce real investments and, alternatively, enhance the financial investments in the economy.

Similarly, Tornell (1990) theoretically asserts that investors prefer to delay real investments when rates of return on real investments are low. In the meantime, they utilize their funds in financial investments to earn profits from their savings. The higher financial revenues, compared to return on real investments, encourage investors to increase their financial investments. The higher financial investments will result in underinvestment in the real sector (Tornell, 1990). This interpretation suggests that higher financial revenues increase financial investments and decline real investments.

In addition to the fact that financial revenues are usually higher than the return on real assets, firms also prioritize financial revenues because they earn financial revenues in the short term and the return on real investments is a long-term phenomenon. Stein (1989) asserts that corporate managers behave myopically to raise current benefits at the cost of long-term goals. Managers know that investors benchmark the current earnings to forecast future earnings. Therefore, managers inflate current earnings to manipulate the stockholders' signals, invest in short-term assets (e.g., financial assets)

and ignore efficient long-term projects. Higher current earnings wrongly signal high future earnings to investors. This manipulated signal encourages the investors to artificially push the prices of stocks higher, which increases the stock return in the short term but distorts investment efficiency. Managers invest in inefficient projects that provide higher short-term returns than real investments and forgo profitable investment opportunities.

While understanding the short-termism process, through which firms enhance their financial revenues at the cost of investment efficiency, it is pertinent to explain the justification for such a behavior. According to Shleifer & Vishny (1990), arbitrage in long-term investment projects is more expensive than in short-term projects. It is because the probability of underpricing in the long-term investment project is higher since the fundamental uncertainty of long-term projects exists for the long term. At the same time, this fundamental uncertainty resolves in the short term for short-term investment projects. As a result, risk-averse firms prefer to avoid investing in long-term projects to avoid long-term, long consequent, probably underpriced projects. In this way, the short-horizon arbitrage motivates the short-horizon managerial decision-making. Hence, firms prefer to invest in short-term projects (Shleifer & Vishny, 1990). In contrast to the arbitrage view, Von Thadden (1995) is of the view that the managerial career horizon encourage firms to proceed with short-termism. According to Von Thadden (1995), managers fear that shareholders will terminate them if they do not perform in the short term. This fear of the short career horizon forces them to expose firms to myopic behavior. External financing further induces this myopic behavior. With external financing, information asymmetry exists. Moreover, because of the information asymmetry, managers believe that they have to depict their performance early; otherwise, their careers will be at risk. The project quality, efforts on the project and the probability distribution of returns are not directly observable by external investors. Early positive returns signal long-term profitability, but bad returns in early years may increase the fear of early manager termination. Thus, firms prefer to invest in short-horizon projects to realize short-term profitability (Von Thadden, 1995).

Milbradt & Oehmke (2015) also conclude with similar findings. They model the interdependence of financing and real investment decisions and explain that the financing cost of long projects is higher than that of short-term projects. So, higher financing costs of long-term real investment projects encourage firms to choose short-term investment options. Nevertheless, this shift toward short-term investment projects by ignoring the efficient real investment opportunities results in inefficient real investments and ultimately inclines firms to short-termism.

While Narayanan (1985a) postulates that managers with their superior knowledge regarding investment opportunities, boost short-term profitability at the cost of long-term benefits to improve their reputation earlier, enhancing their remuneration. According to Narayanan (1985b), managers prefer to invest in projects with a faster payback period. Managers are inclined toward faster payback because their remuneration depends on performance, measured through early payback. Besides, managers can improve their reputation through the early payback as well. Reputation

reflects managerial ability, and the reflection of ability helps managers enhance their future remuneration. Thus, managers can increase their current and future remuneration by making early payback.

The detailed discussion reveals that firms prefer to invest in short-term projects (financial investments) for higher short-term returns (financial revenues). Nonetheless, this priority results in the underinvestment of efficient long-term projects. These studies explain that earnings benchmarks, risk-averse managerial behavior, managerial career horizon, managerial remuneration and external financing are some of the primary justifications for such an investment behavior.

In addition to financial revenues, the short-termism theory also explains the relationship between financial payouts and net financial payouts with investment efficiency. According to Miller & Rock (1985), managers possess better information than investors in the market of information asymmetry. In this situation, payout or financing policy does not provide any superior information to current earnings for the present situation of businesses. However, payouts or financing policy may signal future profitability. Higher current payouts or lower current external financings signal higher future profitability. With this knowledge, firms increase payouts or decrease external financing to signal higher future profits. With lower funds, through higher payouts or lower external financing, firms give up potential investment opportunities. Investors respond by inflating the stock price in the short term and managers enjoy private pecuniary benefits through the inflated stock price, and the real investment becomes inefficient (Miller & Rock, 1985).

In summary, financial payouts net of external financing (net financial payouts) may impair investment efficiency and result in underinvestment. To inflate the current profitability and stock return, and to achieve the earnings benchmarks and targeted stock-based compensation, firms increase the financial payouts net of external financing. The higher net financial payouts reduce the cash flows to be exploited for investment opportunities. Thus, the under-exploitation of investment opportunities would result in underinvestment.

Therefore, firms proceed toward short-term investments and net financial payouts and distort the investment efficiency to achieve short-term profitability benchmarks and stock-based compensation. We intend to propose that short-term decisions affect investment efficiency with an interacting effect of short-term objectives.

Review of Short Term Decisions

Among others, this study identified two important short-term decisions based on existing literature, which potentially affect the investment efficiency through short-termism channel. These decisions include, financial investments and their subsequent financial revenues, and financial payouts and net financial payouts. These factors and their relationship with real investments and investment efficiency are discussed in detail in sections 4.1 and 4.2.

Role of Financial Investments and Financial Revenues

Financial investments are the investment in financial assets, including the debts and equities of other firms, and financial revenues are the dividends, interest and capital gains derived through those investments (Stockhammer, 2004). Demir (2009b) claims two important reasons for financial investments; one is the rate of return gap between financial investments and fixed assets. The higher return on financial investments induces firms to divert the cash flows from real assets to financial assets. The second significant reason is the higher risk attached to real investments. Demir (2009b) proposes and tests the trade-off methodology for investments. He proves that firms use investment decisions as a portfolio choice between real and financial investments. Financial investments increase as an alternative to real investments. However, Demir (2009b) ignores the risks aligned with financial investments. He assumes that real investments are risky and financial investments are riskless. However, Zhang & Zheng (2020) consider both assets as risky assets and find that risk and uncertainty are significant factors in explaining financial investments.

Furman (2015) is skeptical of how US NFCs manage profitability without growing the size of real investments. This mystery resolves through an investigation of growing financial revenues. The literature identifies that to earn higher financial revenues; managers increased their investment in financial assets in recent years (Duchin et al., 2017; Stockhammer, 2004).

Nonetheless, Stockhammer (2004) discovers that financial revenues adversely affect real investments of NFCs in the US, UK, France, and Germany. Orhangazi (2008) finds similar results for the US from 1973 to 2003. Demir (2009b) investigates the effect of the rate of return gap between financial and real investments, and the uncertainty of real and financial investments. They use the data from Argentina, Mexico and Turkey during the 1990s and claim that both rate of return gap and uncertainty negatively affect real investments and positively affect financial investments. Clévenot, Guy, & Mazier (2010) show a negative relationship between financial revenues with real investments after employing the macroeconomic data of France. Similar results are obtained by (Davis, 2018; Hecht, 2014).

Tori & Onaran (2020, 2018) suggest that higher financial revenues enhance financial investments, which further reduce cash flows to be exploited in real projects. Similarly, Duchin et al. (2017) show that 40% of NFCs' cash holdings are invested in risky financial assets, which otherwise could be invested in real assets suggesting that firms are increasing their financial revenues at the expense of real investment opportunities. In the same line, Richardson (2006) claims that 41% of firms' free cash flows are either utilized in financial investments or kept in cash. Demir (2009a) confirms that in addition to the financial revenues, profits from real investments are also utilized for financial investments. He investigates the effect of profits from real investments on real and financial investments and concludes that real sector profits increased financial investments. However, these profits are not utilized further for real investments.

Nonetheless, Schoder (2014) does not find any robust relationship between financial revenues and real investments in the US NFCs. Similarly, Seo, Kim, & Kim (2016) could not find any robust relationship between financial revenues and real investments in South Korean NFCs. However, Schoder (2014) and Seo, et. al. (2016) do not explain the weak relationship between financial revenues and real investments. Based on the detailed review of the existing literature, this study assumes that financial revenues impair the investment efficiency of underinvesting firms. This belief is based on the short-termism theory. To improve their short-term profitability, firms increase financial investments. Resultantly, higher financial revenues motivate firms to continuously raise financial investments. During this process, firms ignore potential investment opportunities and lead to underinvestment.

Net Financial Payouts and Investment Efficiency

The existing evidence suggests that in addition to the financial revenues, net financial payouts are one significant factor leading to the underinvestment problem (Tori & Onaran, 2020). This pattern of underinvestment is general, specifically in advanced countries. For example, Strauss & Yang (2020) claims that real investment rates in 18 countries decreased from 1994 to 2017. Strauss & Yang (2020) concludes that the corporate sector is a net exporter of funds, as firms utilize both their internal cash flows and external financing on the financial payouts. This tendency toward financial payouts reduces real investment rates.

According to Mason (2015), cited in Palladino (2020), corporate funds from borrowing and internal cash flows are increasingly used for financial payouts instead of potential investment opportunities within the US NFCs. He finds that over the past four decades, the enhancement in real investment reduced from forty cents to ten cents with one additional dollar of earnings or borrowing, while at the same time, payouts more than doubled. Similarly, Furman (2015) claims that payouts of nonfinancial corporations in the US are approximately half of their cashflows; these cashflows could otherwise be invested in real assets.

Nonetheless, Fried & Wang (2019) argue that net financial payouts are only 41% of net income. They argue that net financial payouts should reduce underinvestment and enhance investment efficiency. They determine that firms pay out free cash flows and issue new shares whenever they find a profitable investment opportunity. Fried & Wang (2021) came up with a similar conclusion.

Conversely, Farre-mensa et al. (2024) argue that a substantial portion of firms' external finances is raised to facilitate financial payouts ignoring real investment opportunities. Farre-mensa et al. (2024) show that over 42% of firms finance their payouts through new equity and debt issuances. 39% of new debt issuances and 19% of new equity issuances are financed to payouts. While 32% of payouts are financed by external financing. When we add the employee stock option, 41% of payouts are financed by external financing. This notion of financing the payouts indicates that even external financing is not intended to improve investment efficiency but to facilitate financial payouts.

The statistics also support the arguments that equity issuances are not intended for real investment but for facilitating financial payouts. For example, Hecht (2014) claims that the net stock issuances remained \$-0.17 on average from 1980 to 2012, reflecting that firms' repurchases were greater than the new stock issuances. Lazonick (2014) comes up with a similar conclusion. According to him, net equity issues were - \$376 billion per year on average during the past decade. Palley (2008) graphically shows that net equity issuance was positive from 1959 to 1980; however, it has been negative since the 1980s. Other studies also claim that an increase in financial payouts, including dividends, interest, and shares repurchase decreases real investments (Barradas, 2017; Barradas & Lagoa, 2017; Boudry et al., 2013; Brav et al., 2005, 2008; Dallery, 2009; Davis, 2018; Gutiérrez & Philippon, 2018; Hecht, 2014; Orhangazi, 2008; Sakinc, 2017; Tori & Onaran, 2020, 2018; Treeck, 2009). These studies confirm that firms utilize a major chunk of internal cash flows and external financing on the financial payouts. This utilization of cash flows on financial payouts results in the underinvestment of real assets.

While considering that shares repurchases and dividends negatively affect real investment decisions, this section further discusses the reasons for such a detrimental relationship. Fink (2015) states that higher shares repurchases and dividends strengthen the short-termism perspective against the backdrop of underinvestment and long-term growth. In this scenario, Hribar, Jenkins, & Johnson (2006) conclude that share repurchases reduce real investments, specifically when firms intend to meet or beat the forecasted EPS. Recently, Almeida et al. (2016) found similar results. Bessler, Drobetz, Seim, & Zimmermann (2016) discover that short-term profitability is a strong reason for financial payouts in general and share repurchases in specific.

Managers are also motivated to enhance payouts since their remuneration is linked to short-term stock prices. The short-term stock price would improve with higher dividends and shares repurchases. Thus, the personal interests of the managers and the demand for short-term profitability from the institutional investors result in higher payouts in the short term. Rising financial payouts will decrease real investments if financial constraints exist. In such a situation, higher financial payouts dry out the internal cash flows to be invested in real investment opportunities (Orhangazi, 2008). To sum up the existing literature on the relationship between net financial payouts and investment efficiency, we find that a significant proportion of the existing studies are in a view that financial payouts impair real investments. However, the current study finds two issues in the flow of the existing studies, which provide an empirical gap to be studied.

First, the existing studies evaluated the effect of individual components of financial payouts and external financing on real investments. Hecht (2014) argues that including only new stock issuances or stock repurchases in isolation in the real investments model would overestimate their effect on real investments. Therefore, Hecht (2014) proxies a composite variable of net equity issuances (new equity issuances minus shares repurchases) to gauge the nexus of financing, payouts and real investments. This study argues that ignoring the dividends, interest and debt financing would underestimate the effect of net financial payouts on investment efficiency.

Therefore, this study proposes to investigate the effect of the composite proxy of net financial payouts (that includes all external financial payouts minus all external financings) on investment efficiency.

Second, the existing studies evaluated the real investment phenomenon. While this study assumes that net financial payouts distort investment efficiency and result in underinvestment. Consequently, instead of real investments, this study considers investment efficiency as the proxy for investment efficiency better helps to understand the problem of underinvestment.

Review of Short Term Objectives

In the previous section, we discussed how short-term decisions such as financial revenues and net financial payouts affect investment efficiency; this section moves forward and reviews the prime objectives for these short-term decisions.

Role of Earnings Benchmarks

Among others, role of earnings benchmarks is significant in amplifying the effect of financial revenues and net financial payouts on investment efficiency. While signifying the importance of earnings benchmarks, Graham et al. (2005) conclude through a survey study that 73.5% of American chief financial officers agree that earnings targets are the most important performance targets. 55% of executives avoid taking a positive net present value project if they have to achieve an earnings benchmark. Firms perceive that if they miss an earnings target, their earnings will be unpredictable and the returns will become volatile, risky and uncertain, ultimately reducing the stock price.

Graham et al. (2005) further explain regarding firms that are unable to meet earnings targets, even with a penny, are punished with low stock prices because it indicates a hidden problem within firms. These firms sacrifice the value to attain the earnings benchmarks because they perceive that missing the benchmark would result in higher costs in comparison to forgoing an investment opportunity (Graham et al., 2005). Similarly, based on a survey of 401 senior financial executives of US firms and in-depth interviews with an additional 22 executives, Graham, Harvey, & Rajgopal (2006) document the willingness of corporate executives to routinely sacrifice shareholder value to meet earnings expectations or to smooth reported earnings.

Bartov, Givoly, & Hayn (2002) find that firms that meet or beat earnings benchmarks enjoy higher short-term returns than those that miss the benchmark. While the long-term benefits depend on the motivation, whether benchmarks are achieved genuinely or result from earnings management. In the same way, Bhojraj, Hribar, Picconi, & Mcinnis (2009) states that firms meeting or beating the earnings benchmarks by cutting the discretionary expenses and with low-quality earnings exhibit better short-term stock performance than firms missing the benchmarks with high-quality earnings. Though, in the long-term of approximately three years, everything reverses. This myopic behavior is beneficial in the short term but detrimental to long-term performance and real investments (Bhojraj et al., 2009).

Likewise, Terry (2017) models and tests the earnings benchmark through the lens of short-termism and explains that firms that meet the earnings benchmarks reduce the

R&D and capital expenditures, and firms missing the earnings benchmarks would end up with lesser executive remuneration. Terry (2017) concludes that achieving earnings benchmarks improves the short-term organizational value on the cost of long-term growth and consumer welfare. Dimon and Buffet (2018) cited in Almeida (2019) also state that quarterly EPS guidance is harming real investments and long-term growth. Their instance is supported by 200 leading American CEOs. Other studies conclude that earnings benchmarks reduce R&D growth as well (Bhojraj et al., 2009; Roychowdhury, 2006).

The earnings benchmarks reduce the real investments through the corporate short-term decisions. One such short-term decision is the investment in financial assets. Scholars consider that firms prioritize short-term financial investments over real investments to attain earnings benchmarks (Demir, 2009b, 2009a; Orhangazi, 2008; Tori & Onaran, 2020, 2018). Firms divert their cash flows toward financial assets by ignoring investment opportunities for the sake of achieving earnings benchmarks. Consequently, firms intending to achieve earnings benchmarks increase financial revenues at the expense of investment efficiency.

Moreover, financial payouts are another method to facilitate the achievement of earnings benchmarks. Brav et. al. (2005) surveyed 384 financial executives and conducted interviews with additional 23 executives and find that attaining the short-term earnings benchmarks is one of the valuable reasons for financial payouts. Additionally, Hribar et al. (2006) claim that the realization of forecasted Earnings per share (EPS) leads to shares repurchases. While Almeida et al. (2016) state that EPS motivation to share repurchases reduces real investments and employment. Brav et. al. (2005) claim that EPS management encourages firms to increase financial payouts that results in underinvestment. Firms take payouts and real investment decisions to meet earnings benchmarks (Almeida, 2019). Besides, Gutiérrez & Philippon (2017) state that the investors' demand for short-term returns escalated the emphasis on quarterly earnings, and firms achieve these targets through higher payouts and by deteriorating the investment efficiency. The discussion indicates that in their attempts to attain earnings benchmarks, firms channel external financing toward financial payouts, which enhances the size of net financial payouts and results in underinvestment. This study assumes that earnings benchmarks influence the effect of net financial payouts on investment efficiency.

Role of Stock-Based Compensation

Before proceeding to examine the role of stock-based compensation in explaining the behavior of investment efficiency, it is necessary to discuss the importance of stock-based compensation within executive compensation. In this scenario, studies evidence that stock-based compensation has emerged as the largest component of executive remuneration over the years.

Edmans, Gabaix, et al. (2017) conclude through a review study that current stock performance determines a significant component of managerial compensation of modern public firms. This relationship between stock performance and managerial compensation has remarkably increased during the last two decades. Bettis et al.

(2018) discover that performance-based compensation raised from 20 to 70 percent of total compensation during 1998 to 2012 period among the 750 biggest U.S. public firms. These compensations are highly correlated with stock performance, accounting performance (ROA), and firm risk. These performance matrices may be market share, sales growth, or customer satisfaction. Another study found that from 1992 to 2012, the stock-based compensation (either stock options or stock awards) of top executives in S&P 500 firms remained between 55% to 86% of total remuneration (Lazonick, 2014). Nevertheless, as per Lazonick (2014), these awards are given to the managers to achieve EPS targets in place of stock performance.

While according to Bettis et al. (2018), because of the dependence of executive compensation on stock performance, the marginal response in the executive compensation is 33% higher to the change in the stock price compared to the condition where no stock-based compensation is offered, while the average response is 75% higher. These results suggest that performance based awards linked managerial priorities with the stock price.

However, the rise in stock-based compensation encourages firms to take short-term decisions, as short-term decisions help firms to enhance executive remuneration. One such short-term decision is the investment in financial assets. Financial investments enhance financial revenues, and higher financial revenues increase the profitability and stock return and subsequently help firms to achieve higher stock-based compensation (Tori & Onaran, 2020). Lin & Tomaskovic-Devey (2013) evidence that financial revenues increase executive remuneration in general and stock-based compensation in specific.

Similar to financial revenues, stock-based compensation motivates the shares repurchases as well. Since higher repurchases increase the stock price, and the value of stock options and stock awards held by the top executives would also grow (Lazonick, 2014). According to Lazonick (2014), firms repurchase the shares to achieve the short-term earnings benchmarks, which resultantly raise the stock return, and managers would ultimately get higher remuneration through stock-based compensation. Likewise, Cheng, Harford & Zhang (2015) show that when a CEO's compensation is directly tied to EPS and EPS is right below the bonus award threshold, the firm is more likely to conduct a share repurchase. Other studies also evidence that repurchases are intended to improve the stock based compensation (Palladino, 2020).

In addition to the repurchases, stock-based compensation motivates the dividends as well. For example, Benmelech et al. (2010) claim that firms pay higher dividends when no investment opportunities are available. Firms pay higher dividends to signal the availability of investment opportunities. In this manner, executives may retain their positions and higher stock-based compensation. But, in the long-term, firms will have to underinvest in high-growth investment opportunities to sustain the prior years' payout ratio. The analysis of Benmelech et al. (2010) shows that stock-based compensation alters dividend decisions as well.

Nonetheless, the decisions toward higher financial revenues and financial payouts to gain higher stock-based compensation might also affect the firm long-term

performance, risk, real investments and financial policy. In the same line, Brisley (2006) reports that the implementation of stock-based compensation is originally designed to encourage managers toward risk-taking and investing in available investment opportunities, but the motivation to realize the stock options in the short-term diverts the focus of the firms toward short-termism and firms reduce the exploitation of investment opportunities. This is why, Benmelech et al. (2010) suggest that the stock-based compensation should not be above 40% of remuneration, otherwise managers will start to hide the truth and prioritize short-term options at the cost of long-term benefits.

Edmans, Fang, et al. (2017) show that managers are prone to short-termism by reducing the real investments in the periods when stocks and options to the managers are scheduled to be vested. Vesting refers to the period when managers can exercise the trade of their options or stock (Bettis et al., 2018). Edmans, Fang, et al. (2017) conclude that managers aggressively sacrifice real investments and take short-term decisions in periods of equity vesting. Similar results are found by number of other studies as well (Brisley, 2006; Kuang, 2008; Ladika & Sautner, 2020; Laux, 2012; Marinovic & Varas, 2019).

Moving forward, the stock-based compensation is not only related to the financial revenues, net financial payouts and investment efficiency but it is linked with the earnings benchmarks as well. According to the existing literature, stock-based compensation enhances the financial revenues and financial payouts and increases the underinvestment to achieve the earnings benchmarks. As per Bennett et. al. (2017), when executive compensation is linked with the performance based on a single benchmark, then a large number of firms beat the benchmark by a little margin as compared to the firms that miss it. Firms that achieve the benchmark by a small margin most likely achieve the benchmark next year, and firms that miss it are forced with managerial turnover. Consequently, firms prioritize achieving the earnings benchmark to retain the executive position (Almeida, 2019; Bennett et al., 2017; Q. Cheng & Warfield, 2005).

The detailed discussion on the importance of stock-based compensation, its link with financial revenues, financial payouts, investment efficiency and earnings benchmarks and the subsequent justifications for the link between these variables with the stock-based compensation leads this study to the following assumption. This study assumes that firms' eagerness to boost the stock-based compensation leads to the achievement of earnings benchmarks. The efforts for achieving the earnings benchmarks direct firms to enhance financial revenues and net financial payouts, which result in investment efficiency distortion in terms of underinvestment.

Conceptual Framework

The current study observes that extant literature on short-termism has evidenced the reasons why firms underinvest (Almeida, 2019; Ladika & Sautner, 2020) and what corporate decisions firms take that result in the underinvestment (Tori & Onaran, 2020). However, both reasons and the corporate decisions to underinvestment are

investigated in distinct frameworks, yet both are the components of one larger framework.

Besides, the emphasis of existing studies has largely been on examining the effect of short-termism on the size of real investments. However, the very focus of the short-termism theory is investment efficiency rather than the size of the real investments (Stein, 1989). Short-termism theory builds that firms underinvest for short-term earnings goals.

Additionally, the reduction of real investments is not a problem because real investments reduce to address the agency problem of free cash flows (Jensen, 1986). However, underinvestment is a significant problem since it impairs long-term value, growth and productivity (Biden, 2016).

This study proposes to tackle these issues first by investigating the effect of myopic corporate decisions (financial revenues and net financial payouts) on investment efficiency. Second, this review assumes to incorporate the short-term objectives (earnings benchmarks and stock-based compensation) in the framework. Once this framework is examined for the investment efficiency of overall NFCs, future studies may investigate the underinvestment sub-sample. With this integration, future studies may explore the interacting effect of financial revenues and net financial payouts with earnings benchmarks and stock-based compensation on underinvestment. The proposed framework is deliberated in figure 1.

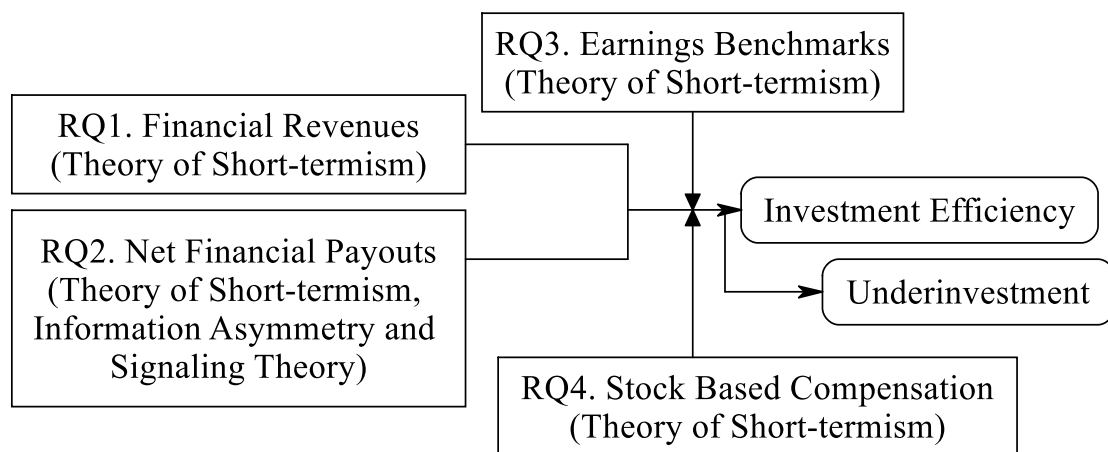


Figure 1: Conceptual Framework

Conclusion

The current study reviewed the extant literature on short-termism and its effect on investment efficiency. We reviewed the major literature initiating from famous finance research of (Modigliani & Miller, 1958) to date to understand the comprehensive nature of investment efficiency in relation to short-termism. The review of detailed literature revealed that the existing literature on short-termism is distributed in two distinct paradigms. One group of researchers focused on how short-term decisions affect the long-term organizational goals such as real investments and

investment efficiency. These studies investigated the effects of financial investments, financial revenues and financial payouts on real investments. While the second group of studies investigated the role of short-term objectives in determining the real investment behavior. This group of researchers proxied the earnings benchmarks and stock based compensation as the representative of short-term objectives.

The literature suggests that both short-term decisions and short-term objectives lead to short-termism and results in underinvestment. However, the current study observes that both short-term objectives and short-term decisions are components of one larger framework. Therefore, short-term decisions interact with short-term objectives and their interaction affects the investment efficiency. The existing literature lacks the identification of the proposed larger framework of the interaction between short-term decisions, short-term objectives and investment efficiency. The investigation of this larger framework will truly reflect the short-termism theory (Stein, 1989).

We suggest future researchers to investigate the recommended framework by incorporating various proxies for short-term decisions, short-term objectives and investment efficiency. Additionally, the current study also suggests incorporating the role of institutional investors in the framework to understand the contribution of financial markets in determining the short-termism scenario.

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