Journal of Financial Stability 12 (2014) 16–25

Contents lists available at ScienceDirect

Journal of Financial Stability

journal homepage: www.elsevier.com/locate/jfstabil

Measuring the costs of short-termism

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ARTICLE INFO

Article history:
Received 5 October 2012
Received in revised form 9 July 2013
Accepted 9 July 2013
Available online 1 August 2013

Keywords:
Financial economics
Investment

ABSTRACT

A potential cost of modern capital markets is short-termism, with agents in the financial intermediation chain weighing near-term outcomes too heavily at the expense of longer-term opportunities and thus forgoing valuable investment projects and potential output. This paper sets out an analytical framework and empirical estimates of the potential costs of short-termism arising from distortions to the cost of capital and investment intentions.

1. Introduction

Modern capital markets come with costs. As recent events have shown, the most visible and violent of those costs are experienced at times of financial crisis. These costs, for example in foregone output, have been extensively studied (for example, Hoggarth et al., 2002). But there is a second potential cost of modern capital markets – the costs of short-termism.

Although it has no off-the-shelf definition, short-termism is generally taken to refer to the tendency of agents in the financial intermediation chain to weight too heavily near-term outcomes at the expense of longer-term opportunities (Haldane, 2011). This has opportunity costs, for example in foregone investment projects and hence future output.

Unlike crises these opportunity costs are neither violent nor visible. Rather, they are silent and invisible. Perhaps for that reason, there have been very few attempts to capture the potential costs of short-termism in quantitative terms. Nevertheless, existing survey evidence is strongly suggestive of short-termist tendencies in modern capital markets.

For example, a 2004 MORI survey of members of the Investment Managers Association (IMA) and the National Association of Pension Funds (NAPF) found a third and two-thirds of members respectively believed their investment mandates encouraged short-termism. Poterba and Summers (1995) surveyed Chief Executive Officers (CEOs) at Fortune-1000 firms and found that the discount rates applied to future cash-flows were around 12%, much higher than either equity holders' average rate of return or the return on debt. Based on a survey of over 400 executives, Graham et al. (2005) found over 75% would give up a *NPV*-positive project to smooth earnings.

Perhaps reflecting that, short-termism has a rising public policy profile. In the UK, a government review of UK equity markets recently found short-termism in equity markets caused by misaligned incentives in the investment chain.[1] In America, both business groups and think-tanks are concerned about investor myopia.[2] And the European Commission, Financial Stability Board and Group of Thirty have all recently expressed concerns about factors hindering long-term investment strategies, including short-termism.[3] Given its rising public policy profile, the relative dearth of quantitative evidence on the scale and importance of short-termism is an important gap. This paper aims to help fill some of that gap.

We make three specific contributions to the literature. First, we show that if investors discount future returns excessively, a manager seeking to maximise the value of the firm will prioritise near-term cash-flows over distant ones. Specifically, the manager will prioritise dividend distributions over reinvestment, causing a violation of the dividend irrelevance hypothesis. Second, we provide evidence that investors discount future returns excessively. Our estimates of investor discount rates in the US

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[1] See Kay (2012); industry responses to the report varied considerably see Financial Times (2012).
[2] See Business Roundtable (2006) and Aspen Institute (2009, 2010).
[3] See European Commission (2011), Financial Stability Board (2013) and G30 Working Group (2013).

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http://dx.doi.org/10.1016/j.jfs.2013.07.002

and UK suggest significant evidence of myopia, which appears to be increasing over time. Third, we show that ownership of the firm matters: private firms (who would be unaffected by short-termism on our definition) tend to invest more than equivalent publicly owned firms. Together, these findings suggest that these short-termist distortions can affect materially the rates of investment by companies and the stock of capital – whether physical or human. This would have important implications for countries' future growth rates.

The paper proceeds as follows. Section 2 surveys the literature on formal tests for short-termism and on the link between short-termism and investment. Section 3 sets out an analytical framework for capturing the potentially adverse consequences of short-termism, in particular for the cost of capital and for investment intentions. Section 4 presents some empirical evidence on each of these short-termism channels. Section 5 concludes with next steps for policy and research on this topic.

2. The short-termism literature

Formal, quantitative evidence on short-termism is thin on the ground. An exception would be Miles (1993). Using an augmented version of a basic asset pricing framework, he finds evidence of excessive discounting of future cash-flows using company-level equity price data from the UK. Similar approaches, applied to longer time-series across a range of countries, have reached broadly similar conclusions (Cuthbertson et al., 1997; Black and Fraser, 2002). We follow a similar approach to Miles (1993) in Section 3.

There is also relatively little empirical evidence linking short-termism and investment. Asker et al. (2011, 2013) provide a test based on a panel of US companies. They find that firms whose share price (and by implication, investors) are very sensitive to earnings announcements tend to forgo good investment opportunities. Firms that are held privately invest significantly more than similar public firms and are more responsive to investment opportunities. Tests of periods when firms move from private to public ownership confirm these results. The inference is that private firms do not face the same earnings-driven pressure to scrimp on investment as publically quoted firms.

Bushee (1998) identifies firms that fall short of last year's earnings, so that a slight boost to earnings would deliver earnings growth. These firms might face strong incentives to reduce R&D in order to achieve this. The author also identifies institutional investors that are likely to be myopic, measuring this by momentum trading and portfolio turnover. The finding confirms those in the other empirical papers, with ownership of shares by myopic institutional investors increasing the prevalence of R&D cuts.

Bernstein (2012) considers patents as a measure of innovation output. The author compares US firms which went from private to public by listing on NASDAQ with similar ones which had started the process but did not complete it (instrumenting for the potential bias inherent in withdrawing from listing). The author finds that, after going public, firms do not reduce the number of patents registered, but they do tend to reduce considerably a measure of innovation novelty (patent citations).

At a theoretical level, the possibility of short-termism among investors is related to a broader literature on behavioural biases and hyperbolic discounting (Laibson, 1997). Hyperbolic discounting refers to the tendency to choose a 'smaller and sooner' reward over a 'larger and later' reward, in a way that is not consistent over time. This provides one explanation for the excess sensitivity of consumption to shocks to current income.

Some theoretical papers link short-termism and investment explicitly. The literature relies on informational problems which dividends can help solve, but at the expense of investment. In Miller and Rock (1985), managers know the current state of earnings but investors do not. Dividends provide a signal about earnings that investors can observe. This means the manager has the incentive to surprise the market with high dividends, even if this means cutting investment. Investors understand this, and discount these inflated dividend signals accordingly. In equilibrium there are no surprises, but dividends are higher and investment lower than with full information.

A different type of information asymmetry appears in Stein (1989). In this model, investors base their valuation of the firm on expected future earnings. Future earnings are known to be correlated with current earnings. The manager understands this and cuts investment to boost current earnings. This lifts expectations of future earnings, increasing the firm's share price.[4] In equilibrium, the manager's signal has no effect on share prices, but a prisoners' dilemma means that this behaviour continues to reduce investment.

Investors might also be uncertain about the quality of the manager, as in Narayanan (1985). In this model, shareholders cannot observe the manager's ability or the project that is selected. Profits are observable and boost the investor's perception of managerial ability, which translates into higher wages. Knowing this, the manager may select a project that yields short-term profits, even if there are better long-term projects available.

3. Theory

In this section we use a forward-looking asset pricing framework to show how our definition of short-termism – excess discounting on the part of investors – might affect project valuation and selection. This framework also shows how investor short-termism may cause a firm's manager, acting rationally, to prioritise dividends over investment.

3.1. The trade-off between investing and distributing dividends

We start with a simple model in which two agents – an investor and a manager – face investment decisions. An investor's valuation of a project (either a new firm or an expansion of an existing firm) that operates for n periods is equal to the present value of the cash flows or dividends in each period (D_i), plus the discounted terminal value (P_n) minus up-front investment costs (C).[5]

$$NPV = \sum_{i=1}^{n} \frac{D_i}{(1+r)^i} + \frac{P_n}{(1+r)^n} - C \tag{1}$$

The investor's decision is, in this simple model, all-or-nothing. The investor follows a simple rule, choosing to invest in all positive *NPV* projects and rejecting all negative *NPV* projects. The investor's *NPV* assessment will therefore determine whether he or she invests, incurring cost C, or walks away from the investment.

$$I = \begin{cases} C, & NPV > 0 \\ 0, & NPV \leq 0 \end{cases} \tag{2}$$

The manager of the project seeks to maximise its *NPV*. The only choice variable is the timing of dividends. Dividend payments to investors can either be paid out as earnings become available at the end of each period, or cash can be held within the firm for payout

[4] The model used is one of "signal-jamming" – i.e. firms engage in costly behaviour to *prevent* information from appearing, rather than investing in a costly signal that conveys information.

[5] For more detail see, for example, Brealey et al. (2010).