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## Journal of Financial Economics

journal homepage: [www.elsevier.com/locate/jfec](http://www.elsevier.com/locate/jfec)

# The asset growth effect: Insights from international equity markets<sup>☆</sup>

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## ARTICLE INFO

## Article history:

Received 2 May 2011

Received in revised form

2 July 2012

Accepted 2 July 2012

Available online 14 December 2012

## JEL classification:

G12

G14

G15

## Keywords:

Asset growth

International equity markets

Return predictability

Optimal investment effect

q-Theory

## ABSTRACT

Firms with higher asset growth rates subsequently experience lower stock returns in international equity markets, consistent with the U.S. evidence. This negative effect of asset growth on returns is stronger in more developed capital markets and markets where stocks are more efficiently priced, but is unrelated to country characteristics representing limits to arbitrage, investor protection, and accounting quality. The evidence suggests that the cross-sectional relation between asset growth and stock return is more likely due to an optimal investment effect than due to overinvestment, market timing, or other forms of mispricing.

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## 1. Introduction

It has been documented that firms experiencing rapid growth by raising external financing and making capital investments subsequently have low stock returns, whereas firms experiencing contraction via divestiture, share repurchase, and debt retirement enjoy high future returns.<sup>1</sup> Cooper, Gulen, and Schill (2008) summarize the synergistic effect of firms' investment and financing activities by creating a simple measure of total asset growth. They show that in the United States during the period from 1968 to 2003, a value-weighted portfolio of stocks in the top asset-growth decile underperforms the portfolio of stocks in the bottom decile by 13% per year,

<sup>☆</sup> We thank conference participants at the 2010 Nippon Finance Association Meeting, the 2010 China International Conference in Finance, the 2010 Financial Management Association Meeting, the 2011 SFS Finance Cavalcade, the 2011 European Finance Association Meeting, and the 2011 RICE International Conference. We also thank seminar participants at Lingnan University, Osaka University, Simon Fraser University, University of New South Wales, University of Wisconsin at Milwaukee, and Nagoya University. The comments from Gil Aharoni (FMA discussant), Christina Atanasova, Pramuan Bunkanwancha (RICE discussant), Joe Chen (EFA discussant), Zhi Da, Evan Gatev, Shingo Goto, Kewei Hou, Po-Hsuan Hsu, Andrew Karolyi, Dongmei Li (SFS Finance Cavalcade discussant), Xuenan (Erica) Li, Laura Xiaolei Liu (CICF discussant), Ronald Masulis, Lilian Ng, Michael Schill, Neal Stoughton, Gloria Tian, Toshifumi Tokunaga (NFA discussant), Masahiro Watanabe, Bohui Zhang, Lu Zhang, Yuzhao Zhang, and an anonymous referee are greatly appreciated. Akiko Watanabe thanks financial support from the Social Sciences and Humanities Research Council (SSHRC) of Canada. All errors are our own.

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<sup>1</sup> See Cooper, Gulen, and Schill (2008) for a survey of the large body of empirical literature on the relation of firms' financing and investments with operating performance and stock returns.

and such cross-sectional return difference cannot be explained by standard asset pricing models.

One of the most actively debated issues in the current finance literature is whether the negative effect of investment and financing on stock returns, as highlighted by the asset growth effect, is evidence of market inefficiency or can be viewed as a rational asset pricing result. From the behavioral camp, several mispricing-based explanations have been proposed. These explanations include (1) overinvestment and empire-building tendency of corporate managers (e.g., Titman, Wei, and Xie, 2004), (2) capital structure market timing when raising and retiring external financing (e.g., Baker and Wurgler, 2002), (3) earnings management prior to financing activities or acquisitions (e.g., Teoh, Welch, and Wong, 1998a; 1998b), and (4) excessive extrapolation on past growth by investors when they value firms (e.g., Lakonishok, Shleifer, and Vishny, 1994).

From the rational asset pricing camp, the explanations center around the association between investment and expected return, albeit with some variations. For example, Cochrane (1991, 1996) and Liu, Whited, and Zhang (2009) study the discount rate effect of investments, i.e., firms making large investments are likely to be those with low discount rates. In Lyandres, Sun, and Zhang (2008) and Li, Livdan, and Zhang (2009), higher investments are associated with lower expected returns via both decreasing return to scale and the discount rate effect. Berk, Green, and Naik (1999) and Carlson, Fisher, and Giammarino (2004) further argue that firms have reduced risk and expected return after growth options are exercised through capital investments.<sup>2</sup>

It is difficult to empirically distinguish the mispricing hypothesis from the optimal investment hypothesis, because they offer similar predictions on the relation of corporate investments with both future stock returns and firms' future operating performance. To address this issue, recent studies have focused on *conditional* evidence in the U.S. by examining the effect of investment or financing on stock returns during subperiods or in subsamples of stocks. Titman, Wei, and Xie (2004) find that the negative investment-return relation is stronger among firms with greater managerial investment discretion, and is significant only during periods when external corporate governance is weak. Cooper, Gulen, and Schill (2008) similarly show that the asset growth effect on stock returns weakens during periods of heightened external corporate oversight, but becomes stronger following higher market returns when investor sentiment is stronger. In addition, Lipson, Mortal, and Schill (2011) show that the asset growth effect is greater among stocks with higher arbitrage costs measured by idiosyncratic return volatility.

While these studies favor mispricing-based interpretations, Li and Zhang (2010) point out that in the *q*-theory model of corporate investment, the investment-return linkage should be stronger among firms facing higher investment and financing frictions. Empirically, they find relatively weak evidence for this prediction using various proxies for investments, investment frictions, and arbitrage costs. However, using a more comprehensive set of arbitrage cost measures, Lam and Wei (2011) report that the investment friction effect and the limits to arbitrage effect are supported by a similar amount of evidence.

This study investigates the asset growth effect in international stock markets.<sup>3</sup> We have two goals. The first is to examine whether the negative relation between asset growth and future stock returns exists in financial markets outside the U.S. An affirmative answer would alleviate the concern that the empirical pattern documented in the U.S. is due to chance or data-snooping. Second, we use the international data to evaluate the plausible economic causes of the asset growth effect. Our approach builds upon Li and Zhang (2010) and Lam and Wei (2011), but the large variation in the asset growth effect across countries and the large dispersion of country characteristics enable us to perform a new set of tests for evaluating competing theories.

Using the Datastream-Worldscope data spanning the period from 1982 to 2010, we find evidence of a significant asset growth effect in the international equity markets. When we pool stocks across 42 countries outside the U.S. and sort them into equal-weighted decile portfolios based on annual asset growth rates (AG), the bottom AG decile outperforms the top decile by a significant 6.43% in the following year. When we form equal-weighted AG-sorted portfolios within each of the 42 countries, the return spread between the bottom and top AG portfolios, averaged across countries, is also significantly positive at 3.50% per year. The return-predictive power of asset growth remains significant after controlling for size, book-to-market, momentum, and operating profitability. We also find that the magnitude of the asset growth effect varies substantially across countries. For example, the equal-weighted annual return spreads between the bottom and top AG portfolios formed within each country range from –11% to 11%. The return spreads are positive in 30 countries (including the U.S.) but negative in 13 countries. Such cross-country divergence provides a rich ground for testing various hypotheses on the cause of the asset growth effect.

Our cross-country analysis centers around two contrasting ideas that link the asset growth effect to various country characteristics in opposite ways. First, if the asset growth effect is due to mispricing, one would expect it to be stronger in countries where stocks are less efficiently priced and in countries where mispricing is difficult to arbitrage away. Further, if managerial empire-building, capital structure market timing, or accounting manipulation is behind

<sup>2</sup> In addition, several empirical studies, such as Agrawal, Jaffee, and Mandelker (1992), Ikenberry, Lakonishok, and Vermaelen (1995), Loughran and Ritter (1995), Rau and Vermaelen (1998), and Richardson and Sloan (2003), have subscribed to one or multiple mispricing-based explanations. Several other studies have provided empirical evidence consistent with the optimal investment effect; see, for example, Anderson and Garcia-Feijóo (2006), Fama and French (2006), and Xing (2008).

<sup>3</sup> Throughout the paper, we use the term “country” and “market” interchangeably with the understanding that some markets, such as Hong Kong, are not sovereign countries.

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