



Is the profitability of Indian stocks compensation for risks?



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ABSTRACT

This paper examines the profitability of the Indian stock market using an extensive new data set that includes 1,515 stocks and covers a time-period spanning 1992 to 2014. Using both the popular Jegadeesh-Titman and the 52-week momentum trading strategies, we discover that portfolios of all stocks and various portfolios of industry stocks are profitable. These profits, we find, disappear once we account for a range of market and macroeconomic factors, suggesting that market and industry profits are compensation for risks. Our results survive a battery of robustness tests.

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1. Introduction

The goal of this paper is to examine the profitability of the Indian stock market and identify the source(s) of profitability.¹ Our approaches are threefold. In the first step, we construct an extensive firm-level data set covering as many as 1,515 Indian stocks spanning the period July 1992 to December 2014. We add to this Indian data set, time-series of three market risk factors, namely, the excess market returns, high-minus-low (HML) book-to-market returns, and small-minus-big (SMB) stock market capitalisation returns. A unique feature of our approach is that we use firm-level data while the literature uses index-level data (see, for instance, Narayan and Bannigidadmath, 2015; Narayan et al., 2014b). Using firm-level data, we categorise stocks according to stock characteristics and industries. This is an important step for many reasons. Because we use firm-level data, we are able to capture firm heterogeneity which otherwise would not be possible. This has serious implications because a market-level analysis tells nothing about what role stock characteristics and industries play in shaping profitability. In other strands of the literature, this point has been strongly made. Many studies, for instance, show that stock return predictability is industry-specific (see, Hong et al., 2007b; Westerlund and Narayan, 2014; Narayan and Bannigidadmath, 2015).²

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¹ India is a unique market to study for several reasons. There are several institutional and non-institutional differences between the Indian market and the developed markets. First, consider the difference in the settlement cycle; in India the equity spot markets follow a T + 2 rolling settlement meaning that trades that take place on Monday, for example, get settled by Wednesday whereas the NYSE follows a T + 3 settlement cycle. Second, there are differences in the trading times too; for example, the Indian markets trade from 9:15 am to 3:30 pm Monday to Friday while the NYSE trades from 9:30 am to 4:00 pm Monday to Friday. Third, the Indian stock markets are order-driven markets whereas most developed markets (such as NYSE and NASDAQ) are hybrid markets—that is, they combine features of both quote driven and order driven markets. Finally, unlike developed markets where a large proportion of households invest their savings in stocks (over 50% of households in the United States for example), in India only 1.2% of household financial savings is directly invested in the stock market. It is important to also acknowledge that India's stock market, its efficiency, integration with other markets, and performance have been rigorously analysed by a relatively recent body of literature; see, for example, Narayan et al. (2014a, 2014b, 2014c), Narayan, Sriananthakumar and Islam, (2014), Ahmad et al. (2013), Lim and Kim (2011), Awokuse et al. (2009), and Tiwari and Kyophilavong (2014).

² Thorbecke (1997) reports that the response of industry stock returns to the monetary policy is heterogeneous. In addition, some studies find that stock returns are different among industries based on the industry concentration (see, for instance, Hou and Robinson, 2006).

Moreover, identifying the heterogeneity of industries is important for capital allocation among industries and industry-rotation strategies. On this, Kong et al. (2011) investigate industry stock return predictability and show that the investment strategy that focuses on selective industries provides higher Sharpe ratios, generating sizable alphas and exhibiting timing ability.³ Furthermore, an investigation of profitability at the industry level improves our understanding of the sources of aggregate market profitability. Roll (1992) and Hong et al. (2007b), among others, suggest that industry returns provide additional information about returns at the aggregate market level. Narayan and Bannigidadmath (2015) support this line of reasoning. They investigate the predictability and profitability of portfolios sorted on industry, size and book-to-market value. Their findings suggest that profits are heterogeneous and that some industries are more profitable relative to others.

Our second approach relates to estimating profits. Here, we connect with the popular literature on momentum profits. This literature, popularised by the work of Jegadeesh and Titman (Jegadeesh and Titman, 1993), shows that a momentum trading strategy which buys past Winners and sells past Losers is profitable, and has attracted an influential volume of studies (see, inter alia, Chan et al., 1996; Conrad and Kaul, 1998; Rouwenhorst, 1998; Moskowitz and Grinblatt, 1999; Asness et al., 2013). We use the momentum trading strategy to estimate profits for the Indian market and its key industries. We are also mindful of the robustness of our results, therefore, we do not only depend on evidence provided by the JT momentum trading strategy. We also utilise the 52-week momentum strategy, which has also gained prominence recently (see George and Hwang, 2004; Marshall and Cahan, 2005; Du, 2008; Huddart et al., 2009; Liu et al., 2011).

Our third approach rests on an attempt to explain the determinants of profits. Simply put, where we find evidence of JT momentum profits and/or 52-week momentum profits, we ask whether these profits are a result of market risks or macroeconomic risks. This is straightforward to address. We simply regress the statistically significant time-series of momentum profits on market risk factors (such as excess market returns, and the two Fama and French (1993) risk factors, namely, HML and SMB), and separately on macroeconomic factors, namely, term spread, inflation, relative interest rate, and industrial production growth. From these regression models, we track abnormal returns depicted by the regression's alpha.

Our approaches deliver the following new insights on the profitability of the Indian stock market. First, we discover strong evidence that the Indian stock market is profitable, both based on the JT and the 52-week momentum trading strategies. Second, we discover that: (a) key industries making up the Indian stock market are also profitable; and (b) profits are heterogeneous. We find that both market risk factors and macroeconomic factors explain momentum profits.

Our findings take the literature forward in three specific ways. Our first finding that the Indian stock market is profitable is consistent with the literature on Indian stock markets (see, inter alia, Gunasekarage and Power, 2001; Narayan, Ahmed, Sharma and Prabheesh, 2014; Narayan, Narayan and Prabheesh, 2014; Narayan and Ahmed, 2014; Narayan and Bannigidadmath, 2015).⁴ The approach used in each of these studies is different. Gunasekarage and Power (2001) use variable length moving average and fixed length moving average rules; Narayan, Ahmed, Sharma and Prabheesh (2014) use a wide range of moving average technical trading rules and a momentum-based trading strategy; Narayan, Narayan and Prabheesh (2014) and Narayan and Bannigidadmath (2015) estimate profits using a mean-variance utility function. In our analysis, profits fall into the 15 to 23% per annum range, which are consistent with Narayan and Bannigidadmath (2015), who use a completely different approach from ours. In their study, mean-variance profits fall into the 7 to 25% range. Therefore, the implication is that the evidence that the Indian stock market is profitable is not methodology-dependent.⁵

While the profitability of the Indian stock market is robust as we have just confirmed, our second finding on what determines profits offers a fresh revelation about the profitability of the Indian market. We find that while both market risk and macroeconomic risk factors explain momentum profits, the role of macroeconomic risk factors is stronger. The main implication of this finding is that it is not only market risks that are important determinants of profits. Macroeconomic factors are important and, in our analysis, turn out to be more powerful determinants than the traditional market risk factors; therefore, these factors should not be ignored.

Our third finding on industry momentum profits connects with the findings of Moskowitz and Grinblatt (1999) who were the first to document a pattern of industry momentum profits. Several studies have shown that industries are heterogeneous when testing: (a) the predictability of stock returns (Hong et al., 2007b; Westerlund and Narayan, 2014; Narayan and Bannigidadmath, 2015); (b) the effect of monetary policy on stock returns (Thorbecke, 1997); and (c) industry concentration (see, Hou and Robinson, 2006). We add to these studies by showing that momentum profits that exist on the Indian stock market have an industry story, suggesting that investing in some industries are likely to be relatively more profitable. Moreover, our findings reveal that only some industries (technology, financials, healthcare, and consumer services) are independent of market profits, suggesting that for these industries profits do not have a common market component. The key implication of these findings is that they will inform portfolio selection for investors in the Indian market.

³ Narayan et al. (2017) complement Kong et al. (2011) by showing using a mean-variance utility function that while most sectors of the US stock market are profitable investing in certain sectors offer more profits.

⁴ A recent study tests whether investor mood affects stocks returns on the Indian stock exchange from the view of sports; see Narayan et al. (2016).

⁵ There is another set of papers, relatively unknown, which estimate momentum profits on the Indian stock market. There are several features of this literature which distinguish them from our study. First, they use a very small number of stocks. Balakrishnan (2015) and Garg and Varshney (2015) consider, respectively, 484 and 111 stocks. On the other hand, Misra and Mohapatra (2014) implement a momentum strategy on the index data, which is not very informative. The second feature is that these studies employ a very short sample of data, at most from July 1997 to August 2014. From a time-series perspective the small sample size may not be ideal. The cost is in terms of robustness too. Third, only Balakrishnan (2015) considers estimating market risk factors but this comes with two limitations: (a) they are not strictly based on the Fama and French methodology; and (b), perhaps more seriously, they are constructed using a small number of stocks. Our study improves on all these inherent limitations.

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