A Dynamic Analysis of the Neglected Firm Effect

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Abstract

This study uses rolling regressions with panel data and conducts a dynamic analysis of the neglected firm effect, the negative relationship between the number of analysts and stock returns. For this reason, we use two samples of firms: one from the London Stock Exchange (LSE) and another from Bursa Malaysia (BM). The results reveal a significantly negative neglected firm effect only for the BM sample. In contrast the association between the number of analysts and stock returns is positive in some periods in the LSE. Size is not significant as a moderator, which suggests that the neglected firm effect does not vary with firm size, contrary to the findings in the previous literature. Finally, the neglected firm effect is nonstationary for both LSE and BM firms. Our results hold under a range of robustness tests and yield guidelines for investors regarding the types of markets and time periods for which analyst coverage is likely to matter most.

Keywords: Neglected firm effect, stock returns, rolling regressions, moderation effects, nonstationarity.

JEL Classification Numbers: G14, G15, L25, C22

1. Introduction

The negative relationship between the number of analysts and stock returns is cited in the literature as 'the neglected firm effect'. As a result of the neglected firm effect, firms followed by fewer analysts tend to earn higher returns, on average, compared to those followed by many analysts (Arbel and Strebel, 1982, 1983; Beard and Sias, 1997).

Institutional investors generally ignore small firms. Metaphorically speaking, they act like giraffes—both for good reason and as a matter of preference—concentrating on the tall trees in the investment forest and ignoring the shorter ones (Arbel and Strebel, 1983). However, the neglected firm effect persists over and above the small firm effect.

While previous studies provide an overall insight that analyst coverage matters, our aim is to offer more detailed guidance regarding the types of markets and time periods for which analyst coverage is likely to matter most. As the neglected firm effect reflects a complex interaction between the market setting and behaviour of the market participants—including analysts and investors—it should vary over time, and among developed and developing markets.

The objective of this study leads to its contributions. First, to the best of our knowledge, this study is the first to document a reverse neglected firm effect for London Stock Exchange (LSE) firms. Second, we document that the role of size as a moderator is not significant for both Bursa Malaysia (BM) and LSE firms. The insignificant interaction term suggests that the neglected firm effect does not vary with firm size, contrary to the findings of previous studies.

Third, the neglected firm effect is nonstationary for firms in both the LSE and BM markets, and this result is robust to endogeneity, a priori fixed or endogenously determined structural breaks, and an alternative sample scenario in which we include only firm-monthly observations with at least one analyst following a firm.

Finally, most of the previous literature focuses on the U.S. stock market (see Demiroglu and Ryngaert, 2010 and the references therein).[1] In this study, we focus on one developing and one developed stock market other than the U.S. market. We select 313 companies listed in the LSE and 313 companies listed in BM to study whether the number of analyst coverage influences the stock returns in the UK and Malaysia stock markets, respectively.

The main reason for selecting the LSE is the size and the importance of its financial market. The LSE originated more than 300 years ago, is the primary stock exchange in the United Kingdom, the largest in Europe, and at the heart of the global financial community (London Stock Exchange, 2022). With more than 1000 firms, the LSE is one of the top 10 largest stock markets in the world by number of firms during the period under study (Cattlin, 2018, and World Bank, 2022).

Moreover, Malaysia has one of the most open economies in the world. In conjunction with this open economy, Malaysia is a major financial hub in the Asia Pacific region facilitating trade and investment activities (Cao and Garcia-Feijóo, 2021). Its capital market is robust and it has seen continuous development in the past 60 years. It is home to more than 800 listed companies during the period under study (Cao and Garcia-Feijóo, 2021; and World Bank, 2022). Hence, the numbers of firms in each of these two markets are comparable, allowing a comparable assessment between a developed (LSE) and a developing market (BM).

This study mainly examines the impact of analyst following on stock returns; however, we acknowledge that analyst following is endogenous in nature. Bhushan (1989), Moyer, Chatfield, and Sisneros (1989), and Brennan and Hughes (1991) study several characteristics that can affect the supply and demand of analyst services. They document that, ceteris paribus, the number of analysts is larger for larger or riskier firms. Brennan and Hughes (1991) show

[1] One notable exception is Chan and Hameed (2006), who cover 25 emerging markets.

that more analysts follow lower-priced stocks. To account for the endogeneity of analyst following, we refer to Chang et al. (2006).

Our results can benefit investors who follow the philosophy of buying neglected firms, as this strategy appears to be more successful in a developing market than in a developed market. Conversely, in the case of a reverse neglected firm effect, the strategy of buying neglected firms is unsuccessful. Moreover, we provide evidence that the neglected firm effect coefficient is not constant over time, and this result is robust across a battery of statistical tests. This result implies that investors who buy neglected firms should be aware that the success of this strategy varies with time, and it is not always successful.

In the next section, we review the relevant literature and lay out our hypotheses. Section 3 presents the empirical specification. Section 4 discusses the data and summary statistics. Section 5 provides the empirical results. In Section 6, we test the robustness of our results. Section 7 accounts for the endogeneity of analyst following. Section 8 discusses the implications of the results for investors, and the final section provides the conclusions.

2. Related Literature and Hypothesis Development

Banz (1981) probably conducts the first empirical study offering evidence of a size effect in U.S. stock returns—the argument that smaller firms have higher returns, on average than larger firms. According to Van Dijk (2011), this market anomaly has existed for at least 40 years.

Around 20 years earlier, Bauman (1964, 1965) argues that excess stock returns are influenced by analysts' comments; on average, annual returns from groups of less 'popular' stocks are higher compared with the returns from groups of stocks that are more 'popular'. Arbel and Strebel (1982) measure the degree of attention to stocks using the number of analysts regularly following a firm's securities in the U.S. stock market. Their main finding is that a 'neglected firm effect' exists in terms of superior performance for less researched companies.

Arbel and Strebel (1982) argue that firms with less analyst coverage could obtain higher excess returns compared with firms followed by more analysts. Arbel and Strebel (1983) demonstrate that for the S&P 500 stocks, over a ten-year period (1970–1979), stocks most neglected by analysts ended up outperforming other stocks. The annual return for neglected stocks averages 16.4%, compared with 9.4% for the most followed ones.

Carvell and Strebel (1987) argue that intensive analyst coverage and long listing periods increase the information available to investors, which could be used for predicting future return distributions. However, they argue that although more analyst coverage for a stock could provide more information to investors, it cannot bring satisfactory returns to investors.

Bhardwaj and Brooks (1992) attempt to explain the relationships between stock returns and the degree of analyst coverage neglect for stocks using a sample of U.S. stocks from 1977 to 1988. They do not find a statistically significant relationship between the degree of neglect and stock returns in the U.S. stock market. Stickel (1995) argues that if financial analysts comment on stock buy and hold strategies, stock anomalies appear.

Womack (1996) examines how analysts' recommendations influence investment value in the U.S. stock market. The results show that an analysis of new buy and sell stock recommendations by security analysts at major U.S. brokerage firms has significant and systematic discrepancies between pre-recommendation prices and eventual values.

Beard and Sias (1997), using a large sample of securities, re-examine the neglected firm effect. Controlling for capitalisation, they find no evidence of a neglected firm premium. McNichols and O'Brien (1997) show that analysts follow only firms they view favourably, which is consistent with the assumption that analysts' recommendations and forecasts are selective. Compared with the distribution of recommendations for stocks with previous coverage, the distribution of recommendations for newly added stocks moves significantly

toward more favourable ratings. Meanwhile, the distribution of recommendations just before analysts drop a stock moves toward less favourable ratings.

Lin and Mcnichols (1998) argue that lead analysts' forecasts and recommendations are significantly more favourable than those made by unaffiliated analysts, although their earnings forecasts are not generally greater. Investors respond similarly to lead underwriter and unaffiliated 'Strong buy' and 'Buy' recommendations, but returns to lead underwriter 'Hold' recommendations are significantly more negative than those to unaffiliated 'Hold' recommendations.

Barber et al. (2001) argue that buying (short-selling) stocks with the most (least) favourable recommendations brings greater annual abnormal gross returns by approximately four per cent. A delay in reacting to recommendation changes diminishes these returns; however, they remain significant for the least favourably rated stocks.

Irvine (2003) argues that the market responds more positively to analysts' initiations than to other recommendations. The incremental price impact of an initiation is 1.02% greater than the reaction to a recommendation by an analyst who has already covered the stock. In addition, Irvine finds that opening abnormal returns correlate with subsequent improvements in liquidity.

According to Jegadeesh et al. (2004), financial researchers and practitioners have long been interested in explaining how the actions of financial analysts affect capital market efficiency. Chang et al. (2006) support the view that analyst coverage affects security issuance. Firms covered by fewer analysts are less likely to issue equity than debt. They issue equity less frequently, but when they do, it is in larger amounts. Moreover, firms depend more on favourable market conditions for stock issuance. Their results are consistent with market timing behaviour and information asymmetry, and behaviour implied by dynamic adverse selection models of stock issuance.

Chan and Hameed (2006) investigate the informational role of security analysts in 25 emerging markets. Their main finding is that contrary to the conventional wisdom that security analysts specialise in the production of firm-specific information, security analysts predominantly produce market-wide information. In addition, Demiroglu and Ryngaert (2010) report a positive correlation between announcement returns and analysts' recommendations. This finding suggests that analysts' comments and coverage could explain excess stock returns. Thus, share prices of stocks neglected by analysts increase after the announcement of coverage initiation in the U.S. stock market.

Hansen (2015) argues that analyst coverage could impact the operating performance of followed firms. The new findings of analyst value added through increased demand for shares following initial coverage suggest that a related reduction in the cost of capital could follow. This means that analyst recommendations could influence company performance.

Li and You (2015) document robust evidence that analysts create value for firms they cover by increasing investor recognition of these firms. The market reacts significantly to both coverage initiations and exogenous coverage terminations. Empirical evidence shows that firms with coverage initiations exhibit a significant decrease in information asymmetry and a significant increase in investor recognition. Hence, information asymmetry could be an element that influences excess stock returns. Analyst coverage could narrow information asymmetry in the stock market.

Peasnell et al. (2018) note that stock price volatility is negatively associated with stock recommendations and that firms with higher short-term earnings growth forecasts receive more favourable stock recommendations. By contrast, market beta appears to influence analysts' recommendation decisions primarily through its adverse mediating effect on the sensitivity of recommendations to long-term growth forecasts. As the number of analysts' recommendations increases, the stock price decreases, and the market beta influences analysts' recommendations.

Finally, Li et al. (2019) mention that firms in emerging markets such as China tend to have higher growth, higher information asymmetry, and more serious stock overvaluation. Therefore, low-growth companies do not attract many analysts. The shares of firms neglected by analysts significantly outperform widely followed shares. This superior performance persists over and above any 'small firm effect'; that is, both small and large neglected firms exhibit superior performance. Zhai et al. (2020) argue that lower investor disagreement on initial public offering stocks leads to lower stock returns. Less-neglected firms (i.e., firms with more analyst coverage) lower the information asymmetry and consequently lower the investor disagreement. Therefore, a lower neglected firm effect implies a lower return.

Based on the previous literature, we develop the following main hypotheses regarding the neglected firm effect.

H1(a): Firms followed by fewer analysts earn higher returns (i.e., neglected firm effect), on average than firms followed by many analysts.

H1(b): The neglected firm effect prevails in both the LSE (an example of a developed market) and BM (an example of a developing market).

Based on the previous literature about the size effect, and more specifically on Banz (1981), Van Dijk (2011), Arbel and Strebel (1982, 1983), Bhardwaj and Brooks (1992), Beard and Sias (1997), and Hansen (2015), we have the following hypothesis.

H2: Firm size moderates the relationship between the number of analysts and stock returns.

Moreover, we argue that the neglected firm effect is not stationary over time; thus, we develop the following hypothesis.

H3: The neglected firm effect is nonstationary over time.

3. Empirical Specification

Our model is a panel with firm fixed effects expressed as follows:

$$R_{i,t} = b_{i,0} + b_1 S_{i,t} + b_2 N_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $R_{i,t}$ is the monthly stock return of firm *i* in period *t*; $S_{i,t}$ is the natural logarithm of total assets, a proxy for firm size; $N_{i,t}$ is the number of analysts' recommendations, a proxy for the total resources spent on private information acquisition about the firm (Bhushan, 1989).[2]

The number of analysts following a firm's stock is used as a proxy to measure the degree of 'neglect' (Bhardwaj and Brooks, 1992). $b_{i,0}$ measures a time-invariant firm-specific unobservable effect and $\varepsilon_{i,t}$ is an idiosyncratic error term. Size is included to control for any small firm effects. The coefficient b_2 measures the return sensitivity to the number of analysts following a firm. However, it is a partial regression coefficient, meaning that it is the regression coefficient between $R_{i,t}$ and $N_{i,t}$ when the linear effects from $S_{i,t}$ on $N_{i,t}$ have been partialled out (see, Greene, 2012, p. 76–80). A negative b_2 implies that firms followed by fewer analysts earn higher returns (neglected firm effect), on average than firms followed by many analysts, while a positive b_2 implies the opposite. We further test for any moderation effects coming from firm size using the following regression:

$$R_{i,t} = b_{i,0} + b_1 S_{i,t} + b_2 N_{i,t} + b_3 N_{i,t} S_{i,t} + u_{i,t} \quad (2)$$

The coefficient b_3 measures the interaction of the number of analysts and firm size, that is, the change in the slope of the number of analysts for every one unit increase in firm size (or vice versa).

We employ a panel fixed effect estimation for 313 companies listed in the LSE and for 313 companies listed in BM during 2006M01–2018M12. We first estimate the panel model for the first 60-month estimation window starting from 2006M01. To understand how the neglected firm effect on stock returns varies with time, we perform the above-mentioned procedure for

[2] Note that the difference in the number of analysts following a firm from one month to the next for a given period is the net change in the number of analysts (which can increase or decrease, given analysts' decisions to add or drop coverage for a specific firm, change the firms they follow, or exit analyst activity in general), and not necessarily the number of new analysts.

every month in our time series and then present the time evolution of the b_2 coefficient (see Empirical Results section).

We must emphasise that Eqs. (1) and (2) are not to be interpreted as asset pricing models. Our aim is to use these equations to assess the impact of $N_{i,t}$ on $R_{i,t}$. Whether it can accurately price market assets is not our immediate question.

4. Sample and Summary Statistics

We build a sample of monthly data from Bloomberg for the period 2006M01–2018M12. Our data end in December 2018 and hence do not include the period of the COVID-19 pandemic which is not representative for analysis, since the objective of the current study is not to focus on rare events but on a more tranquil period. Although the study of the neglected firm effect during the post-COVID-19 is an interesting future direction, it is beyond the scope of the current article.

We select 313 non-financial companies from the LSE and 313 non-financial companies from BM, totalling 48,828 firm-monthly observations.[3] We do not collect data for financial firms because analysts affiliated with investment banks that have provided services for covered firms are more optimistic in their forecasts and recommendations (Demiroglu and Ryngaert, 2010). Gandhi and Lustig (2014) argue that banks differ from nonfinancial firms in many respects. For instance, the documented size effect in bank stock returns differs from the market capitalisation effects documented in nonfinancial stock returns. We start with the number of firms at the beginning of the sample period (2006), which is 2913 for LSE and 1021 for Malaysia (please see, World Bank, 2022) and then we select the non-financial companies and due to data availability, we end up with two samples that we want to be comparable and hence the equal size of 313 firms each.

[3] A description of the companies selected for this study is available upon request.

Missing data are regarded as blank. However, zero is not regarded as missing data, since a zero observation might indicate a deliberate decision by analysts to not collect information regarding a firm. The data sample of this study covers some important events. One is the 2008 financial crisis; another is the news of Brexit in 2016. Pastor and Veronesi (2012) study political circulation and stock price movements, and their results show that political events influence stock market returns.

Table 1. Summary statistics.

Panel A. 313 companies listed in the LSE period: 2006M01–2018M12			
	Stock return	Firm size	Number of analysts
Mean	-0.0048	4.9739	5.8594
Median	0.0000	4.6114	2.0000
Maximum	2.3228	14.1464	52.0000
Minimum	-2.6391	-3.4112	0.0000
Std. Dev.	0.1539	2.6972	7.9435
Skewness	-0.3010	0.5656	1.7960
Kurtosis	23.1496	3.2005	5.8204
JB p-value	0.0000	0.0000	0.0000
Observations	45,649	45,152	43,236
Panel B. 313 companies listed in BM, period: 2006M01–2018M12			
	Stock return	Firm size	Number of analysts
Mean	0.0009	6.4025	3.1855
Median	-0.0058	6.2791	1.0000
Maximum	2.1453	11.9427	33.0000
Minimum	-1.9617	-3.6809	0.0000
Std. Dev.	0.1116	1.5409	5.6822
Skewness	0.2064	0.5761	2.5745
Kurtosis	19.1036	3.6105	9.6227
JB p-value	0.0000	0.0000	0.0000
Observations	40,626	47,574	46,097

Table 1 continued. Summary statistics.

Panel C. Summary statistics of the firms not followed by any analysts.		
	LSE	**BM**
	Number of months	Number of months
Mean	50.4118	81.1822
Median	43.5000	88.0000
Maximum	147.0000	154.0000
Minimum	1.0000	1.0000
Std. Dev.	36.5268	44.2128
Skewness	0.5631	-0.3259
Kurtosis	2.3558	1.8939
JB p-value	0.0026	0.0002
# of firms	170	247

Panel D. Companies listed in LSE and followed by at least one analyst period: 2006M01–2018M12			
	Stock return	Firm size	Number of analysts
Mean	-0.0028	5.6470	7.3080
Median	0.0000	5.3308	3.0000
Maximum	2.3228	13.4538	52.0000
Minimum	-2.2285	-2.3645	1.0000
Std. Dev.	0.1363	2.5183	8.2531
Skewness	-0.5114	0.4306	1.5538
Kurtosis	22.2127	3.0310	4.8906
JB p-value	0.0000	0.0000	0.0000
Observations	34479	34077	34666

Panel E. Companies listed in BM and followed by at least one analyst period: 2006M01–2018M12			
	Stock return	Firm size	Number of analysts
Mean	0.0002	6.9904	5.6380
Median	-0.0037	6.8617	3.0000
Maximum	0.8109	11.9427	33.0000
Minimum	-1.9617	2.7243	1.0000
Std. Dev.	0.1026	1.5640	6.5816
Skewness	-0.6291	0.4833	1.8498
Kurtosis	20.6361	3.1298	5.8100
JB p-value	0.0000	0.0000	0.0000
Observations	22331	25818	26045

The summary statistics of stock returns, firm sizes, and the number of analysts are presented in Table 1. The results suggest that stock returns are negatively (positively) skewed for LSE (BM) companies, and the variables, number of analysts, and firm size are positively skewed for both LSE and BM firms.

The maximum (minimum) stock return for the 2006–2018 period among the 313 firms listed in the LSE is 232% (–264%) for 88 Energy Limited in 2016M01 (Agriterra Ltd. on 2018M11), and among the 313 listed BM firms, it is 214% (–196%) for Boustead Heavy Industries Berhad

in 2007M12 (Adventa Bhd on 2013M03). All variables are over-dispersed (i.e., the variance exceeds the mean) for the LSE, and all variables except firm size are over-dispersed for BM.[4] The LSE (BM) firms in our sample are followed by approximately six (three) analysts on average. The most-followed firm in our LSE (BM) sample is AstraZeneca (DIGI MK Equity), which was followed by 52 (33) analysts in 2010M07 (2013M11). A total of 170 and 247 LSE and BM firms, respectively, are not followed by any analyst for at least one month during the period under study; hence, there is the issue of whether a firm is followed at all.

5. Empirical Results

5.1 Rolling regression with panel data

We analyse the dynamics of the neglected firm effect by estimating the panel model for the first 60-month estimation window starting from 2006M01. To understand how the neglected firm effect—the coefficient b_2—varies with time, we perform the procedure mentioned in Section 3.1 for every month in our time series and present the time evolution of b_2. Figure 1, Panel A (B) shows the time evolution of the estimated coefficient b_2 for the LSE (BM), along with standard error bands.

We can see that for BM, b_2 is statistically significant and negative, as expected, for the entire study period, while for the LSE in the periods 2012M07–2012M11, 2013M02–2013M10, and 2018M02–2018M12, b_2 is statistically insignificant. The times that b_2 starts being statistically insignificant are 2012M07, 2013M02, and 2018M02. These times are associated with some events, that increase the interest in the UK and hence analyst coverage of UK firms and lower the significance of the neglected firm effect. For example, around 2012M07, the Summer Olympics took place and the price inflation and the unemployment rate were surprisingly good for the UK economy. In February 2013, the UK lost its top AAA credit

[4] Unobserved heterogeneity in economic data is usually the main reason for~~of~~ overdispersion.

rating for the first time since 1978 after being downgraded by the rating agency Moody's, while in February 2018, the UK was hit by the biggest earthquake in a decade. If an incident brings the UK into the spotlight, it also brings the LSE and LSE firms. As a result, the analyst coverage increases and the neglected firm effect decreases.

Moreover, b_2 for the LSE starts positive in 2010M12, then declines and becomes negative in 2013M09, and continues to decline until it reaches a minimum in 2014M09; then, it starts increasing again but remains in the negative area. It ranges from –0.3715% (2014M09) to 0.3287% (2011M04). A positive b_2 implies that firms followed by fewer analysts earn lower returns, on average than those followed by many analysts (a reverse neglected firm effect). In other words, for the LSE, the evolution of b_2 reveals a reverse neglected firm effect.

Figure 1, Panel A. Neglected firm effect coefficients for the full sample period for the London Stock Exchange.

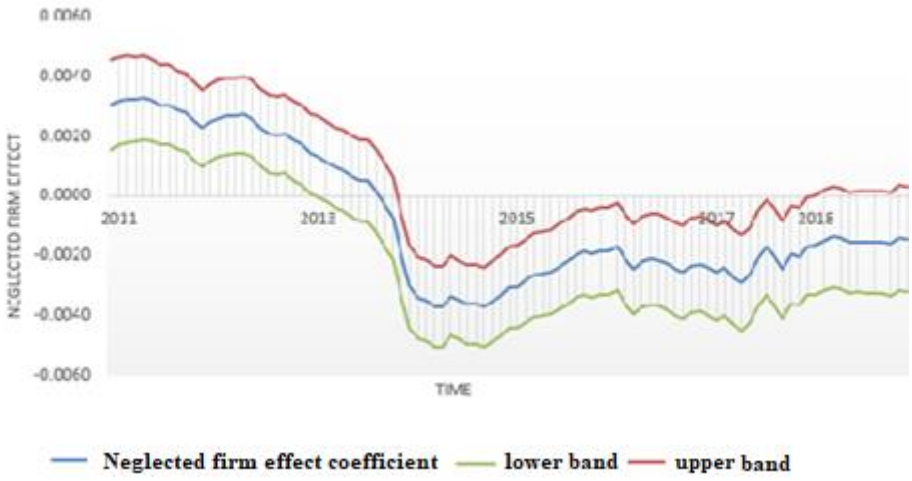
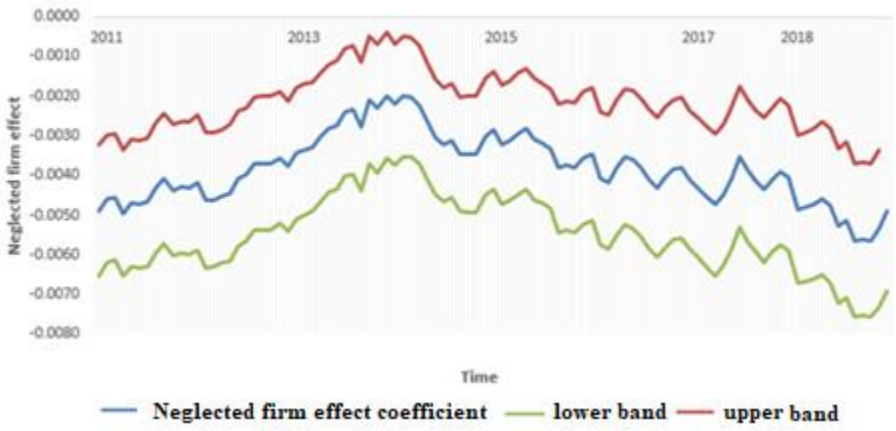


Figure 1, Panel B. Neglected firm effect coefficients for the full sample period for Bursa Malaysia.



Another observation is that b_2 varies with time and smoothly for both the LSE and BM. The distributions of the neglected firm coefficients for the LSE and BM are shown in Figure 2, Panels A and B, respectively. We can easily see that for BM, b_2 is statistically significant and negative, as expected, for the entire study period. It ranges from –0.5639% (2018M08) to –0.1983% (2013M11).

Figure 2, Panel A. Neglected firm effect distribution for the London Stock Exchange.

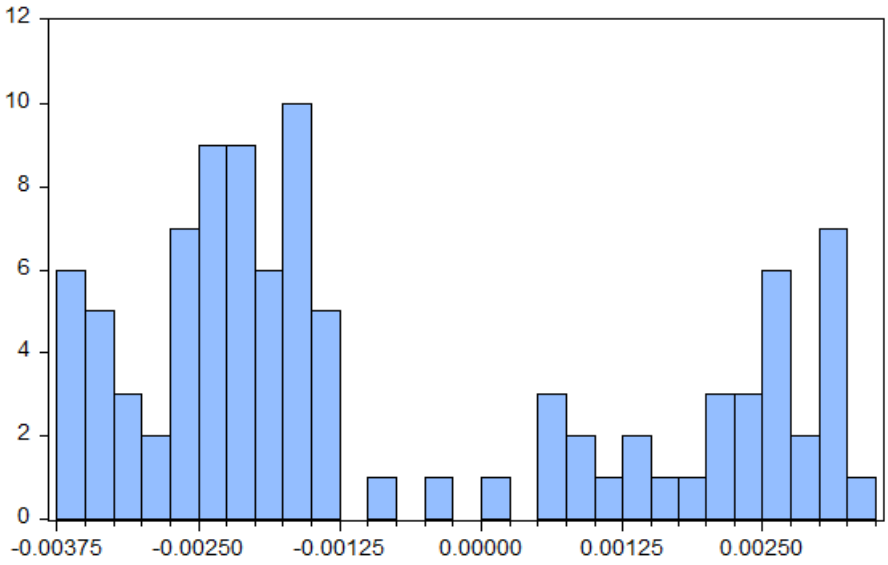
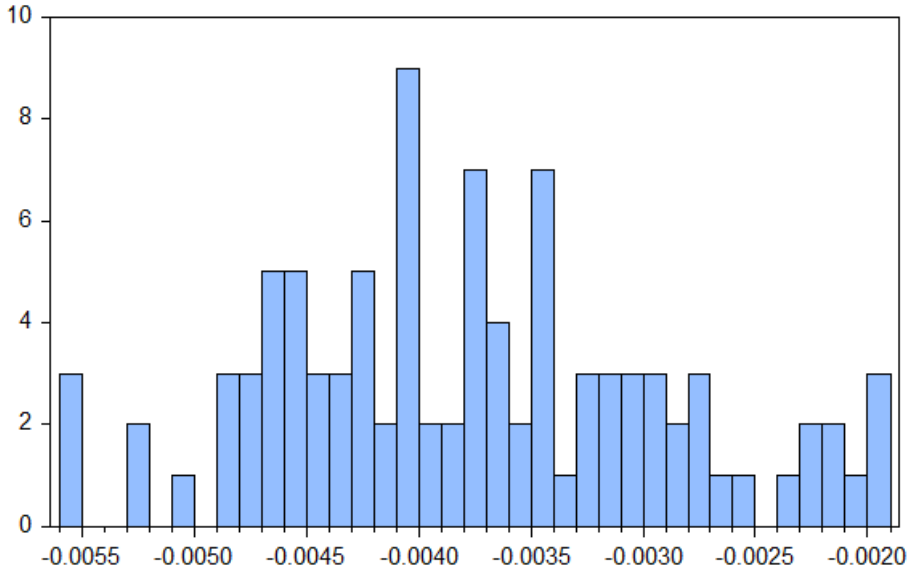


Figure 2, Panel B. Neglected firm effect distribution for Bursa Malaysia.



Hence, these observations support **H1(a)** but not **H1(b).** Moreover, we conclude that although there is a neglected firm effect both in the LSE and BM, its nature clearly differs between these two markets. Furthermore, the effect changes substantially for the LSE sample after 2013.

The explanatory power of the panel regressions is satisfactory, given that we are predicting monthly returns over a fairly long period using a parsimonious model. Although it is beyond the scope of this study, the explanatory power could be improved by including additional variables, such as leverage, Tobin-Q, return on assets (ROA), and book-to-market ratios.

5.2 Moderation effects

In this section, we examine moderation effects coming from firm size (**H2**) in a panel fashion for the first 60-month estimation window starting from 2006M01, as we did previously. It reveals how the b_2 coefficient of stock returns varies with time. Firm size does not have a

statistically significant moderating role for LSE firms during the entire study period (2010M12–2018M12).[5]

However, for BM firms, firm size has a significantly positive moderating role only during the periods of 2012M02–2013M08 and 2018M01–2018M12.[6] As expected, during the same periods, the neglected firm effect coefficient for BM firms is negative and statistically significant. The moderation effect suggests that the impact of the number of analysts on stock returns depends on the size of BM firms for the periods 2012M02–2013M08 and 2018M01–2018M12, but not for LSE firms. Hence, these results support **H1 (a)** but not **H1 (b)** or **H2.**

5.3 Stationarity of the neglected firm effect

We use a panel model for the first 60-month estimation window starting from 2006M01 and the aforementioned procedure for every month in our time series and construct the time series for the b_2 coefficient for the LSE and BM to test whether they are nonstationary over time (**H3**).

We use two individual unit-root tests, the augmented Dickey–Fuller (ADF, 1979) and Kwiatkowski, Philips, Schmidt, and Shin (KPSS, 1992) tests. The ADF test is the same as the simple Dickey–Fuller (DF) test, except the regression equation is increased by the lags of b_2. The KPSS test takes the stationarity as a null hypothesis, allowing the residuals to be autocorrelated. Thus, the combination of the KPSS test, which tests for stationarity, and the ADF test, which examines unit roots, allows us to distinguish time series that appear to be stationary, time series showing a unit root, and time series for which the data or the tests do not provide sufficient information to determine whether they are stationary or integrated. Thus, by combining the ADF and KPSS criteria, we can obtain prior knowledge if the series is stationary.

[5] We do not present the results due to space limitations; results are available upon request.
[6] We do not present the results due to space limitations; results are available upon request.

Table 2 reports the results of the ADF tests for the LSE and BM. The time series involved contain unit roots; hence, according to the ADF test, they are nonstationary. According to the KPSS test, the neglected firm effect for the LSE is nonstationary at 1% and for BM at 10%; therefore, for BM, the neglected firm effect is stationary according to the KPSS test at the standard 5% level.

Table 2. Stationarity of the neglected firm effect.

	LSE		*BM*	
Method	Test statistic	*p*-value	Test statistic	*p*-value
H0: There is a unit root in the neglected firm effect				
Augmented Dickey-Fuller (ADF) test	**-1.8510**	0.3540	**-1.5837**	0.4870
H0: The neglected firm effect is stationary				
The Kwiatkowski, Philips, Schmidt and Shin (KPSS) test	0.8353***		0.3817*	

Notes: Test statistic denotes the augmented Dickey-Fuller t-tests for a unit root in levels for LSE and BM. The number of lags was selected using the Schwarz information criterion. Boldface values denote sampling evidence in favour of unit roots. (***), (**) and (*) signify a rejection of the unit root hypothesis at the 1%, 5% and 10% levels, respectively.

Both the ADF and KPSS tests show that the neglected firm effect is nonstationary for the LSE. For the BM, the results are mixed: the ADF test suggests no stationarity, whereas the KPSS test suggests nonstationarity at 10%; however, at the traditional 5% level, this test suggests stationarity. Hence, **H3** is supported.

6. Robustness Checks

In this section, we test the robustness of our results, as follows.

(i) In the LSE, the neglected firm coefficient is positive in some periods, thus implying that firms followed by fewer analysts earn lower returns, on average than those followed by many analysts (a reverse neglected firm effect).

(ii) The role of size as a moderator is insignificant for both LSE and BM firms. The insignificant interaction term suggests that the neglected firm effect does not vary by firm size.

(iii) The neglected firm effect is clearly nonstationary for the LSE firms, whereas the results are mixed for BM firms.

6.1 The impact of the Brexit referendum

On June 23, 2016, the United Kingdom voted to exit the European Union (EU), effective in 2019. Since then, the value of the pound has plunged, from close to US$1.50 before the vote to approximately US$1.20 after the vote.

The treatment group in the present analysis is the 313 nonfinancial companies from the LSE, and the control group is the 313 nonfinancial companies from BM. The entire sample period is 2006M01–2018M12, with 156 monthly observations, 30 of which are after the referendum (2016M07–2018M12). We use 30 monthly observations before (2014M01–2016M06) and 30 after the referendum to investigate whether the results above remain robust. We set up a *Brexit* dummy variable that takes the value of one for the months after the Brexit referendum of 23 June 2016 and zero otherwise. Hence, we augment Eq. (1) and Eq. (2) as follows:

$$R_{i,t} = b_{i,0} + b_1 S_{i,t} + b_2 N_{i,t} + \gamma_1 Brexit + v_{1,i,t} \quad (1a)$$

$$R_{i,t} = b_{i,0} + b_1 S_{i,t} + b_2 N_{i,t} + b_3 N_{i,t} S_{i,t} + \gamma_1 Brexit + v_{2,i,t} \quad (2a)$$

The results are presented in Panel A of Table 3.

Table 3. Firm-level neglected firm effect coefficients before and after the Brexit referendum.

Panel A. Period: 2014M01–2018M12				
Company return	Eq. (1) LSE	Eq. (1a) LSE	Eq. (1) BM	Eq. (1a) BM
	Coefficient	Coefficient	Coefficient	Coefficient
Firm size (b_1)	-0.0153*** (0.0048)	-0.0185*** (0.0051)	-0.0167* (0.0092)	-0.0124 (0.0097)
Neglected firm effect (b_2)	-0.0014* (0.0008)	-0.0010 (0.0008)	-0.0049*** (0.0012)	-0.0051*** (0.0012)
Brexit (γ_1)	-	0.0090*** (0.0024)	-	-0.0082*** (0.0021)
_cons	0.0822 (0.0242)	0.0919 (0.0251)	0.1234 (0.0600)	0.0991 (0.0629)
R-squared	2.46%	2.55%	2.85%	2.99%
Number of observations	18,033	18,033	15,944	15,944
Panel B. Period: 2014M01–2018M12, considering moderation effect				
Company return	Eq. (1) LSE	Eq. (1a) LSE	Eq. (1) BM	Eq. (1a) BM
	Coefficient	Coefficient	Coefficient	Coefficient
Firm size (b_1)	-0.0149*** (0.0050)	-0.0180*** (0.0053)	-0.0187** (0.0095)	-0.0145 (0.0100)
Neglected firm effect (b_2)	-0.0005 (0.0028)	0.0007 (0.0028)	-0.0209*** (0.0038)	-0.0207*** (0.0039)
Moderation effect b_3	-0.0001 (0.0003)	-0.0002 (0.0003)	0.0020*** (0.0005)	0.0020*** (0.0005)
Brexit (γ_1)	-	0.0091*** (0.0024)	-	-0.0081*** (0.0021)
_cons	0.0810*** (0.0254)	0.0898*** (0.0261)	0.1330** (0.0613)	0.1089* (0.0641)
R-squared	2.46%	2.55%	2.94%	3.08%
Number of observations	18,033	18,033	15,944	15,944

Notes: Robust standard errors of estimates are reported in parentheses. *significance at the 10% level, ** significance at the 5% level, *** significance at the 1% level. Brexit is a dummy variable that takes the value of one for the months after the Brexit referendum on 06/24/2016 and zero otherwise. LSE is for the LSE firms, and BM is for the BM firms.

As we can see, result (i) is robust when we account for the impact of Brexit on the stock returns for the BM firms. It is worth noting that there is no change in the behaviour of the neglected firm effect during the periods before and after the Brexit referendum for BM firms:

b_2 is -0.0049 and statistically significant at 1% before the Brexit referendum and -0.0051 and statistically significant at 1% after the Brexit referendum. However, for the LSE firms b_2 is -0.0014 and statistically significant at 10% and after the Brexit referendum is -0.0010 and not statistically significant.

These results are reasonable since the Brexit referendum is a national policy and hence it is reasonable to expect that effects LSE firms but not BM firms. Although there is literature noting that the Brexit referendum affected firms in other countries, these papers discuss the impact of the Brexit referendum on the value of European logistics companies (Tielmann and Schiereck, 2016), on the Warsaw Stock Exchange (Jackowicz, Kozłowski, and Podgorski, 2017) or European financial markets (Caporale, Luis, and Tommaso, 2018). As Malaysia is not in Europe and is far away from the UK, the result that the Brexit referendum has not affected BM firms is reasonable. However, the Brexit referendum affected the neglected firm effect coefficient (b_2) since it brought a significant change to the LSE market characteristics and hence lowered the significance of the neglected firm effect coefficient in the LSE.

The firm size effect is negative and significant for both markets (although for BM, at the 10% level) before the vote; however, after the vote, the firm size is not significant for the BM firms. The Brexit referendum has a positive and significant (at 1%) impact on the LSE firms and a negative and significant (at 1%) impact on the BM firms.

Next, we test the robustness of the role of size as a moderator for LSE and BM firms. The results are presented in Panel B of Table 3. As we can see, result (ii) is also robust when we account for the impact of Brexit on the stock returns in LSE and BM firms. Hence, the role of size as a moderator is insignificant for LSE firms, but positive and significant for BM firms, during the period 2014M01–2018M12. The insignificant interaction term suggests that the relationship of number of analysts with stock returns does not vary by levels of firm size, as in the base case scenario.

6.2 Unit root tests with structural breaks

In this section, we test the robustness of result (iii), that is, no stationarity. To test the robustness of our nonstationarity result, we test structural breaks in the series of LSE and BM b_2 coefficients. As Perron (1989) indicates, structural changes and unit roots are interlinked, and conventional unit root tests are biased toward a false unit root null when the data are trend stationary with a structural break.

Thereafter, we adhere to the basic framework outlined in Perron (1989), Banerjee et al. (1992), Zivot and Andrews (1992), and Vogelsang and Perron (1998), among others. We consider an innovational outlier (IO), which assumes that the break occurs gradually, with the breaks following the same dynamic path as the innovations. We choose an optimal number of lags, *k*, and a candidate date, *T*, at which to evaluate the break.

First, we specify an a priori fixed break date based on the original Perron (1989) test, and then we endogenously determine the break dates from the data (see Zivot and Andrews, 1992; Banerjee et al., 1992; Vogelsang and Perron, 1998) by minimising the DF t-statistic. The DF t-statistic selects the date providing the most evidence against the null hypothesis of a unit root and in favour of the breaking trend alternative hypothesis. As a priori fixed break date, we choose the date of the Brexit referendum, June 23, 2016, presented in Table 4.

Under both an a priori fixed break date and a date providing the most evidence against the null hypothesis of a unit root and in favour of the breaking trend alternative hypothesis for both series, LSE and BM, we cannot reject the null hypothesis of a unit root in favour of a breaking trend alternative.

Table 4. Unit-root test with structural breaks.

Sample period: 2010M12–2018M12				
A-priori fixed break date.	t-statistic	*k*	Critical values at 5%	Break date
LSE	**-1.5605**	1	-4.1053	2016M06
BM	**-2.4366**	0	-4.1053	2016M06
Dickey-Fuller t-statistic		*k*		
LSE	**-3.3921**	1	-4.4436	2013M07
BM	**-2.5099**	0	-4.4436	2017M11

Notes: Test statistic denotes the augmented Dickey-Fuller t-tests for a unit root in levels for LSE and BM. The number of lags was selected using the Schwarz information criterion. Boldface values denote sampling evidence in favour of unit roots. *T*=97 observations. 2016M06 denotes the date of the Brexit referendum, June 2016. The break type is an innovational outlier. The trend and break specifications are on the intercept.

Figure 3 also presents a graph of the ADF statistics and autoregressive (AR) coefficients for each test date. All figures show a large dip—in 2013M07 for LSE firms and in 2017M11 for BM firms. However, we cannot reject the null hypothesis of a unit root, thus offering evidence in favour of the robustness of result (iii) of nonstationarity.

Figure 3, Panel A. Dickey-Fuller test statistics for the LSE.

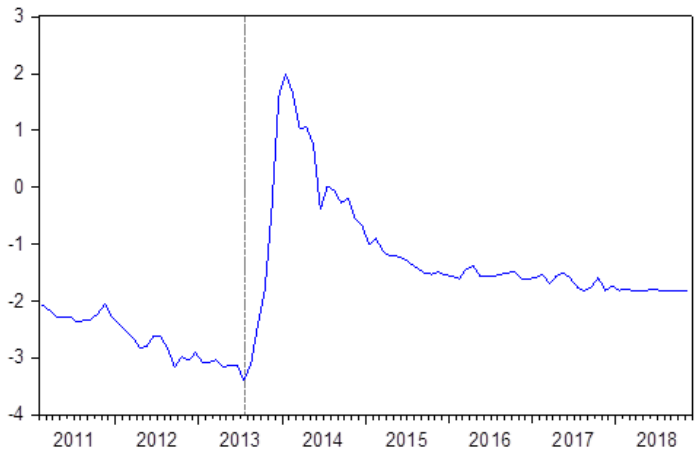


Figure 3, Panel B. Dickey-Fuller autoregressive coefficients for the LSE.

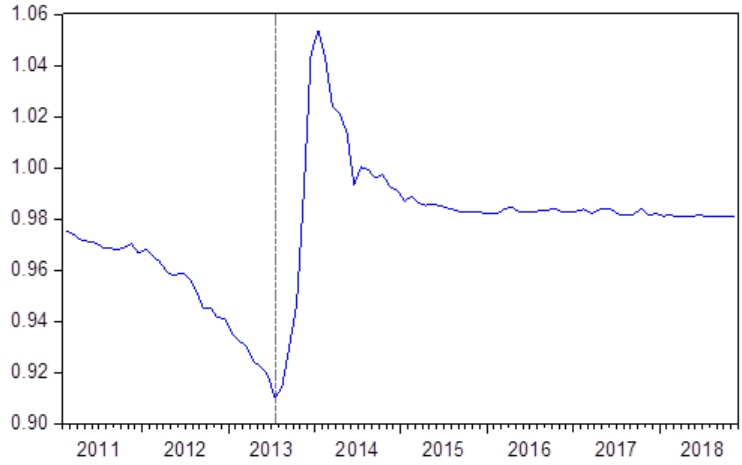


Figure 3, Panel C. Dickey-Fuller test statistics for BM.

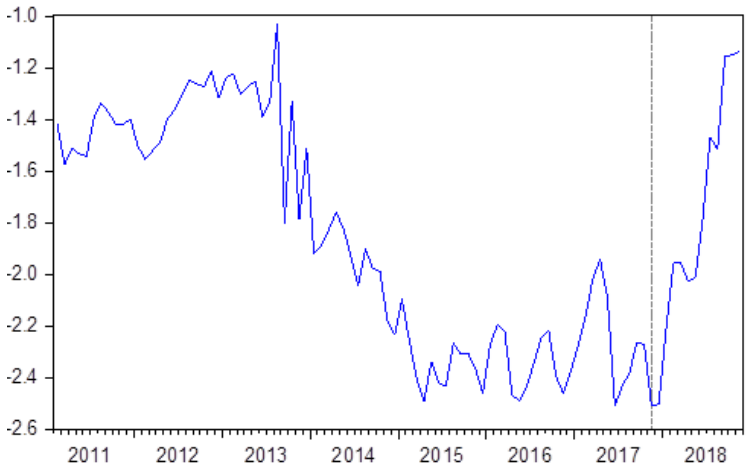
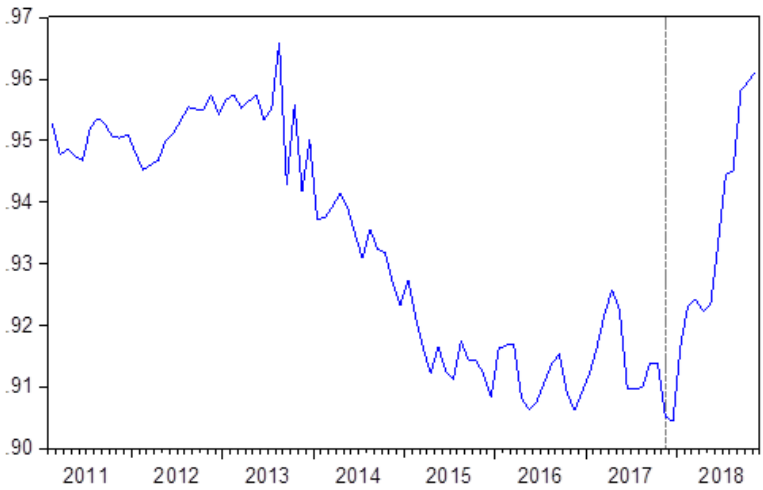


Figure 3, Panel D. Dickey-Fuller autoregressive coefficients for BM.



6.3 Focus only on followed firms

As previously mentioned (see Section 4), the average LSE (BM) company in our sample is followed by approximately six (three) analysts. The most followed company in our LSE (BM) sample is AstraZeneca (DIGI MK Equity), which, in 2010M07 (2013M11), was followed by 52 (33) analysts. We also mentioned (in the same section) that 170 LSE and 247 BM firms, for at least one month during the period under study, were not followed by any analyst, while in Panel C of Table 1, we provide the summary statistics on the firms not followed by any analyst. As we can see, on average, among those firms not followed by any analyst, the mean (median) number of months that the firms have no coverage is 50 (43) for LSE firms and 81 (88) for BM firms. However, there is quite a large variance in both markets, since the standard deviation is 36 for the LSE and 44 for BM.

In this section, we focus only on the firm-monthly observations where at least one analyst follows a firm and test the robustness of results (i) to (iii) under this sample scenario. The reason for conducting this robustness test is that the number of analysts following a company is the result of an analysts' decision to add or drop coverage for a specific firm, change the firms they follow or exit analyst activity in general, hence if the variable $N_{i,t}$ takes the value of zero, this might reveal interesting results regarding the neglected firm effect as it is captured by the coefficient b_2.

The summary statistics of the variables are presented in Panels D and E of Table 1. The results suggest that stock returns remain negatively skewed for LSE companies, while for BM companies, they turn from being positively to being negatively skewed. The variables, the number of analysts, and firm size remain positively skewed for both LSE and BM firms.

The maximum stock return in the period 2006–2018 among the 313 firms listed in the LSE that are followed by at least one analyst remains at 232% for 88 Energy Limited in 2016M01 which is the same as in the base case scenario, while the minimum return is now –223% for

Amur Minerals Corporation in 2009M01. Among the 313 listed BM companies that are followed by at least one analyst, the maximum stock return is now 81% for Genetech Technology Berhad, while the minimum return remains at –196% for Adventa Bhd in 2013M03 as in the base case scenario. Again, all variables for BM show overdispersion, except for firm size. AstraZeneca (DIGI MK Equity) remains the most followed company in 2010M07 (2013M11), with 52 (33) analysts following the company, while the average number of analysts following the LSE (BM) companies in our sample is approximately seven (six) analysts.

As previously, for the neglected firm effect, we conduct panel rolling regressions for the first 60-month estimation window starting from 2006M01.

Figure 4, Panels A and B illustrate the time evolution of the estimated coefficient b_2 for the LSE and BM, respectively, along with standard error bands.

For BM, b_2 is statistically significant and negative, as expected, for the entire study period, exactly as in the base case scenario. For the LSE, b_2 is statistically insignificant for the periods 2013M03–2013M10 and 2018M01–2018M12.[7] Therefore, during the period 2012M07–2012M11, it is statistically significant. In other words, now, b_2 becomes 'more' significant compared with the base case scenario.

For the LSE, b_2, again, starts as positive in 2010, declines, and starts becoming negative in 2013M09, exactly as in the base case scenario, and continues declining until it reaches a minimum (again) in 2014M09, then it starts increasing again but remains in the negative area. It ranges from –0.3715% (2014M09), which is negative and significant, to 0.3287% (2011M04), which is positive and significant. Therefore, we again document a reverse neglected firm effect, as in the base case scenario. Hence, result (i) is robust under this sample scenario.

[7] The periods that~~where~~ b_2 is statistically insignificant for the LSE in the base case scenario are~~:~~ 2012M07–2012M11, 2013M02–2013M10, and 2018M02–2018M12.

Figure 4, Panel A. Neglected Firm Effect coefficients. London Stock Exchange, firms followed by at least one analyst.

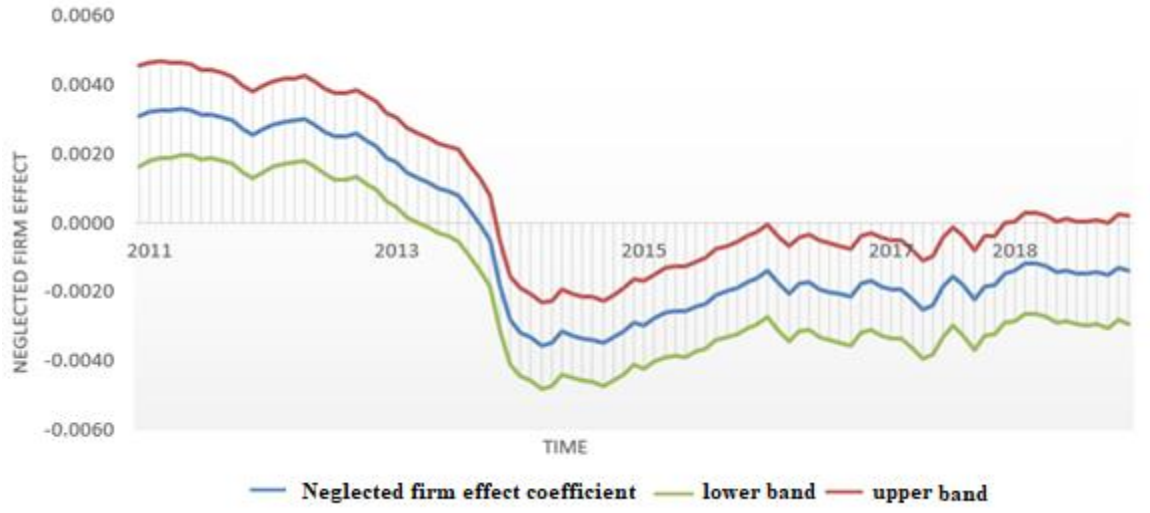
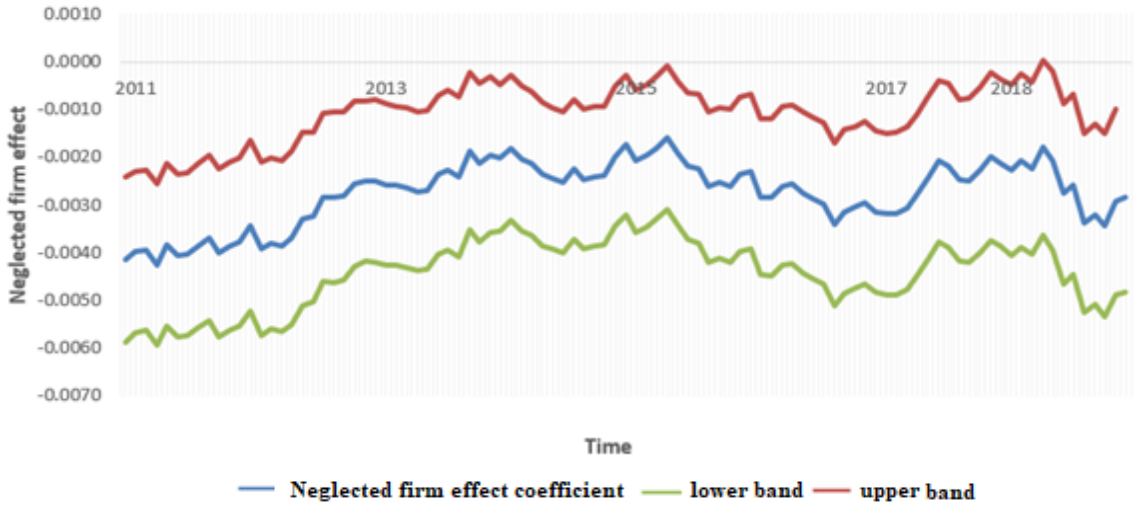


Figure 4, Panel B. Neglected Firm Effect coefficients. Bursa Malaysia, firms followed by at least one analyst.



Another observation is that b_2 varies with time and smoothly for both the LSE and BM firms. The distribution of the neglected firm coefficients for the LSE and BM are shown in Figure 5, panels A and B, respectively. We can see from Figure 4 that for BM, b_2 is statistically

significant and negative, as expected, for the entire study period. As shown in Figure 5, it ranges from −0.159% (2015M04) to −0.426% (2011M03).

Figure 5, Panel A. Neglected firm effect distribution. London Stock Exchange, firms followed by at least one analyst.

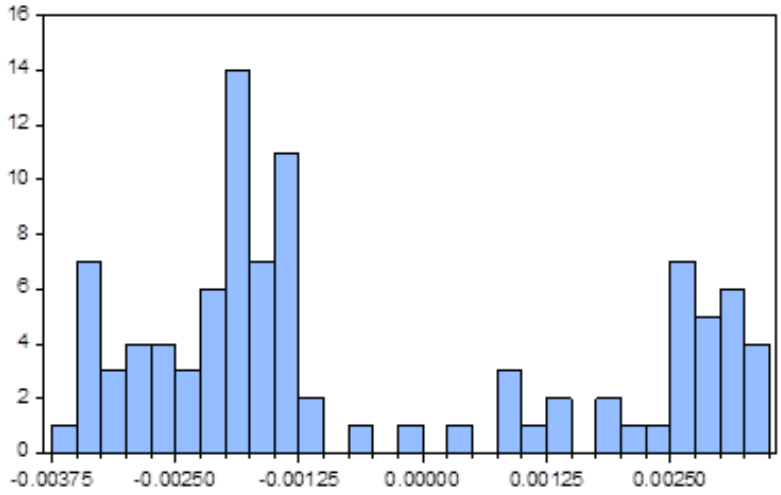
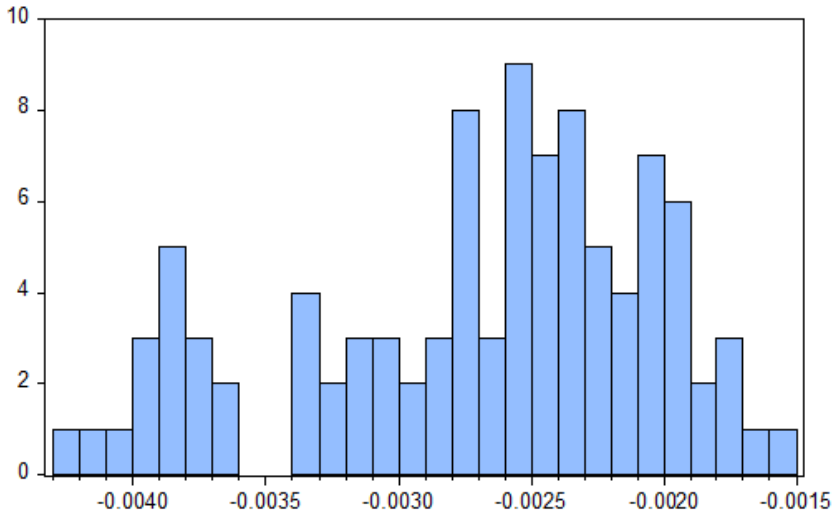


Figure 5, Panel B. Neglected firm effect distribution. Bursa Malaysia, firms followed by at least one analyst.



For the moderation effect, firm size has no statistically significant moderating role for LSE firms during the entire study period (2010M12–2018M12), as in the base case scenario.[8] However, for BM firms, firm size has a statistically significant positive moderating role, only for the periods 2012M08–2013M04 and 2018M01–2018M12, which are slightly shorter than the periods 2012M02–2013M08 and 2018M01–2018M12 in the base case scenario. During the other periods, the neglected firm coefficient for BM firms has the expected negative and statistically significant sign. Hence, it is safe to assume that the results above do not support **H2** (result (ii)).

Finally, we test the stationarity of the neglected firm coefficients for the LSE and BM with at least one analyst following a firm.

Time series ADF tests are reported in Table 5 for the LSE and BM focusing only on firms followed by at least one analyst. The time series involved contain unit roots; hence, they are nonstationary, according to the ADF test. According to the KPSS test, the neglected firm effect for LSE (BM) is nonstationary at 1% (5%). Thus, according to the KPSS test, the neglected firm effect for BM is nonstationary at the standard 5% level.

Therefore, both the ADF and KPSS tests indicate that the neglected firm effect is nonstationary for the LSE and BM. Hence, H3 is accepted (result (iii)). The results are now clearer compared with the base case scenario, where the neglected firm effect was nonstationary for the LSE while the results were mixed for BM. Here, both the ADF and the KPSS test results suggest nonstationarity.

[8] The only exception is for the period 2014M03–2015M05, where the role of firm size was significantly positive. We do not present the results due to space limitations; results are available upon request. During the same period, the neglected firm coefficient for LSE firms has the expected negative and statistically significant sign.

Table 5. Stationarity of the Neglected firm effect, when we focus only on the firms that are followed by at least one analyst.

	LSE		*BM*	
Method	Test statistic	*p*-value	Test statistic	*p*-value
H0: There is a unit root in the neglected firm effect				
Augmented Dickey-Fuller test statistic	**-1.7269**	0.4145	**-2.5725**	0.1022
H0: The neglected firm effect is stationary				
The Kwiatkowski, Philips, Schmidt and Shin (KPSS) test	0.8249***		0.4674**	

Notes: Test statistic denotes the augmented Dickey-Fuller t-tests for a unit root in levels for LSE and BM. Number of lags was selected using the Schwarz information criterion. Boldface values denote sampling evidence in favour of unit roots. (***), (**) and (*) signify rejection of the unit root hypothesis at the 1%, 5% and 10% levels, respectively.

We also test for structural breaks in the series of LSE and BM b_2 coefficients. As the a priori fixed break date, we again select the date of the Brexit referendum, 23 June 2016. There is a large dip in DF test statistics and autoregressive coefficients in 2013M07 for LSE firms (exactly as before) but in 2012M03 for BM firms (different from 2017M11 as in the base case scenario) shown in Figure 6. Combined with Table 6, for LSE and BM, in this case, we still cannot reject the null hypothesis of a unit root, which provides evidence in favour of the robustness of result (iii) of nonstationarity (Table 6).

Figure 6 also provides a graph of the ADF statistics and AR coefficients at each test date. Both figures show a large dip in 2013M07 for LSE firms (exactly as before) and in 2012M03 for BM firms. However, we cannot reject the null hypothesis of a unit root, which provides evidence in favour of the robustness of result (iii) of nonstationarity.

Table 6. Unit-root test with structural break, when we focus only on the firms that are followed by at least one analyst.

Sample period: 2010M12–2018M12				
A-priori fixed break date.	t-statistic	*k*	Critical values at 5%	Break date
LSE	**-1.5129**	1	-4.1053	2016M06
BM	**-2.5311**	0	-4.1053	2016M06
Dickey-Fuller t-statistic		*k*		
LSE	**-3.5650**	1	-4.4436	2013M07
BM	**-3.8872**	0	-4.4436	2012M03

Notes: Test statistic denotes the augmented Dickey-Fuller t-tests for a unit root in levels for LSE and BM. The number of lags was selected using the Schwarz information criterion. Boldface values denote sampling evidence in favour of unit roots. (***), (**) and (*) signify a rejection of the unit root hypothesis at the 1%, 5% and 10% levels, respectively. T=97 observations. 2016M06 denotes the date of the Brexit referendum, June 23rd, 2016. The break type is an innovational outlier. The trend and break specifications are on the intercept.

Figure 6, Panel A. Dickey-Fuller test statistics for LSE, firms followed by at least one analyst.

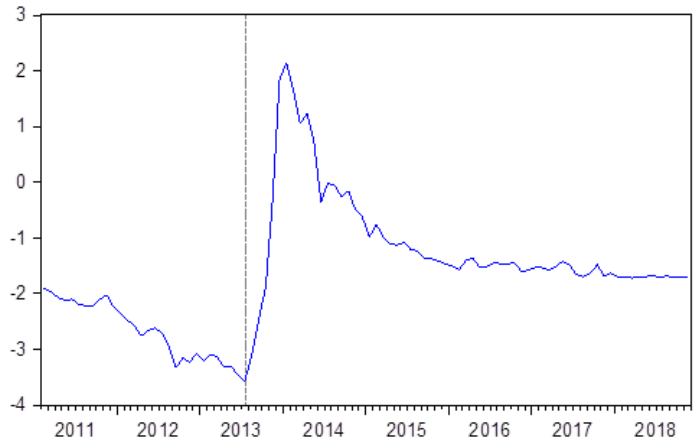


Figure 6, Panel B. Dickey-Fuller autoregressive coefficients for LSE, firms followed by at least one analyst.

Figure 6, Panel C. Dickey-Fuller test statistics for BM, firms followed by at least one analyst.

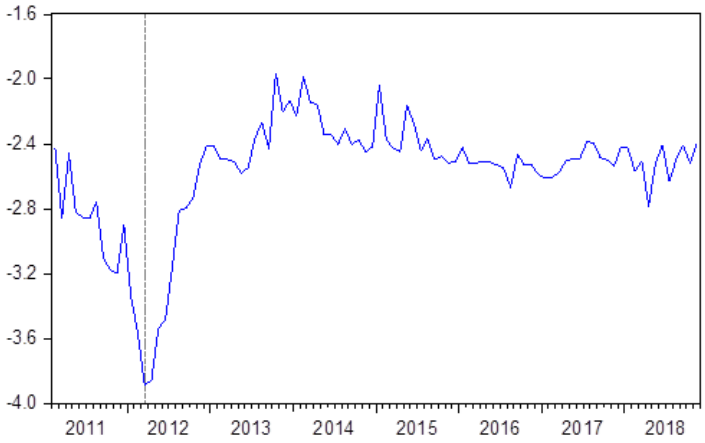
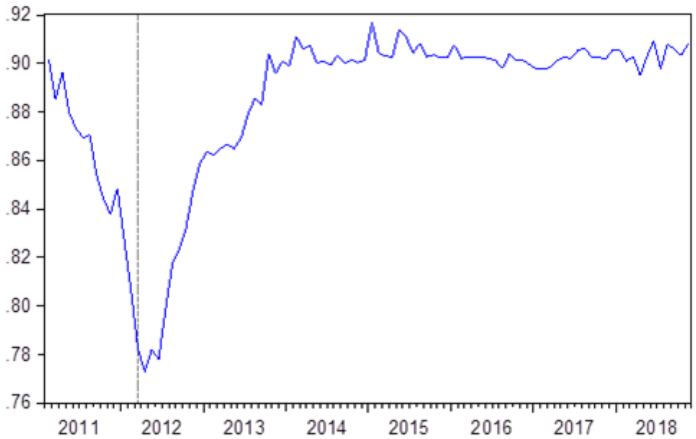


Figure 6, Panel D. Dickey-Fuller autoregressive coefficients for BM, firms followed by at least one analyst.



7. Accounting for Endogeneity

Our study focuses on the impact of analyst following on stock returns; however, we recognise that analyst following is an endogenous variable. Although the neglected firm effect suggests that greater analyst following causes stock returns to fall, the causality may run in the opposite direction; that is, higher stock returns cause the number of analysts to fall (see Chang et al., 2006).

Following the previous discussion, we follow Chang et al. (2006) and conduct a two-stage procedure. In the first step, we use a count data methodology, that is, a panel Poisson regression model, as in Rock, Sedo, and Willenborg, 2000) to predict the number of analysts based on firm-specific variables (lagged by one period). In the second stage, we use the predicted value instead of the actual number of analysts covering the firm. We use the first lags of ROA, total market value, and return on capital as instruments in the first stage.

We repeat the rolling regression with panel data and use the two-stage procedure to account for endogeneity (results are available upon request). Again, for BM, b_2 is statistically significant and negative, as expected, for the entire study period, when we account for endogeneity. It ranges from –0.5794% (2018M11) to –0.1983% (2012M09), around the same times as in the base case scenario. Meanwhile, for the LSE, in the periods 2012M04–2013M01, 2013M04–2013M10, and 2018M02–2018M11, b_2 is statistically insignificant, more or less in the same periods as in the base case scenario (2012M07–2012M11, 2013M02–2013M10, and 2018M02–2018M12). Moreover, for the LSE, b_2 starts as positive on 2010M12, declines, then starts being negative on 2013M09 and continues declining until it reaches a minimum on 2014M09; then, it starts increasing again but remains in the negative area, exactly as in the base case scenario. It ranges from –0.3920% (2014M09) to 0.3337% (2010M12). The positive b_2 again implies the existence of a reverse neglected firm effect for LSE firms, as in the base case scenario.

Another observation is that b_2 varies with time and smoothly, both for the LSE and BM. Hence, these observations support **H1 (a)** but not **H1 (b).** Moreover, we conclude that although the neglected firm effect applies in both the LSE and BM, its nature differs obviously between these two markets, with the effect changing substantially for the LSE sample after 2013.

We then study moderation effects coming from firm size (**H2**) in a panel fashion for the first 60-month estimation window starting from 2006M01, when we account for endogeneity. Firm size has no statistically significant moderating role for LSE firms during the entire study period, 2010M12–2018M12, as in the base case scenario.[9]

For BM firms, firm size has a significantly positive moderating role only during some periods as in the base case scenario; these periods in this case are 2012M02–2013M08 and 2018M01–2018M12. During the same periods, the neglected firm coefficient for BM firms has the expected negative and statistically significant sign. When we account for endogeneity, the results remain the same only for the period 2013M03–2013M09, while for the period 2018M01–2018M12, firm size has no statistically significant moderating role for BM firms when we account for endogeneity. Hence, it is safe to assume that the results above do not support **H2.**

Finally, we test for the stationarity of the neglected firm effect over time (**H3**) for the LSE and BM when we account for endogeneity. The time series involved contain unit roots; hence, they are nonstationary, according to the ADF test. According to the KPSS test, the neglected firm effect for the LSE (BM) is nonstationary at 1% (5%). Meanwhile, in the base case scenario for BM, the neglected firm effect is stationary according to the KPSS test at the standard 5% level. Therefore, both the ADF and KPSS test results indicate that the neglected firm effect is

[9] We do not present the results due to space limitations; results are available upon request.

nonstationary for the LSE, and for BM, the results are not mixed as they are in the base case scenario. Hence, **H3** is supported with greater confidence.[10]

8. Discussion and Implications

The analysis of the behaviour of the neglected firm effect, in samples of companies listed in a developed and developing stock market, has several important implications for investors.

However, before we discuss the implications of this study for investors, we need to emphasise that we have considered the relationship between firm size and the number of analysts following a company by using size as a moderator for any small firm effects and also its interaction with the number of analysts.

The implications for investors can be categorised based on each of our results. For BM, the neglected firm effect coefficient is significantly negative, as expected, for the entire study period. For the LSE, it is statistically insignificant in some periods and even positive in other periods, implying that firms followed by fewer analysts earn lower returns, on average than firms followed by more analysts (a reverse neglected firm effect). These results support **H1** for BM but not for LSE firms.

These results have implications for investors who follow the philosophy of buying neglected firms since this strategy seems to be more successful in a developing market such as Malaysia than in a developed market such as the United Kingdom. Meanwhile, in the case of a reverse neglected firm effect, the strategy of buying neglected firms is unsuccessful.

The previous literature claims that the neglected firm effect persists over and above the small firm effect. Arbel and Strebel (1982) argue that small firms with less analyst coverage could obtain higher excess returns compared to large firms that are followed by more analysts.

We include firm size in our regression equations to control for small firm effects and take one step further by studying the moderating role of firm size in the relationship between the

[10] The results of the ADF and KPSS tests are available upon request.

number of analysts and stock returns. We find that the role of size as a moderator is insignificant for both LSE and BM firms. The insignificant interaction term suggests that the relationship between the number of analysts and stock returns does not vary by firm size. This result implies that investors who buy neglected firms should not worry about the success of this strategy varies with firm size. Firm size has no statistically significant moderating role for LSE firms during the entire study period. However, for BM firms, firm size has a statistically significant and positive moderating role in only a small period of time, especially when we account for the endogeneity of the number of analysts.

Finally, we investigate the time-varying behaviour of the neglected firm effect coefficient and provide evidence that it is not constant over time. The neglected firm effect coefficient is nonstationary for both LSE and BM firms, and this result is robust to endogeneity, a priori fixed or endogenously determined structural breaks, and an alternative sample scenario in which we included only firm-monthly observations where at least one analyst follows a firm. This result implies that investors who buy neglected firms should be aware that the success of this strategy varies with time, and it is not always successful.

9. Conclusions

This study examines the dynamic behaviour of the neglected firm effect using two firm samples, one listed in a developed and one in a developing stock market since developed markets have longer existence, higher maturity, and technological advancements that facilitate faster dissemination of information to participants compared to developing markets. This comparison of a developed and a developing market advances our understanding of the behaviour of market participants – analysts and investors of different markets. A more developed market, like LSE, is expected to have better analyst coverage, and hence a weaker neglected firm effect, as compared to a less developed market like BM.

The results reveal that the neglected firm effect is a dynamic rather than static phenomenon. Rolling regression analysis with panel data reveals that for the developing market, the neglected firm effect is statistically significant and negative, as expected, throughout the study period, whereas for the developed market, it is statistically insignificant in some periods and even positive in other periods, when a reverse neglected firm effect is observed. In the presence of a reverse neglected firm effect, the strategy of buying neglected firms is unsuccessful. Therefore, investors who buy neglected firms should be aware that this strategy appears to be more successful in a developing market such as Malaysia than in a developed market such as the United Kingdom.

Obtaining more insight into moderating variables is a reasonable next step in the development of our knowledge of the underlying dynamics in the relationship between the number of analysts and stock returns. The role of size as a moderator is insignificant for LSE and BM firms; however, firm size has a statistically significant and positive moderating role for BM firms in only a small period of time. The insignificant interaction term suggests that the relationship between the number of analysts and stock returns does not vary with firm size. This result implies that investors who buy neglected firms need not worry about the success of this strategy varies with firm size.

To better describe the dynamic evolution characteristics of the neglected firm effect, we provide evidence that the neglected firm effect is nonstationary for both our samples of firms in a developed and a developing market. This result indicates that investors who buy neglected firms should be aware that the success of this strategy varies with time.

Our results are robust to the fact that analyst following is an endogenous variable. Although the neglected firm effect suggests that greater analyst following causes stock returns to fall, the causality may run in the opposite direction—higher stock returns may cause the number of analysts to fall. In addition, our results are robust to the impact of the Brexit referendum as a

fixed a priori structural break. Moreover, they are robust to endogenously determined structural breaks or an alternative sample scenario, in which we include only firm-monthly observations with at least one analyst following a firm.

Our results are useful for investors, and while previous studies provide the overall insight that analyst coverage matters, our results provide specific guidance regarding the types of markets and time periods for which analyst coverage is likely to matter the most.

However, our work is not without its limitations, and these limitations themselves suggest interesting questions for future research. One such limitation is the development of a theoretical framework able to explain why the neglected firm effect is nonstationary and in some time periods it is insignificant, or why it varies among developed and developing markets. However, we believe that our results launch a step for further research on the future evolution of the neglected firm effect, its (non)stationarity, and its significance through time and across markets. Furthermore, they help recognise that the neglected firm effect reflects a complex interaction between the market setting and behaviour of the market participants, including analysts and investors.

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