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Asset mispricing: An analysis between developed and emerging markets

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Abstract:

With the use of the Stambaugh, Yu & Yuan (2015) mispricing score and data of 16 countries between 1994 and 2018, I investigate whether emerging markets are more mispriced compared to developed markets. I find for both markets and underlying countries statistically significant monthly abnormal returns. Developed markets are found to be as relatively mispriced as emerging markets with emerging markets as the difference in abnormal returns is statistically insignificant. Exchange rates and the regression R^2, as proxy for pricing inefficiency, are found to be the only significant explanations towards the mispricing.

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1 Introduction

As emerging markets started to develop their stock markets, investors were able to diversify their investments more. High returns paired with high volatility driven by currency, liquidity and interest risk have been seen in the 90's (Gençay & Selçuk, 2004). These higher returns paired with the increased risk were often target of risk-seeking fund managers. Huij & Post (2011) investigated the performance of these mutual funds in emerging markets and compared them to U.S. mutual funds. They concluded that emerging market funds generally have a higher performance after accounting for risk compared to U.S. funds, while also generating enough return to cover their expenses.

However, in emerging markets, investment instruments such as short selling and derivatives were not available in some markets. As such, mainly in the earlier years, funds were to only able to sell shares that they had in their possession. Elling & Faust (2010) find that mutual funds are generally not able to outperform their traditional benchmarks which could be a result of passive management as they tend to not adjust their risk profile too much. This raises the question whether emerging market performance actually outperforms the developed markets and if these securities are priced efficiently.

There is also a widespread perception that emerging markets have a stronger sense of mispricing compared to developed markets (Jacobs, 2016). Where mispricing could be defined as an inaccurate value due to pricing errors or inefficiencies and market frictions. This study aims to add to the research in the international market on asset mispricing between developed and emerging markets. In particular, are emerging markets objectively more mispriced compared to developed markets and are there any country-level variables that could potentially explain the mispricing?

I investigate this by looking at individual countries classified as either emerging or developed and countries grouped under their classification. By implementing the mispricing measure of Stambaugh et al, (2015), based on eleven capital return anomalies, for a number of international countries, I try to differentiate whether emerging markets are subject to a higher degree of relative mispricing compared to developed markets. Through the creation of portfolios based on the individual anomalies and mispricing score, I use a three-factor model to derive the average abnormal returns each portfolio is able to obtain. Furthermore, I then try to find possible mispricing explanations through the use of country-level explanatory variables.

My work shows that all of the individual countries show signs of mispricing based on the eleven anomalies. This mispricing is as prevalent in emerging markets as in developed markets where the return strategies obtain mostly higher returns in developed markets. The difference in alphas between developed and emerging markets tend to not be statistically significant or economically meaningful which is robust with the use of different measures. Furthermore, only the R^2 and exchange rate show to significantly explain the possible mispricing through the use of different specifications for both equally-weighted and value-weighted returns.

The paper is structured as follows: Section 2 provides the theoretical framework around asset pricing efficiency based on existing literature. Section 3 subsequently presents the methodology and data derivation of the study. The results and conclusions from my study are presented in Section 4 and 5.

2 Theoretical framework

2.1 Asset pricing

One of the first asset pricing models to estimate whether the stock price reflects the fundamental value of the asset is the capital asset pricing model (CAPM) of Sharpe (1964) and Lintner (1975). While this model is still being used in different applications and is discussed in multiple courses, research (Fama & French, 2004 and Perold, 2004) found that it wasn't able to explain the average return differences of an asset against a proxy asset of the market. Where the CAPM tries to give insights into which risks are related to the returns, assuming that the market is informationally efficient (the Efficient Market Hypothesis).

However, even if the market is efficient it is possible that the market can't really make use of the information. Hou & Moskowitz (2005) show that even if the market is informationally efficient, the introduction of market frictions can significantly impact the pricing process of a stock. While they find that the market frictions mostly impact smaller firms, these frictions generate substantial variations in the returns.

With the EMH it was believed that any new information which influences the stock prices would be immediately incorporated into the price with no delay. Therefore, investors should not be able to select "undervalued" stocks which would allow the investor to generate greater returns than those who have a randomly selected portfolio as long as they have the same risk (Malkiel, 2003). Therefore, it was seen as impossible to consistently beat the market when

accounting for the risk, as prices would only deviate with the entrance of new information. The evidence surrounding the CAPM and EMH however has shown that the market price doesn't always reflect a precise estimate of a stock's value.

With the CAPM, for example, Fama and French (1993) include a firm size and book-to-market equity risk factor in order to try and explain the differences in average returns. These factors, according to Fama & French (1993), are compensations for the extra risk smaller companies and high book-to-market firms carry due to the higher possibility of distress. As such, it could be used to assess if a return predictor still has predictive power following adjustments against a market, size and value factor (Nagel, 2013). If such predictor still has significant power after adjustments it could indicate that these abnormal returns are a result of some possible mispricing. Alike the works of other researchers, we are able to see that average returns are related to firm characteristics (Fama & French, 1996).

Next to the risk-based explanation on the variation within excess returns following the earlier works of Fama & French, comes the explanation based on mispricing and behavioral finance. Lakonishok, Shleifer and Vishny (1994) argue that the investment strategies commonly used, tend to get higher returns due to the suboptimal behavior of investors and that these strategies are not fundamentally riskier. They find that these abnormal returns are due to these value stocks to be underpriced and thus that the value premium is not risk-based but indicates mispricing to an extent. This mispricing is consistent with the expectational errors of investors whom expected that glamour stocks would grow faster than the value stocks.

Mispricing itself however can have different definitions depending on the environment *you* look at. Any model that is used, such as CAPM, will always have a component that the model can't explain. This component, for one, could still be seen by the market but the model just isn't capable of explaining it. On the other hand, the component could indicate that the market hasn't valued the asset correctly and thus the component shows value on which investors could act. This mispricing is however difficult to differentiate within the error of the chosen model.

With mispricing not being directly observable, researchers try to estimate a proxy for it. As a proxy only tries to imitate the real effect it is fundamentally imperfect. As mispricing plays an important role in finance theory, it is important that this proxy is of good quality. Asset mispricing however has many different origins and components. A chosen proxy could potentially explain mispricing to a certain degree but may still miss some vital components.

Shleifer and Vishny (1990) investigate the extent of mispricing between short- and long-term assets. They mention that in practice, arbitrage is cheaper for assets that cannot be mispriced for a long time. Therefore, the net expected return from arbitrage must be the same in an equilibrium which would indicate that short-term assets have to be more mispriced as long-term assets more expensive to arbitrage. They find however that the costs and benefits of arbitrage lead to systematically more accurate pricing off the short-term assets compared to the long-term assets. This would suggest that the mispricing would only be prevalent for a short time due to rational agents correcting the mispricing of other investors. Nevertheless, mispricing could also worsen in the short run due to noise trader risk. Noise trader risk is the risk which arises from uninformed traders who trade on the sounds in the market and not on signals. This could cause the arbitrageurs that are trying to correct the mispricing to have to liquidate their positions prematurely at a loss.

Inflation can also be seen as a component of mispricing in stock prices as investors also use assets as a hedge against inflation. Campbell and Vuolteenaho (2004) investigate Modigliani and Cohn's (1979) hypothesis that investors form growth forecasts by looking at historical growth rates without taken changes for inflation into account. Their mispricing measure consists of the deviation between the objective excess dividend growth forecast and subjective forecast of the dividends growth. This is obtained through the use of a combination of the log-linear dynamic valuation framework of Campbell & Shiller (1998) and a vector autoregression. The resulting mispricing is the residual of the regression between the objective and subjective expectations estimates.

The results of Campbell & Vuolteenaho (2004) show that high inflation is highly correlated with mispricing which supports Modigliani & Cohn's (1979) hypothesis. Next to this, disinflation could also generate mispricing due to confusing investors that have been subject to inflation illusion. However, a stabilization of inflation could also reduce the volatility of the mispricing and thus increase the efficiency of the stock market which is also evident in the results of Bekeart & Engstrom (2010).

With the creation of a composite mispricing measure based on eleven recent or well-known return anomalies, that showed significant predictive power after adjustment. Stambaugh et al, (2015) try to diversify some noise within the different anomalies away. Their investment strategy, based on their mispricing score, shows that with diversifying the noise away they are able to generate higher returns than compared to the individual anomalies. Nevertheless, their mispricing score can only be seen as relative. The measure only looks at all available firms in

each month and only compares the firms within the same month. Therefore, a firm which is indicated as having a high mispricing score suggesting it to be highly overpriced, might actually be underpriced.

While this mispricing measure can only be seen as a relative proxy for mispricing, it is able to combine the characteristics of multiple anomalies that each have their own indication of possible pricing inefficiency. With the same framework of Stambaugh et al, (2015) other studies such as Akbas, Armstrong, Sorescu & Subrahmanyam (2015) and Edelen, Ince & Kadlec (2016) who, respectively, look at the flows of funds in coordination with the mispriced assets or institutional demand with mispriced stocks.

2.2 Exploring mispricing determinants

As previously mentioned, mispricing can be widely interpreted and can be shown through a multitude of different proxies. Alongside these proxies also comes the question of what creates the mispricing or what are its determinants.

Campbell and Vuolteenaho (2004) find evidence that inflation is correlated with mispricing and could also be a determinant in creating mispricing through confusing investors. Bekaert and Engstrom (2010) further investigate the relation between inflation and earnings yield on stocks in regard to more modern asset pricing theory. They find that the relation of expected inflation and equity yields remains positively consistent with these pricing theories. However, it seems that a large part of the covariation is due to stagflation in the data as they mostly look at only US data through 1968 to 2007. In addition, their cross-country analysis further strengthens their findings that moments of stagflation can explain the parts of the variations between the equity-bond yield correlations. With these expected inflation changes and if the bond yields change in the same direction. Equity investors, when under influence of the money illusion, incorrectly discount the real cashflows by the use of nominal discount rates which leads to mispricing. As such, inflation stabilization should prevent mispricing in markets if money illusion affects the pricing.

Trading activity has received extensive research on its effect on pricing efficiency with supporting evidence on both sides as to what higher trading activity amounts to. Mclean and Pontiff (2016) support the idea that higher trading activity could be seen as arbitrage trading. This could amount to less mispricing, subsequently anomalies' returns could also drop due to

the publications surrounding the anomalies which was further strengthened by the research of Chordia, Subrahmanyam and Tong (2013). Where they find that with the increase in liquidity and trading activity, the average returns weakened.

However, on the other side, higher trading activity could also be seen as a proxy for noise trader activity. Which, following Schleifer and Vishny (1990), could also amount to a larger degree of mispricing. Evidence that supports this idea is seemingly larger compared to the idea that higher trading activity increases the pricing efficiency. Baker and Stein (2004) further investigate market liquidity as a sentiment indicator as investor sentiment could be seen as a proxy for noise trading. Within their research they find that with the presence of short-sale constraints, high liquidity stems from the fact that the market is dominated by irrational investors whom overvalue the market.

Devault, Sias and Starks (2014) look further into investors sentiment, following Baker & Stein (2004) and Baker & Wurgler (2006) who's research further strengthens the idea of noise trading in relation to high trading activity. In contrast to the common perceptions that the individual investor's trading could be responsible for demand shocks and mispricing, they find no evidence for this. They conclude that these commonly used sentiment metrics more than likely capture the institutional trader's actions, which would suggest that the sentiment of these institutional traders are actually what drives the mispricing.

With regard to the extensive literature surrounding trading activity and its relation to mispricing, I follow the idea that higher trading activity could result in a higher degree of mispricing.

Noise trading has, like mispricing, different proxies regarding how to quantify it. Another measure for this is firm-specific return variations. To capture these return variations Morck, Yeung and Yu (2000) look at the R^2 of stock regressions against a single or multiple factor model. Where a lower R^2 is related to a higher firm-specific return variation. They find that the more developed stock markets have a lower R^2 and subsequently higher firm-specific return variation while the emerging stock markets have a higher R^2. They argue that the level of investor protection of property rights could explain these differences in R^2. Where a higher level of protection might stimulate firm-specific risk arbitrage (Morck, Yeung & Yu, 2000). As such they argue that the R^2 can be seen as a measure for information efficiency where a lower R^2 could be seen as a higher degree of market efficiency or less mispricing.

However, like trading activity, this interpretation of R^2 surrounding market efficiency is controversial. Other empirical studies such as Chan & Hameed (2006) do not find any relation

between the return R^2 and price information when looking at U.S. and international data. Griffin, Kelly and Nardari (2006) also further examine the measure of Morck, Yeung and Yu (2000) but find that the R^2 measure is not related to investor protection but that it's related to transaction costs while having an inconsistent relation with information efficiency.

Hou, Peng and Xiong (2013) further investigate the measure of Morck, Yeung and Yu (2000) and create an alternative hypothesis which indicates that the R^2 is more an indication of price inefficiency. The findings of Chan & Hameed (2006) and Kelly (2014) support this hypothesis as they find that the stocks with a lower R^2 tend to be smaller, have lower liquidity and less institutional ownership. As these firms have low institutional ownership, they are targeted more by retail investors and therefore likely to be subject to more overreaction. Their findings further support their hypothesis that return R^2 is negatively related to investor overreaction and a decrease in the R^2 would suggest pricing inefficiency.

Exchange rates have widely been seen as a determinant of stock price movements. However empirical studies such as Amihud (1994) and Bodnar & Gentry (1993) further investigated the relation between changes in the dollar value and stock prices. With the assumption that markets react fully and instantly their findings only provided limited support in identifying the correlation between stock prices and exchange rate fluctuations. Bartov and Bodnar (1994) believe that possible mispricing from systematic errors of investors could explain the limited support. With the use of lagged changes in the dollar and firm value, they re-evaluate the relation to include the possibility of mispricing. Their findings show that there is a negative relation between the firm value and lagged change in dollar value which is explained by the fact that the impact of the past changes is delayed until all the information regarding the firm is dispersed.

3 Methodology

3.1 Mispricing score

When trying to explain the stock returns with the use of different factors such as the SMB and HML factors of Fama & French (1993), researchers widely use the basis of the CAPM to test whether these factors have a significant explanatory effect on the realized stock returns. As mentioned, the mispricing score of Stambaugh et al. (2015) takes eleven different anomalies and combines it into one score. These anomalies are chosen as they all survive the adjustments

of the three-factor model of Fama & French (1993) which are shown in their own principal studies. These anomalies and their principal studies are:

1. **Financial distress (Campbell, Hilscher & Szilagyi, 2008):**

   The failure probability estimated by Campbell, Hilscher & Szilagyi (2008) is obtained through the use of multiple equity market and accounting variables in a dynamic logit model. They find that firms with a higher probability of failure have lower returns instead of higher returns that would compensate for risk. Therefore, firms with a lower failure probability outperform firms with a higher failure probability.

2. **O-score bankruptcy probability (Ohlson, 1980):**

   The O-score of Ohlson (1980) is estimated by using multiple accounting variables in a static model. This O-score is also interpreted as a probability of failure where the results show that the financially healthier firms also outperform the financially troubled firms.

3. **Net stock issues (Ritter, 1991; Loughran and Ritter, 1995; Fama & French, 2008):**

   Net stock issues can be seen as an anomaly due to investor sentiment-driven mispricing. Where the investor could believe that the firm is financially troubled as they issue more equity. After a stock issue, the firms underperform in the next couple of years compared to similar firms with no stock issue.

4. **Composite equity issues (Daniel & Titman, 2006):**

   Daniel & Titman (2006) compute a composite measure of stock issues which is estimated as the growth of the market value of equity minus the stock's rate of return. Their results also show that the equity issuers underperform compared to similar non-issuers.

5. **Total accruals (Sloan, 1996):**

   The results of Sloan (1996) show that firms with low accruals are able earn higher returns than firms with higher accruals. The persistence of the accrual component of earnings is overestimated by investors when creating their earnings expectations.

6. **Net operating assets (Hirshleifer, Hou, Teoh & Zhang, 2004):**

   Net operating assets are found, by Hirshleifer et al. (2004), to negatively predict returns when scaled by total assets. A possible reason for this is suggested to be due to investors only focusing on accounting profitability and not on cash profitability.

7. **Momentum (Jegadeesh & Titman, 1993):**

   Found by Jegadeesh & Titman (1993), momentum can be seen as one of the most robust anomalies present in asset pricing. Stocks with a high past return performance in the last 6-

12 months are forecasted to keep generating high returns in the next 6-12 months. The stocks with low past returns are then forecasted to generate low returns.

8. **Gross profitability (Novy-Marx, 2013):**

   Novy-Marx (2013) finds that when sorting on gross profit divided by total assets, the higher profitable firms have higher returns than the firms with a lower profitability.

9. **Asset growth (Cooper, Gulen & Schill, 2008):**

   Cooper, Gulen & Schill (2008) find that for firms with high asset growth in the last year, the following year is followed by lower returns. Firms with low asset growth are found to have higher returns. A possible explanation was suggested to surround the investors' overreaction to the expansion of assets.

10. **Return on Assets (Fama & French, 2006; Chen, Novy-Marx & Zhang, 2010):**

    Firms with higher past returns on assets are found to earn subsequently higher returns. A suggested explanation for this could come from mispricing as it is found that this anomaly mostly exists among firms with higher information uncertainty.

11. **Investment-to-assets (Titman, Wei & Xie, 2004; Xing, 2007):**

    Titman, Wei & Xie (2004) find that past higher investments predict lower returns. This reaction is attributed to investors' initial underreaction of the overinvestment by managers behavior.

To construct the mispricing score with these different anomalies, we first need to look at the anomalies individually. I follow the methods mentioned in the principal studies as well as the online appendix of Jacobs (2016) to construct the underlying values of each anomaly for each firm-month. After the creation, we rank these values, on a country-month basis, so that the stock with the most relative overpricing (underpricing) gets the highest (lowest) rank. These ranks are uniformly distributed over the interval (0,1]. In order to get to these uniformly distributed ranks, I first rank the values each country-month based on their respective perception of most overpriced firms, which results in ranks based on positive integers. I then divide them against the highest rank seen in that particular month to obtain uniformly distributed ranks.

As to what is defined as the most overpriced for this mispricing score we look at Stambaugh et al. (2015). Here they define that the highest (lowest) rank is associated with the lowest (highest) average abnormal return, as it is reported in the literature. This leads from the aggregate mispricing score where a higher rank indicates a greater relative degree of overpricing. As an example, they use the anomaly of asset growth. Cooper, Gulen & Schill (2008) show that the highest decile of asset growth firms obtains a monthly return of -0.87% in the next year while

the lowest decile finds a monthly return of 0.76%. As such, the firms in the highest decile with the largest asset growth receive higher ranks due to the perception, obtained through the conclusions of Cooper, Gulen & Schill (2008) that these firms are the most overpriced while firms with low asset growth are ranked low. It is important to keep in mind that the composite rank is purely cross-sectional and that it is constructed by taking the average of different ranks, it only shows a relative mispricing. Therefore, if a firm misses some of the anomalies, it doesn't immediately mean that this firm is excluded from the research.

After ranking the different values of the anomalies at each country-month, we construct the stock's mispricing score as the arithmetic average of all its individual anomaly ranks. I also normalize the mispricing score to be uniformly distributed over the interval (0,1] compared to the individual anomalies. In the interval, the zero isn't included as it would not correctly show the average rank for the mispricing score due to taking the average of zero. The data for all the anomalies is not always present during the computation of the anomalies values, some firms therefore do not have all the anomalies each firm-month. Following Stambaugh et al, (2015) & Jacobs (2016), I require that there are at least five computed anomalies present at each firm-month to construct the mispricing score.

I then, for each country, divide all stocks in a given month with a valid mispricing score into five portfolios so that each portfolio roughly has the same number of stocks. The lowest portfolio consists of the stocks with the lowest mispricing while the highest portfolio consists of the higher mispriced stocks. The choice of using quintiles instead of decile portfolios stems from availability of data for the smaller markets and earlier time periods. With the use of deciles, the portfolios would possibly only hold two or three stocks while quintile portfolios would allow us to have a greater number in each portfolio. With these portfolios, I'm then able to construct a long/short strategy which implies that I go long (buy) the stocks in the lowest quintile while going short (borrow the stock at time $t = 0$, sell it at $t = 0$ and at time $t = 1$ we buy the stock again and give it back to the lender including compensation for missed cashflows) in the highest quintile.

3.2 Estimating portfolio returns

In order to get a more robust explanation surrounding the mispricing, it is of importance to use different methods in estimating the portfolio returns.

Two of these different methods are defined in the computation of the portfolio returns, namely equally weighted return and value-weighted return. With equally weighted returns all the stocks in the given portfolio each month are given the same weight. This method then allows the smaller stocks to dominate these portfolio returns as they have the same weight compared to stocks which have a greater market value. Therefore, I also use value-weighted returns for my results. With the value-weighted method, in each month, you weigh each stock in the portfolio based on the stock's market value compared to the total market value of all the stocks in the portfolio. This method allows for the larger firms to dominate the measure as their returns are given a higher return than the smaller firms.

As one of the goals of this paper is to discover the difference in mispricing between developed and emerging markets, I also need to look at the methods to combine the countries of each classified market together to get an aggregated result. Next to the two return methods which are used within the country results as well as in the aggregated returns across countries, I follow Jacobs (2016) with the use of the "country average" and "country composite" specifications.

With "country average" we look at all the aggregated monthly portfolio returns for each country, this means that for each country-month observation we estimate the portfolio returns which are then used in a final time-series to obtain the aggregated returns for each portfolio for either developed or emerging markets as shown:

$$PR_t = \sum \frac{Ri,t}{N} \tag{1}$$

Where PR_t is the final average portfolio return, $R_{i,t}$ is the country specific portfolio return and N is the number of countries that is either classified as developed or emerging which is explained in the data section. The "country composite" measure uses firm-month observations, this means that instead of all the country-month averages that are used as in the "country average" specification, we know take all take all the stocks with a valid mispricing score together for the different market classifications. This gives us only firm-month observations after which we create the monthly portfolios which now consists of the stocks from different

countries. We then construct a time-series regression to obtain the aggregated returns for each portfolio.

For the portfolio returns of the developed and emerging markets I report the Fama & French (1993) three-factor adjusted returns. These adjusted returns are shown as the alpha following the regression. This alpha shows the returns that cannot be explained by the risk-factors used in the regression.

To obtain the three factor adjusted returns for the individual portfolios and the long/short strategies, I first obtain the returns of each portfolio in each month following the methods previously explained. These returns are then used in a time-series regression as shown:

$$R_t - R_f = \alpha + \beta_1 * (R_m - R_f) + \beta_{SMB} * SMB + \beta_{HML} * HML + \epsilon_t \quad (2)$$

Where R_t is the return of the portfolio in each month, R_f is the risk-free rate, $(R_m - R_f)$ is the market return factor with R_m being the value-weighted return for each country, *SMB* and *HML* are two factors that originate from Fama & French (1993) and ϵ_t which is the error term. To construct the *SMB* and *HML* factors, I follow the steps mentioned in their paper. In June of year *t*, I rank all the available stocks into two portfolios based on their market value, with the breakpoint being the median value, and thus get a portfolio *S* and *B* (small and big). Then within both portfolios, I rank the stocks based on their book-to-market (B/M) ratios, excluding negative ratios, into three sub portfolios based on the breakpoints bottom 30% (low), middle 40% (medium) and top 30% (high). Therefore we get a total of six portfolios (S/L, S/M, S/H, B/L, B/M and B/H) of which we compute monthly value-weighted returns from July of year *t* to June of year $t + 1$ after which the portfolios are reformed again in June of year $t+1$.

The factor of SMB is then estimated as the simple average of the three small (S) portfolio returns minus the average of the three big (B) portfolio returns. The factor of HML is the difference between average return of the two high B/M portfolios (S/H and B/H) and the two low B/M portfolios (S/L and B/L).

As I use international data, these factors are created for and within each specific country. Griffin (2002) and Hou, Karolyi & Kho (2011) point out that local constructed factors are more important and potentially even superior instead of a global factor. Therefore, for the individual country regressions, I use locally constructed factors. For the regressions, where I look at the collective group of countries for either developed or emerging markets, I constructed a global factor based on the same method for either the country average or country composite measure.

For the country average measure, this means that I take the average of the country month factors for the final time series regression.

For the country composite measure, the market factor for the final time series is the average of all the different country factors. The SMB and HML factors are created by first ranking the portfolios on a country-month basis. Then, the monthly returns of these portfolios are created where each portfolio includes all the different countries. As a result, these measures can be seen as country-neutral which means that all the portfolios roughly contain the same number of stocks of a given country.

3.3 Explaining the returns with country specific variables

To try and explain the mispricing in each country, I look towards certain macro-economic and firm-level variables that also have been empirically shown to have a possible explanation towards pricing efficiency and returns. In order to use these potential determinants, I use different panel regression models to investigate the effect of the different determinants. The dependent variable for these regressions is the yearly average of each country-month local three factor alpha obtained from the monthly regression of model (2), where I look at both alphas of the equally and value-weighted models. To be able to adjust for country or year fixed effect, the alphas of both models are then taken as the yearly average for each country.

The first model I look at includes a firm size characteristic, the return R^2, a liquidity proxy, inflation proxy and exchange rate which can be seen as:

$$A_{i,t} = c + \delta_1 * Size + \delta_2 * R^2 + \delta_3 * Lq + \delta_4 * CPI + \delta_5 * ER + u_t \quad (3)$$

Where $A_{i,t}$ is the yearly average of the monthly country level local three factor alphas for each of the different portfolios, Size is the average yearly firm size for each of the different portfolios. R^2 is the yearly average of the monthly R^2 obtained from the monthly three factor regressions for each of the different portfolios. Lq is an illiquidity proxy. CPI is the yearly average of the Consumer Price Index for each country and ER is the yearly average of the exchange rate where it's the local currency against the US dollar. For the U.S data I use the USD against the euro as the exchange rate.

As the data used in this research is comprised of monthly data, an accurate estimate of (il)liquidity becomes difficult to obtain. Previous research such as Jacobs (2016) and Griffin,

Kelly & Nadari (2010) use non-zero price changes as a proxy for trading activity. However, with monthly data, the trading activity is the sum of all the days in the month which doesn't allow to use this as a proxy. Amihud (2002) created a measure which defines illiquidity as the daily average of absolute returns divided by daily dollar trading volume (Chiang & Zheng, 2015). The monthly illiquidity for a certain stock is then:

$$Illiq_{i,m} = \frac{1}{Di,m} \sum_{t=1}^{Di,m} \frac{|Ri,m,d|}{TVi,m,d} * 10^{\wedge 6} \quad (4)$$

$D_{i,m}$ is the number of trading days of stock *i* in a month; $R_{i,m,d}$ is the daily return and $TV_{i,m,d}$ is the dollar trading volume which is the amount of shares traded times the dollar price of the stock.

With the presence of only monthly data, I transform (4) to:

$$Illiq_{i,m} = \frac{|Ri,m|}{TVi,m} * 10^{\wedge 6} \quad (5)$$

Where $R_{i,m}$ is the monthly return and $TV_{i,m}$ is the monthly dollar trading volume of stock *i.* Following Amihud (2002) I trim the top and bottom 1% extremes. It is important to mention that this measure compared to the daily measure loses a substantial part of its accuracy. Mainly, the calculation of the dollar trading volume uses the closing price at the end of the month while the majority of the trading volume could be traded at a different price point.

In order to obtain the yearly average of the illiquidity measure for the different regressions, I first obtain the yearly average of the individual firms grouped by their portfolio indication. Afterwards I take the yearly average of all available stocks for each portfolio to create the annual illiquidity proxy.

As mentioned in the theoretical framework, it is best to use lagged changes of the exchange rate in order to better explain the return. As I look at the yearly average of monthly changes, I believe that this partially captures the effect of the lagged changes.

The second model I use, next to the existing characteristics, also includes an emerging market dummy which indicates if a country is seen as emerging or developed based on the MSCI market classification shown in the next section. This will allow us to see if the classification of being an emerging or developed market has any effect on mispricing. The model is as follows:

$$A_{i,t} = c + \delta_1 * Size + \delta_2 * R^2 + \delta_3 * Lq + \delta_4 * CPI + \delta_5 * ER + \delta_6 * EM + u_t \quad (6)$$

However, it is possible that there are shocks to all countries at the same point in time that has effect on the return. The previous two models are not able to take these kind of shocks into account and therefore we need to try and capture these effects. A way to capture this is with the use of a fixed effects model, where we include η_t that indicates the time period to our model or can be seen as equivalent dummy variables that indicate the year. Thus, our model now looks like (7) which also captures the country-invariant effect.

$$A_{i,t} = c + \delta_1 * Size + \delta_2 * R^2 + \delta_3 * Lq + \delta_4 * CPI + \delta_5 * ER + \delta_6 * EM + \eta_t + u_t \quad (7)$$

For the final model we also want to look at country fixed effects. These country fixed effects could capture shocks that are contained to their own country. Compared to the time fixed effects which tries to capture the shock that has effect across all countries in each year, while the country fixed effects try to capture the time invariant shocks of each country. With the addition of these country fixed effects η_C, I exclude the emerging market dummy so that it doesn't create an omitted variable bias as it could have influence on both the dependent and country-fixed effects. This creates the new model of (8):

$$A_{i,t} = c + \delta_1 * Size + \delta_2 * R^2 + \delta_3 * Lq + \delta_4 * CPI + \delta_5 * ER + \eta_T + \eta_C + u_t \quad (8)$$

With the use of these different models alongside the equally weighted and value weighted returns I try to find possible explanations for mispricing.

3.4 Data

In order to construct the mispricing score and try to find possible explanations for the mispricing returns, a number of variables are needed for the different anomalies. I gather equity data on a monthly firm level from the Center for Research in Security Prices (CRSP) for the U.S. market and from DataStream for all the other international markets. Accounting data for the anomalies are obtained from Compustat for the U.S. and Worldscope for the international markets. I collected data from 1994 until the end of 2018. The starting year is chosen based on Griffin, Kelly & Nadari (2010) where they discuss that emerging markets are widely considered to be integrated with the world markets by 1994. The market classification of each country is based on the market classification of MSCI.[1]

[1] Available at https://www.msci.com/market-classification

Market return indexes, CPI and risk-free rates are also all obtained from DataStream and Federal Reserve Bank. As the study is based on monthly data, I chose a risk-free asset that has a short maturity due to it being more suitable for the used investment strategies. However, with international data, 1-month T-bills yields are not readily available. Therefore, I use 3-month T-bills as a proxy for the risk-free rate. There were a few countries that did not have 3-month T-bills, in those cases only I used the 1-year bond yield. The country specific variables used to try and find explanations for the mispricing score, such as the CPI and exchange rates, are also obtained from DataStream. The turnover volume is obtained alongside the monthly equity data.

In order to minimize the survivorship bias, I consider both active and dead stocks as reported in CRSP, Compustat and DataStream. For the international data I obtain the stocks from the Worldscope constituent lists which includes all (in)active firms that also have accounting data available. When matching the equity data with the accounting data, I follow Fama & French (1993) and Jacobs (2016) by using a conservative lag of six months after fiscal year end to assure comparability across countries. For example, annual data of 2014 is matched with equity data starting July 2015 until June 2016.

I require that the firm's headquarters of the stock is also located in the same country as the market where the stock is trading. As I don't want non-common equity to influence the findings, I perform a number of data screens. For data of the U.S., we only use equity that has a share code of 10 or 11. However, for data from DataStream this is more troublesome as compared to Compustat. DataStream doesn't use share codes. Therefore, I follow former studies that worked with international stock market data to screen the data for errors (e.g. Ince & Porter, 2006; Griffin, Kelly & Nardari, 2010; Hou, Kharolyi & Kho, 2011 and Griffin, Hirschey & Kelly, 2011). I also follow Griffin, Kelly & Nardari (2010) in removing stocks that have an industry code that could be identified as either preferred stock, ADR's, mutual funds, investment trusts or other non-common equity (Appendix A figure 1).

I furthermore drop observations that have no return, market value or identifier. After which I follow Ince & Porter (2006), where any monthly return over 300% which is reversed in the next month is treated as missing.[2] As Ince & Porter (2006) mentioned, the majority of data errors are found within small firms. To counter these errors, they suggest to drop observations of which the lagged price was smaller than $1. However, for countries like Australia and Korea,

[2] If R_t or R_{t-1} is greater than 300% and $(1+ R_t)(1 + R_{t-1}) - 1 < 50\%$, we set R_t and R_{t-1} to missing (Ince & Porter, 2006).

this restriction results in the removal of over 60% of all observations, therefore I follow Jacobs (2016) where he drops observations that have a lagged market value of less than $10 million. I also exclude observations where the market value is greater than 90% of the country's total market value that month. Furthermore, I then winsorize return and market value data at the 0.1% and 99.9% levels which results into our initial stock market data set which can be seen in Table 1.

Table 1. Descriptive statistics for the data sample.

Panel A shows the initial data set following the data cleaning previously mentioned across the period of January 1994 to December 2018. Each country is classified either as developed or emerging. Firm size is in millions USD for comparability. Panel B shows the starting and ending period of the sample which satisfies the criteria of there at least being 25 stocks in each month and firms have to have non-missing mispricing scores for at least 36 months in a row following Jacobs (2016). The mean number of anomalies gives the average number of individual anomalies for each country during the entire period.

Country	Market	Number of firms	Mean size	Median size	Number of obs. (in 1000's)	Starting period	Ending period	Number of firms	Mean size	Median size	Mean number of anomalies
		Panel A: starting stock market data sample				Panel B: Sample with valid mispricing score					
Australia	DM	2,656	873	56	227	May-96	Dec-18	1,172	1,399	123	9.470
Canada	DM	3,878	510	18	294	May-96	Dec-18	1,511	1,530	163	9.564
China	EM	3,365	1,226	549	408	May-05	Dec-18	2,343	1,323	612	10.146
France	DM	1,447	2,411	107	173	May-96	Dec-18	873	3,113	162	9.397
Germany	DM	1,078	2,418	134	141	May-96	Dec-18	741	2,922	162	9.491
India	EM	3,602	684	58	330	May-96	Dec-18	1,574	1,087	132	9.695
Japan	DM	4,912	1,163	147	928	May-96	Dec-18	4,109	1,210	152	10.080
Malaysia	EM	1,046	422	61	169	May-96	Dec-18	793	510	73	9.387
Poland	EM	640	468	52	56	Jul-00	Dec-18	323	632	89	9.458
Singapore	DM	783	609	65	110	May-96	Dec-18	580	766	81	9.452
South Africa	EM	752	1,156	165	70	May-96	Dec-18	311	1664	296	9.465
South Korea	EM	2,739	462	65	381	May-96	Dec-18	1,910	609	88	9.995
Taiwan	EM	2,223	492	95	326	Jul-96	Dec-18	1,774	548	104	9.757
Thailand	EM	819	484	66	109	Jul-96	Dec-18	560	586	83	9.129
UK	DM	3,657	1,925	108	333	May-96	Dec-18	1,809	2,626	184	9.897
U.S.	DM	15,063	2,967	246	1,424	Jul-95	Dec-18	5,581	4,555	531	9.055

Following the data cleaning, I then construct the different anomalies for all the individual firms each month. To get to our final data sample as shown in Table 1 panel B, I make use of two criteria following Jacobs (2016) to assure data availability. First, I require that each month has at least 25 stocks available and secondly, these stocks have to have a non-missing mispricing score for a minimum of 36 months. This allows me to be able to track the portfolios for a longer holding period while excluding the stocks which only have a valid mispricing score for a couple of months.

Looking at Table 1, the inclusion of the two criteria shows that the firms which have a valid mispricing score for a long period are predominantly larger firms as the median and mean firm size is higher compared to the initial sample. When looking at the difference between emerging or developed markets to see if there is a big difference between the mispricing measures of both markets, it's noticeable that the average number of individual anomalies are actually quite close. For developed (emerging) markets we find an average number of 9.58 (9.80) anomalies present. It is surprising that the emerging markets have a higher average however it is important to mention that the developed market has nearly twice as many observations.

When looking at the averages over time, we can see that for both markets the average number of anomalies present for a firm started lower as it could indicate the inclusion of lesser mature stock markets back then. For the year of 1996 developed (emerging) markets had an average of roughly 8.90 (8.64) while it increased to an average of 9.61 (9.89) in 2018. As such, the difference in the number of computed anomalies due to missing data are not expected to be attributable to the differences in abnormal returns.

4 Results

4.1 Mispricing in developed and emerging markets

After the estimation of the different anomalies for the mispricing score and their individual portfolios, the predictive power of the individual return predictors can be studied. Following most literature, the results are predominantly shown as long-short strategies which shows the difference between the two extreme portfolio quintiles when the ability of going short is assumed to be available. Next to this, the individual quintile results for all anomalies are also presented.

For both developed and emerging markets, Table 2 presents the three factor alphas based on the quintile long-short portfolio strategy for either the individual anomalies as well as the mispricing score based on the country average and country composite measure respectively. As the main focus of this paper lies around the comparison between the developed and emerging markets, the difference between the alphas for each measure is also shown.

From table 2, it is clear to see that some of the anomalies have predictive return capabilities around the world. Where the equally-weighted returns for both different country measures result in more statistically significant alphas. The value-weighted measure shows a higher degree of statistically significant alphas for the country average measure.

Comparing between the developed and emerging markets, the differences in alphas for the individual anomalies are only statistically significant for some anomalies and differs between the different measures. Investments-to-assets, is the only anomaly that has a positive and significant difference across all measures. While the difference differs across the four measures for most of the anomalies, except for the Ohlson's O-score anomaly, the equally-weighted return differences keep the same sign across the two country measures. The value-weighted measure doesn't keep the same relation between the country measures. Furthermore, based on the differences observed between the markets, the idea that emerging markets obtain higher yields compared to developed markets doesn't always hold when individually sorting on these anomalies.

Table 2: Long-short three factor alphas in developed and emerging market.

This table reports the monthly alpha, in percentages, obtained from regressing the long-short strategy returns based on quintile portfolios of the individual anomalies or mispricing score against a global three-factor model (Fama & French, 1996). Next to the alphas of the developed or emerging markets, the difference between the alphas is also reported. In panel A, the long-short returns in a given month is the average of all the different country-level averages. In panel B, the long-short returns in a given month is obtained through all available stocks from all countries after which a country-neutral time-series is used. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level. For the difference between the markets, the Chi-squared test is used and its χ^2 is reported in parentheses. The statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel A: Country Average						
Failure probability	0.555***	0.632***	-0.077	0.514***	0.668***	-0.154
	(9.92)	(8.23)	(0.65)	(7.21)	(6.53)	(1.53)
Ohlson's O	-0.062	-0.078	0.016	0.077	0.253***	-0.175
	(-1.56)	(-1.24)	(0.05)	(1.34)	(2.77)	(2.64)
Net stock issues	0.379***	0.443***	-0.064	0.261***	0.173	0.087
	(4.95)	(4.60)	(0.27)	(2.58)	(1.29)	(0.27)
Composite equity	0.277***	0.442***	-0.166**	-0.086	0.069	-0.155
	(6.17)	(9.16)	(6.34)	(-1.19)	(0.48)	(0.93)
Total accruals	0.240***	0.306***	-0.066	0.158***	0.428***	-0.270***
	(9.05)	(5.89)	(1.28)	(3.17)	(5.42)	(8.40)
Net operating assets	0.541***	0.477***	0.064**	0.001	0.311***	-0.310***
	(23.22)	(24.00)	(4.40)	(0.04)	(6.41)	(29.83)
Momentum	0.459***	0.646***	-0.187**	0.554***	0.606***	-0.052
	(9.76)	(12.97)	(7.50)	(6.45)	(5.57)	(0.14)
Gross profitability	0.367***	0.392***	-0.025	0.272***	0.607***	-0.335***
	(17.30)	(12.68)	(0.43)	(7.02)	(7.19)	(13.05)
Asset growth	0.227***	0.004	0.223***	0.103**	0.119	-0.016
	(13.22)	(0.18)	(57.46)	(2.23)	(1.50)	(0.03)
Return on assets	0.012	0.029	-0.017	0.519***	-0.153***	0.671***
	(0.56)	(0.89)	(0.18)	(11.75)	(-2.67)	(86.66)
Investment-to-assets	0.327***	0.251***	0.076***	0.044*	-0.842***	0.886***
	(24.94)	(14.05)	(11.75)	(1.73)	(-14.18)	(188.73)
Mispricing Score	0.663***	0.614***	0.049	0.413***	0.344**	0.069
	(7.61)	(5.35)	(0.12)	(3.53)	(2.33)	(0.14)

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel B: Country Composite						
Failure probability	0.176**	0.420***	-0.244**	0.343***	0.283	0.060
	(2.18)	(4.54)	(4.02)	(2.67)	(1.12)	(0.04)
Ohlson's O	-0.168***	-0.029	-0.139*	0.474***	0.296	0.178
	(-3.02)	(-0.46)	(2.77)	(3.93)	(1.50)	(0.60)
Net stock issues	0.229	0.537***	-0.308	0.043	0.425	-0.381
	(1.11)	(4.17)	(1.62)	(0.22)	(1.27)	(0.99)
Composite equity	0.322***	0.569***	-0.247	0.049	0.239	-0.190
	(2.64)	(4.35)	(1.93)	(0.25)	(0.64)	(0.21)
Total accruals	0.343***	0.474***	-0.132**	-0.066	0.965***	-1.031***
	(11.93)	(11.57)	(6.99)	(-0.80)	(4.91)	(23.70)
Net operating assets	0.523***	0.463***	0.060	0.024	0.256*	-0.232
	(8.48)	(8.73)	(0.54)	(0.32)	(1.91)	(2.33)
Momentum	0.464***	0.689***	-0.225	0.492**	0.476*	0.016
	(3.95)	(6.26)	(1.99)	(2.29)	(1.87)	(0.00)
Gross profitability	0.328***	0.424***	-0.096	0.238**	0.607***	-0.369
	(5.80)	(5.36)	(0.98)	(2.30)	(2.86)	(2.47)
Asset growth	0.277***	0.035	0.242***	0.168	-0.017	0.185
	(5.42)	(0.52)	(8.52)	(1.53)	(-0.09)	(0.74)
Return on assets	-0.053	0.040	-0.093	0.430***	-0.130	0.560***
	(-0.86)	(0.48)	(0.83)	(3.61)	(-0.84)	(8.42)
Investment-to-assets	0.374***	0.262***	0.112*	0.072	-0.897***	0.969***
	(9.35)	(5.51)	(3.29)	(1.09)	(-5.67)	(32.36)
Mispricing Score	0.551***	0.646***	-0.096	0.638***	0.467**	0.170
	(4.20)	(4.55)	(0.25)	(4.08)	(2.56)	(0.51)

With Momentum being seen as one of the most popular return predictors, the results show that developed markets mostly underperform compared to emerging markets. Emerging markets outperform developed markets in three of the four measures ranging from 48 (46) bps to 69 (49) bps. While most of these differences are insignificant, the equally weighted country average measure's alpha is statistically significant at the 5% level. Another anomaly that gives interesting results is Total accruals. Emerging markets consistently outperform developed markets with a statistically significant difference ranging from 13 bps to 103 bps.

The aggregate mispricing score is shown to be consistently statistically significant and economically meaningful across the different measures for both developed and emerging markets. For all measures except the equally weighted country composite measure, the estimates show that the developed markets obtain higher alphas compared to the emerging markets ranging from 41 (34) to 66 (65) bps. While this could suggest that developed markets

contain a higher degree of mispricing, for all measures the differences between the markets are insignificant.

Following Stambaugh et al, (2015), the mispricing score is able to capture inefficiencies across the anomalies. When averaging the return alphas of the individual anomalies instead of aggregating the anomalies into the mispricing score, I obtain alphas of 21 (20) bps to 28 (35) bps for developed and emerging markets respectively, which on average are about two to three times smaller than the return alphas when ranking on the mispricing score. While the mispricing score results in higher alphas for developed markets, it captures less inefficiencies in emerging markets. This could indicate that there are more informational inefficiencies surrounding the anomalies in developed markets.

Besides the long-short strategies I also report the three factor alphas for the individual quintiles for the developed and emerging markets as well as for the individual countries which can be seen in Tables 8-12 and 13-24 respectively, Appendix B. Interestingly, when looking at the individual quintiles for the developed or emerging market mispricing score, the alphas of the first quintile are all highly significant and economically meaningful. The alphas of the country average measure range between 100 (115) bps and 112 (121) bps while the country composite measure ranges between 56 (32) bps and 80 (69) bps. The fifth quintile however also shows positive alphas for the country average measure which are statistically significant and economically meaningful. For the composite measure however, the alphas are small and statistically insignificant. A long-short strategy when looking at either multiple developed or emerging markets is therefore not more profitable compared to only buying the underpriced stocks which would generate a higher return.

This suggests that most of the return is obtained from the least mispriced or underpriced stocks and not from the overpriced stocks. These results suggest that the mispricing in the lowest quintile weakens due to the positive returns while the overpriced stocks get worse. For the individual countries (Table 13, Appendix B) this effect is more prevalent in the equally-weighted returns than the value-weighted returns however only two (three) countries show statistically significant alpha's with equally- (value-) weighted returns for the overpriced stocks. One of these countries is the U.S, who's results fall in line with Stambaugh et al, (2015) and Akbas, Armstrong, Sorescu & Subrahmanyam (2015), who also find that the majority of their returns come from the short leg of the long-short strategy.

Furthermore, the country level long-short alpha estimates are positve in both measures for all countries with an average equally weighted (value-weighted) alpha of 88 (53) bps per month. However, not all of them are as statistically significant as for the equally weighted returns, thirteen countries have significant alphas at the 10% level, while value-weighted returns only has seven countries at the 10% level.

4.2 Exploring potential mispricing determinants

Based on the results of the mispricing score portfolio return alphas between the different markets, it cannot be claimed that emerging markets are relatively more mispriced compared to developed markets. As seen in the theoretical framework, mispricing can be evaluated through the use of different proxies. In order to possibly get a better estimate, the use of multiple different proxies may be needed.

By looking at the individual quintile levels of the mispricing score, I try to find whether these mispricing determinants can potentially explain the obtainable risk-adjusted returns for the quintiles. Table 3 reports the results following the panel regression shown in (3).

Although both the equally and value-weighted quintiles show that size has a influence on the more mispriced firms, the result is insignificant. Where the more mispriced quintiles show a positive relation to size, the lowest quintile has a negative relation ranging from -2 to 21 bps. These higher mispriced quintiles show to be economically more meaningful due to the characteristics of these quintiles. The higher quintiles are comprised of smaller firms compared to the lower quintiles, as such a large change in size has a greater effect for these smaller firms. This however doesn't immediately mean that size could be seen as a potential determinant for mispricing. It does show that the firms indicated with a higher relative mispricing are more often the smaller firms.

Table 3: Quintile panel regressions with mispricing alphas as dependent variable.

This table shows the results surrounding the multivariate regression of (3) where the dependent variable is the country-year average of the monthly local risk-adjusted mispricing alphas. These alphas are both obtained through equally- or value-weighted portfolios and presented as such. Size, R^2 and illiquidity are based on the respective portfolios. The average firm size is measured in billions (dollars). Standard errors are clustered by country and year. T-statistics are reported within the parentheses. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Equally weighted quintiles					Value weighted quintiles				
	1	2	3	4	5	1	2	3	4	5
Size	-0.054	-0.052	-0.018	0.081	0.135	-0.014	0.040	0.131	0.209	0.176
	(-1.20)	(-0.68)	(-0.16)	(0.58)	(0.75)	(-0.28)	(0.49)	(1.04)	(1.42)	(0.91)
Return R2	-1.485**	-1.481**	-1.768***	-2.127***	-1.954***	-1.190*	-1.682**	-2.107***	-1.664**	-1.536**
	(-2.23)	(-2.40)	(-3.11)	(-3.04)	(-3.03)	(-1.69)	(-2.54)	(-2.69)	(-2.42)	(-2.33)
Inflation	-0.004	-0.003	-0.008	-0.004	-0.008	-0.000	-0.000	-0.003	0.002	0.001
	(-0.62)	(-0.40)	(-1.14)	(-0.46)	(-1.01)	(-0.06)	(-0.00)	(-0.39)	(0.19)	(0.16)
Exchange rate	-0.001**	-0.001*	-0.001**	-0.001*	-0.002*	-0.001	-0.002**	-0.001	-0.001	-0.002**
	(-2.27)	(-1.85)	(-2.11)	(-1.95)	(-1.94)	(-0.72)	(-2.13)	(-1.52)	(-1.60)	(-2.08)
Illiquidity	-0.546	-0.785	-2.489**	-2.847**	-1.833	-0.438	-1.596	-1.973	-2.153	-1.328
	(-0.50)	(-0.65)	(-2.00)	(-2.03)	(-1.63)	(-0.40)	(-1.28)	(-1.41)	(-1.60)	(-1.14)
Constant	2.198***	1.936***	2.620***	2.062**	1.765**	1.545**	1.741**	2.076***	1.260	1.144
	(3.23)	(2.73)	(3.37)	(2.49)	(2.02)	(2.28)	(2.46)	(2.84)	(1.50)	(1.21)
N	355	355	355	355	355	355	355	355	355	355
adj. R^2	0.03	0.02	0.03	0.03	0.03	0.00	0.03	0.04	0.02	0.02

A characteristic that has strong impact and is statistically significant in all quintiles for both measures is the R^2. R^2 can be seen as a proxy for pricing inefficiencies. Within the equally weighted quintiles, the R^2 shows signs of a negative relation towards mispricing where the alphas of the higher mispriced stocks are heavier influenced by informational inefficiencies. For the value-weighted quintiles, such relation isn't clear as the third quintile shows that it is impacted the most by a change in value while both the extreme quintiles show to be the least impacted. As the R^2 can only be estimated to be between 0 and 1, a change of 100bp is impossible. While the coefficients in the table are shown as such, the interpretation will be surrounding a change of 1 bp. These results fall in line with Hou, Peng and Xiong (2013) which suggest that a decrease in R^2 increases the price inefficiency, as the results show, that a 1 bp decrease in the R^2 results in an increase in the alpha ranging from 1.1 bps to 2.1 bps.

It is however important to question whether the R^2 can be seen as a suitable proxy. While this paper uses the assumption that the R^2 shows the level of pricing efficiency, the relation between the dependent variable of the regression and the R^2 is obvious due to them being based on the same former regressions.

Inflation does not seem to really have much significant or economically meaningful impact on mispricing. For all quintiles of both measures, inflation shows to have no statistical significance as to be able to explain the changes in the mispricing alphas as an increase in the CPI of 1 bp compared to the base year results in mispricing ranging from -0.8 to 0.2 bps. Looking between the different quintiles there seems to be a more negative relation for the higher equally weighted quintiles compared to the lower quintiles. For the value-weighted quintiles this relation doesn't hold.

The exchange rate coefficients show to be statistically significant for the equally weighted quintiles and a few value-weighted quintiles, however, they are very small ranging from 0.1 and 0.2 bps. This would indicate that the increase in the local currency with one unit against the dollar would decrease the mispricing alpha. However, many countries have stable exchange rates where such an increase is not realized and most changes are based in the decimals. As such, for these countries, this measure wouldn't explain much. For countries such as Japan, where the exchange rate often changes with one unit of the local currency.

This measure would be more meaningful due to the larger fluctuations in the exchange rates. Due to the differences in standard deviations between the individual countries, another option is to standardize the variable. When having the exchange rate standardized, I find that the exchange rate loses its significance in nearly all portfolios. Which could indicate that in this case the measure isn't as meaningful anymore even for countries such as Japan.

Illiquidity is only seen to be statistically significant in the third and fourth equally weighted quintile while none of the value-weighted quintiles show any statistical significance. The coefficients however seem to be economically meaningful as they range between 44 and 285 bps. As with the return R^2 a change in the measure with one is not real feasible as the illiquidity is measured as shown in (5) is mostly estimated to be lower than zero. A change in the measure of 0.01 which for example can be seen as a dollar trading volume of $100 million with a return of 1% is more reasonable.

Although most coefficients are shown to be insignificant for the different quintiles, the constants of the panel regressions decrease with the higher degree of mispricing while most

keep their significance at the 10% level except for the last two value-weighted quintiles. This shows that the model used for the individual quintiles only partly explain the variation in the alphas but is able to explain a greater part in the higher quintiles.

Table 4: Quintile Panel regressions with mispricing alphas as dependent variable.

This table shows the results surrounding the multivariate regression of (6) where the dependent variable is the country-year average of the monthly local risk-adjusted mispricing alphas. These alphas are both obtained through equally- or value-weighted portfolios and presented as such. Size, R^2 and illiquidity are based on the respective portfolios. The average firm size is measured in billions (dollars). Standard errors are clustered by country and year. T-statistics are reported within the parentheses. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Equally weighted quintiles					Value weighted quintiles				
	1	2	3	4	5	1	2	3	4	5
Size	-0.057	-0.046	0.027	0.131	0.173	-0.007	0.021	0.113	0.218	0.182
	(-1.51)	(-0.68)	(0.25)	(1.00)	(0.99)	(-0.17)	(0.29)	(0.99)	(1.45)	(0.93)
Return R2	-1.484**	-1.481**	-1.762***	-2.099***	-1.904***	-1.188*	-1.692**	-2.108***	-1.660**	-1.530**
	(-2.24)	(-2.40)	(-3.09)	(-2.97)	(-2.88)	(-1.68)	(-2.53)	(-2.69)	(-2.40)	(-2.29)
Inflation	-0.004	-0.003	-0.008	-0.004	-0.008	-0.001	0.000	-0.003	0.002	0.001
	(-0.60)	(-0.40)	(-1.16)	(-0.48)	(-1.02)	(-0.08)	(0.03)	(-0.36)	(0.18)	(0.16)
Exchange rate	-0.001**	-0.001*	-0.001**	-0.002*	-0.002*	-0.001	-0.002**	-0.001	-0.001	-0.002**
	(-2.12)	(-1.78)	(-2.10)	(-1.97)	(-1.92)	(-0.73)	(-2.02)	(-1.46)	(-1.59)	(-2.03)
Illiquidity	-0.553	-0.777	-2.437*	-2.781**	-1.758	-0.418	-1.625	-1.994	-2.142	-1.318
	(-0.51)	(-0.65)	(-1.94)	(-1.98)	(-1.59)	(-0.39)	(-1.31)	(-1.42)	(-1.58)	(-1.17)
EM	-0.027	0.040	0.213	0.210	0.165	0.074	-0.131	-0.088	0.039	0.024
	(-0.09)	(0.12)	(0.62)	(0.58)	(0.44)	(0.25)	(-0.38)	(-0.25)	(0.10)	(0.06)
Constant	2.212***	1.913***	2.477***	1.902**	1.627**	1.504**	1.822***	2.136***	1.231	1.125
	(3.46)	(2.93)	(3.47)	(2.47)	(1.97)	(2.33)	(2.78)	(3.17)	(1.53)	(1.27)
N	355	355	355	355	355	355	355	355	355	355
adj. R^2	0.03	0.02	0.03	0.03	0.03	0.00	0.03	0.03	0.02	0.02

In order to see if the classification of being either a developed or emerging market has any further influence on explaining the variation in alphas, the regression model now includes an emerging market dummy variable which indicates this classification shown as (6). With the results shown in Table 4, it is shown that the inclusion of the emerging market dummy 'EM' for all quintiles appears to be statistically insignificant and economically small. The emerging market dummy does help explain a part of the alpha variation however the alphas continue to stay statistically significant at the same level as of model (3).

While the coefficients for the emerging market dummy are all insignificant, it is interesting to note that the coefficients for the equally weighted quintiles indicate that being an emerging market increases the mispricing alpha except for the lowest quintile. However, for the value-weighted quintiles only the second and third quintile show to be negative. With the inclusion of the emerging market dummy, the results show that its introduction does not further contribute to explaining possible mispricing determinants.

Table 5: Quintile Panel regressions with mispricing alphas as dependent variable.

This table shows the results surrounding the multivariate regression of (7) where the dependent variable is the country-year average of the monthly local risk-adjusted mispricing alphas. These alphas are both obtained through equally- or value-weighted portfolios and presented as such. Size, R^2 and illiquidity are based on the respective portfolios. Standard errors are clustered by country and year. The average firm size is measured in billions (dollars). T-statistics are reported within the parentheses. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Equally weighted quintiles					Value weighted quintiles				
	1	2	3	4	5	1	2	3	4	5
Size	-0.024	-0.005	0.091	0.090	0.047	0.022	-0.021	0.080	0.027	-0.030
	(-0.58)	(-0.07)	(0.98)	(0.74)	(0.29)	(0.47)	(-0.30)	(0.74)	(0.18)	(-0.17)
Return R2	-1.333**	-1.535***	-1.826***	-1.844***	-1.803***	-1.036	-1.065*	-1.567**	-0.937*	-0.887
	(-2.18)	(-2.68)	(-3.40)	(-3.07)	(-2.91)	(-1.50)	(-1.82)	(-2.23)	(-1.69)	(-1.37)
Inflation	-0.009	-0.007	-0.012*	-0.009	-0.013	-0.003	-0.006	-0.008	-0.011	-0.008
	(-1.44)	(-1.16)	(-1.87)	(-1.21)	(-1.61)	(-0.40)	(-0.93)	(-1.26)	(-1.40)	(-0.99)
Exchange rate	-0.001**	-0.001*	-0.001**	-0.001**	-0.002**	-0.000	-0.002**	-0.001	-0.001*	-0.002**
	(-2.26)	(-1.95)	(-2.28)	(-2.08)	(-2.07)	(-0.50)	(-2.01)	(-1.46)	(-1.68)	(-2.17)
Illiquidity	0.392	-0.079	-1.699	-2.024	-1.144	0.980	-0.724	-1.184	-0.902	-0.253
	(0.34)	(-0.06)	(-1.36)	(-1.51)	(-1.00)	(0.83)	(-0.59)	(-0.86)	(-0.73)	(-0.22)
EM	-0.022	0.012	0.211	0.104	0.058	0.109	-0.251	-0.175	-0.190	-0.069
	(-0.08)	(0.04)	(0.62)	(0.30)	(0.16)	(0.4)	(-0.77)	(-0.49)	(-0.53)	(-0.18)
Constant	2.411***	2.144***	2.609***	2.211***	2.091**	1.316*	2.133***	2.369***	2.250**	1.739**
	(3.63)	(3.2)	(3.92)	(3.15)	(2.56)	(1.83)	(3.14)	(3.44)	(2.53)	(2.07)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	355	355	355	355	355	355	355	355	355	355
adj. R^2	0.25	0.25	0.24	0.26	0.23	0.22	0.22	0.21	0.28	0.25

The addition of time fixed effects in model (7) allows to control for shocks that are found between all countries. Table 5 reports these results. A brief glance over the results show that the inclusion of fixed effects did not have any significant impact. Looking at the constants of the regressions and comparing them to the previous tables shows that the inclusion of time fixed

effects evidently removes a slight part of the explained variation of the returns with most quintiles for both measures show higher alphas than in previous models.

At the individual determinant level, it seems that the time fixed effects have some minor influence. While al but the extreme value-weighted quintiles kept their significance level, the return R^2 explains less with the introduction of time fixed effects with a decrease of 1 bp in the R^2 results in an increase of the mispricing alpha ranging from 0.9 to 1.8 bps. Furthermore, inflation also showed an increase in explaining potential mispricing, however only the third equally weighted quintile is statistically significant.

As with the return R^2, illiquidity also explains less of the mispricing following the introduction of time fixed effects. The two quintiles which previously were statistically significant have lost their significance as to which the monthly illiquidity measure does not contribute to explain the mispricing within the quintiles. This is possibly due to the fact that the liquidity tends to increase over time due to the markets having more liquidity following the growth of the markets and as such the time fixed effects dampen influence of the earlier years. In order to see if this was the case, I divided the sample time period into three periods. Whilst unreported, I found that in the first period, which was from 1996 to 2002, illiquidity had a strong significant effect. However, the other two periods, 2003-2009 and 2010-2018, show that the illiquidity measure shows to be insignificant with a lower effect in the later years.

To see whether these cross-country results are carried over to a within-country perspective, model (8) is constructed. The inclusion of country fixed effects should be able to tell whether these results can also be seen on a within-country basis. Table 6 shows its results.

In contrary to the previous models, the inclusion of country fixed effects shows that on a within country basis, size is economically more significant for all the quintiles with some of the quintiles of both measures, equally and value-weighted, being statistically significant. For the equally weighted quintiles, the higher mispricing quintiles, while more sensitive to size changes, do not show to be significant. The value-weighted quintiles still show that the more mispriced quintiles are more sensitive to size changes with the second, third and fifth quintile to be statistically significant. This suggests that, compared to the cross-country perspective, the within-country analysis size effect could potentially explain a small part of the mispricing, however, this isn't across all the different mispricing levels.

The return R^2 still remains to be positively related to the mispricing with the equally weighted quintiles still being significant at the 5% level while only the second and third value-weighted

quintiles remain significant at the 10% level. This suggests that while the pricing inefficiency could be more present in the firms with lower market values such that the firms with a higher size dampen the price inefficiencies of the smaller firms through the use of the value-weighted measure.

Table 6: Quintile Panel regressions with mispricing alphas as dependent variable.

This table shows the results surrounding the multivariate regression of (8) where the dependent variable is the country-year average of the monthly local risk-adjusted mispricing alphas. These alphas are both obtained through equally- or value-weighted portfolios and presented as such. Size, R^2 and illiquidity are based on the respective portfolios. The average firm size is measured in billions (dollars). Standard errors are clustered by country and year. T-statistics are reported within the parentheses. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Equally weighted quintiles					Value weighted quintiles				
	1	2	3	4	5	1	2	3	4	5
Size	-0.124*	-0.269*	-0.220	-0.209	-0.192	-0.0591	-0.400**	-0.405*	-0.298	-0.547*
	(-1.78)	(-1.74)	(-0.98)	(-0.71)	(-0.63)	(-0.87)	(-2.56)	(-1.75)	(-0.97)	(-1.81)
Return R2	-1.375*	-1.605**	-1.647**	-2.150***	-2.234***	-1.233	-1.174*	-1.588*	-1.112	-1.240
	(-1.79)	(-2.23)	(-2.50)	(-3.08)	(-2.98)	(-1.51)	(-1.69)	(-1.78)	(-1.63)	(-1.49)
Inflation	-0.007	-0.010	-0.015	-0.007	-0.013	-0.006	-0.002	-0.005	-0.004	0.002
	(-0.46)	(-0.76)	(-1.00)	(-0.42)	(-0.76)	(-0.40)	(-0.14)	(-0.28)	(-0.24)	-0.11
Exchange rate	-0.000	-0.000	-0.004	0.000	-0.001	0.010	0.007	0.015*	0.009	-0.002
	(-0.02)	(-0.02)	(-1.01)	(0.05)	(-0.19)	(1.33)	(1.01)	(1.67)	(0.93)	(-0.26)
Illiquidity	0.103	-0.604	-3.636	-3.762	-0.127	0.715	-1.249	-2.765	-1.640	-1.072
	(0.05)	(-0.25)	(-1.39)	(-1.25)	(-0.06)	(0.38)	(-0.55)	(-0.94)	(-0.59)	(-0.49)
Constant	2.381	2.977**	4.006***	2.783*	2.347	1.058	1.684	1.545	1.120	1.614
	(1.62)	(2.28)	(2.96)	(1.79)	(1.45)	(0.72)	(1.18)	(1.06)	(0.71)	(0.85)
Time fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	355	355	355	355	355	355	355	355	355	355
adj. R^2	0.25	0.26	0.25	0.27	0.23	0.23	0.26	0.26	0.29	0.25

Inflation and exchange rates remain not economically meaningful with most of the quintiles losing the significance surrounding the exchange rates. Furthermore, the illiquidity measure seems to not be able to explain the mispricing within the quintiles with all coefficients not being statistically significant. Even though, for both measures the third and fourth quintiles show to be the most affected by changes in liquidity which could suggest that the firm liquidity within

these quintiles differs a lot however the combined market liquidity shows that these differences are not statistically significant.

While most of the coefficients are shown to be statistically insignificant, the model does seem to explain a part of the mispricing. Each constant of the value-weighted quintiles are statistically insignificant. While still economically significant, this suggests that the presence of these country level determinants do help in explaining some of the mispricing. For the equally weighted quintiles, the constant coefficients are larger than their value-weighted counterparts. However, the middle three quintiles are significant at the 10% level. This indicates that a large part of the mispricing still isn't explained within the quintiles.

As the previous tables mostly looked at explaining the mispricing within the quintiles, Table 7 takes a look over the combined portfolios to see the effect of the variables against mispricing as a whole.

Specifications 1 and 2, in table 7, show that the return R^2 has the most impact on the mispricing alphas where a decrease in the R^2 goes along with an increase in the mispricing. This follows the results of Hou, Peng and Xiong (2013) that greater pricing inefficiencies result in larger mispricing. However, the coefficients of the other determinants besides the exchange rates are all statistically insignificant while some being economically meaningful.

In specifications 3 and 4, an emerging market dummy is introduced. While statistically insignificant, it indicates that for the equally weighted portfolios, being an emerging market increases the mispricing, but the value-weighted markets indicate the opposite. Specifications 5 and 6 introduce time fixed effects, where with the equally weighted portfolios, size is positively statistically significant which suggests that the larger firms would experience more mispricing. Finally, specifications 7 and 8 introduce the country fixed effects. Nevertheless, the return R^2 shows to be the only determinant which is statistically significant in explaining the variation of the mispricing alphas.

Table 7: Panel regressions with mispricing alphas as dependent variable.

This table shows the results surrounding the multivariate regressions of (3)/(6)/(7)/(8) where the dependent variable is the country-year average of the monthly local risk-adjusted mispricing alphas. Specifications 1 & 2 are based on model (3), specifications 3 & 4 on model (6), 5 & 6 on model (7) and 7 & 8 on model (8). These alphas are both obtained through equally- or value-weighted portfolios and presented as such. The average firm size is measured in billions (dollars). Standard errors are clustered by country and year. T-statistics are reported within the parentheses. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	equal	value	equal	value	equal	value	equal	value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Size	0.026	0.061	0.047	0.057	0.082**	0.043	0.035	-0.036
	(0.43)	(1.00)	(0.98)	(1.14)	(1.99)	(1.05)	(0.72)	(-0.70)
Return R2	-1.940***	-1.681***	-1.918***	-1.687***	-1.853***	-1.187***	-1.957***	-1.338**
	(-3.49)	(-3.11)	(-3.41)	(-3.06)	(-3.79)	(-2.59)	(-3.26)	(-2.36)
Inflation	-0.006	-0.000	-0.006	-0.000	-0.009	-0.007	-0.009	-0.001
	(-0.87)	(-0.06)	(-0.89)	(-0.05)	(-1.57)	(-1.19)	(-0.61)	(-0.10)
Exchange rate	-0.001**	-0.001*	-0.001**	-0.001*	-0.001**	-0.001*	-0.001	0.008
	(-2.08)	(-1.92)	(-2.05)	(-1.83)	(-2.26)	(-1.94)	(-0.24)	-1.07
Illiquidity	-1.797	-1.531	-1.748	-1.541	-1.028	-0.503	-1.822	-1.19
	(-1.62)	(-1.42)	(-1.59)	(-1.44)	(-1.00)	(-0.51)	(-1.03)	(-0.70)
EM			0.172	-0.038	0.151	-0.088		
			(0.52)	(-0.12)	(0.50)	(-0.31)		
Constant	2.220***	1.644**	2.115***	1.668***	2.226***	1.936***	2.489*	0.866
	(3.13)	(2.40)	(3.25)	(2.67)	(3.85)	(3.31)	(1.87)	(0.63)
Time fixed Effects	No	No	No	No	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No	Yes	Yes
N	1,775	1,775	1,775	1,775	1,775	1,775	1,775	1,775
adj. R^2	0.04	0.03	0.04	0.03	0.29	0.27	0.31	0.30

5 Conclusion

This study further contributes to the expanding literature surrounding asset mispricing in international markets. Motivated by the research of Stambaugh, Yu and Yuan (2015) and Jacobs (2016), this paper investigated eighteen countries classified as either an emerging or developed market over a longer period of time to determine whether the mispricing measure is able to capture inefficiencies. Furthermore, this study broadens the search into finding possible explanations for this cross-sectional mispricing.

Based on the results in this paper, I find that developed markets are relatively not less mispriced then emerging markets. While some anomalies where not always able to be computed due to missing data, the average number of computed return anomalies in a month between developed and emerging markets are almost the same. It cannot be concluded that the lack of certain anomalies, due to missing data in the individual countries, would influence the mispricing measure in a significant way for either developed or emerging markets.

Quintile long-short investment strategies based on the mispricing measure show that in three of four estimation methods, developed markets show higher abnormal returns compared to emerging markets. Abnormal monthly returns ranging from 41 to 66 bps and 34 to 65 bps for developed and emerging markets respectively, which would suggest that developed markets are relatively higher mispriced then emerging markets. The differences in alphas between the markets for all methods, however, are all statistically insignificant and not economically meaningful.

Further analysis into the possible explanations of the mispricing show that only R^2 which is a proxy for pricing efficiency and exchange rates are statistically significant in explaining mispricing. Where the exchange rates are only deemed economically meaningful for the countries which experience large deviations in their currency against the US dollar. While the R^2 does show to be significant, the question still remains whether the use of the R^2 could be seen as a suitable proxy due to the relation with the dependent variable of the regression.

With the framework provided by Stambaugh, Yu & Yuan (2015), there are some critical notes to be made regarding the work presented in this study. The use of monthly instead of daily equity data is suspected to have a large influence on the trading activity variables due to the estimation errors in the monthly dollar volumes. The use of daily data, would also allow for a more precise screening for inactive firms allowing delisting at a point in a given month. As

mentioned previously, the proxy for pricing efficiency R^2 relies mostly on the assumption that it depicts the level of information used in the model. Further investigation into possible other proxies that are better able to show the efficiency of pricing in the market is highly recommended.

The foundation of the work presented in this paper is based on the three-factor model of Fama & French (1996). This model could be extended to incorporate the other two Fama-French factors, investment and profitability. Such could possibly reduce the abnormal returns observed in this study. Furthermore, introduction of other anomalies besides the eleven used in this paper could potentially also assist to capture more inefficiencies and render a mispricing score that could help explain a larger part of the return variation.

Reference list

Akbas, F., Armstrong, W. J., Sorescu, S., & Subrahmanyam, A. (2015). Smart money, dumb money, and capital market anomalies. *Journal of Financial Economics*, *118*(2), 355-382.

Amihud, Y. (1994). Evidence on exchange rates and valuation of equity shares in Exchange rates and corporate finance, Amihud Y. *Business One Irwin Homewood IL USA*.

Amihud, Y. (2002). Illiquidity and stock returns: cross-section and time-series effects. *Journal of financial markets*, *5*(1), 31-56.

Baker, M., & Stein, J. C. (2004). Market liquidity as a sentiment indicator. *Journal of Financial Markets*, *7*(3), 271-299.

Baker, M., & Wurgler, J. (2006). Investor sentiment and the cross-section of stock returns. *The journal of Finance*, *61*(4), 1645-1680.

Bartov, E., & Bodnar, G. M. (1994). Firm valuation, earnings expectations, and the exchange-rate exposure effect. *The journal of Finance*, *49*(5), 1755-1785.

Bekaert, G., & Engstrom, E. (2010). Inflation and the stock market: Understanding the "Fed Model". *Journal of Monetary Economics*, *57*(3), 278-294.

Bodnar, G. M., & Gentry, W. M. (1993). Exchange rate exposure and industry characteristics: evidence from Canada, Japan, and the USA. *Journal of international Money and Finance*, *12*(1), 29-45.

Campbell, J. Y., Hilscher, J., & Szilagyi, J. (2008). In search of distress risk. *The Journal of Finance*, *63*(6), 2899-2939.

Campbell, J. Y., & Vuolteenaho, T. (2004). Inflation illusion and stock prices. *American Economic Review*, *94*(2), 19-23.

Chan, K., & Hameed, A. (2006). Stock price synchronicity and analyst coverage in emerging markets. *Journal of Financial Economics*, *80*(1), 115-147.

Chen, L., & Novy-Marx, R. (2011). An alternative three-factor model. *Available at SSRN 1418117*.

Chiang, T. C., & Zheng, D. (2015). Liquidity and stock returns: Evidence from international markets. *Global Finance Journal*, *27*, 73-97.

Chordia, T., Subrahmanyam, A., & Tong, Q. (2014). Have capital market anomalies attenuated in the recent era of high liquidity and trading activity? *Journal of Accounting and Economics*, *58*(1), 41-58.

Cooper, M. J., Gulen, H., & Schill, M. J. (2008). Asset growth and the cross-section of stock returns. *The Journal of Finance*, *63*(4), 1609-1651.

Daniel, K., & Titman, S. (2006). Market reactions to tangible and intangible information. *The Journal of Finance*, *61*(4), 1605-1643.

DeVault, L., Sias, R., & Starks, L. (2014). Who are the sentiment traders? Evidence from the cross-section of stock returns and demand. *SSRN Scholarly Paper ID*, *2539858*.

Edelen, R. M., Ince, O. S., & Kadlec, G. B. (2016). Institutional investors and stock return anomalies. *Journal of Financial Economics*, *119*(3), 472-488.

Eling, M., & Faust, R. (2010). The performance of hedge funds and mutual funds in emerging markets. *Journal of Banking & Finance*, *34*(8), 1993-2009.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of financial economics*, *33*(1), 3-56.

Fama, E. F., & French, K. R. (1996). Multifactor explanations of asset pricing anomalies. *The journal of finance*, *51*(1), 55-84.

Fama, E. F., & French, K. R. (2004). The capital asset pricing model: Theory and evidence. *Journal of economic perspectives*, *18*(3), 25-46.

Fama, E. F., & French, K. R. (2006). Profitability, investment and average returns. *Journal of Financial Economics*, *82*(3), 491-518.

Fama, E. F., & French, K. R. (2008). Dissecting anomalies. *The Journal of Finance*, *63*(4), 1653-1678.

Gençay, R., & Selçuk, F. (2004). Extreme value theory and Value-at-Risk: Relative performance in emerging markets. *International Journal of Forecasting*, *20*(2), 287-303.

Griffin, J. M. (2002). Are the Fama and French factors global or country specific? *The Review of Financial Studies*, *15*(3), 783-803.

Griffin, J., Kelly, P., & Nardari, F. (2006). *Measurement and determinants of international stock market efficiency*. Working paper. University of Texas-Austin.

Griffin, J. M., Kelly, P. J., & Nardari, F. (2010). Do market efficiency measures yield correct inferences? A comparison of developed and emerging markets. *The Review of Financial Studies*, *23*(8), 3225-3277.

Griffin, J. M., Hirschey, N. H., & Kelly, P. J. (2011). How important is the financial media in global markets? *The Review of Financial Studies*, *24*(12), 3941-3992.

Hirshleifer, D., Hou, K., Teoh, S. H., & Zhang, Y. (2004). Do investors overvalue firms with bloated balance sheets? *Journal of Accounting and Economics*, *38*, 297-331.

Hou, K., Karolyi, G. A., & Kho, B. C. (2011). What factors drive global stock returns? *The Review of Financial Studies*, *24*(8), 2527-2574.

Hou, K., & Moskowitz, T. J. (2005). Market frictions, price delay, and the cross-section of expected returns. *The Review of Financial Studies*, *18*(3), 981-1020.

Hou, K., Peng, L., & Xiong, W. (2013). Is R2 a measure of market inefficiency. *Unpublished working paper. Ohio State University, City University of New York, Princeton University, and National Bureau of Economic Research*.

Huij, J., & Post, T. (2011). On the performance of emerging market equity mutual funds. *Emerging Markets Review*, *12*(3), 238-249.

Ince, O. S., & Porter, R. B. (2006). Individual equity return data from Thomson DataStream: Handle with care! *Journal of Financial Research*, *29*(4), 463-479.

Jacobs, H. (2016). Market maturity and mispricing. *Journal of financial economics*, *122*(2), 270-287.

Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of finance*, *48*(1), 65-91.

Kelly, P. J. (2014). Information efficiency and firm-specific return variation. *The Quarterly Journal of Finance*, *4*(04), 1450018.

Lintner, J. (1975). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. In *Stochastic Optimization Models in Finance* (pp. 131-155).

Loughran, T., & Ritter, J. R. (1995). The new issues puzzle. *The Journal of finance*, *50*(1), 23-51.

Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of economic perspectives*, *17*(1), 59-82.

McLean, R. D., & Pontiff, J. (2016). Does academic research destroy stock return predictability? *The Journal of Finance*, *71*(1), 5-32.

Modigliani, F., & Cohn, R. A. (1979). Inflation, rational valuation and the market. *Financial Analysts Journal*, *35*(2), 24-44.

Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets: why do emerging markets have synchronous stock price movements? *Journal of financial economics*, *58*(1-2), 215-260.

Nagel, S. (2013). Empirical cross-sectional asset pricing. *Annu. Rev. Financ. Econ.*, *5*(1), 167-199.

Novy-Marx, R. (2013). The other side of value: The gross profitability premium. *Journal of Financial Economics*, *108*(1), 1-28.

Ohlson, J. A. (1980). Financial ratios and the probabilistic prediction of bankruptcy. *Journal of accounting research*, 109-131.

Perold, A. F. (2004). The capital asset pricing model. *Journal of economic perspectives*, *18*(3), 3-24.

Ritter, J. R. (1991). The long-run performance of initial public offerings. *The journal of finance*, *46*(1), 3-27.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, *19*(3), 425-442.

Shleifer, A., & Vishny, R. W. (1990). Equilibrium short horizons of investors and firms. *The American Economic Review*, *80*(2), 148-153.

Sloan, R. G. (1996). Do stock prices fully reflect information in accruals and cash flows about future earnings? *Accounting review*, 289-315.

Stambaugh, R. F., Yu, J., & Yuan, Y. (2015). Arbitrage asymmetry and the idiosyncratic volatility puzzle. *The Journal of Finance*, *70*(5), 1903-1948.

Titman, S., Wei, K. J., & Xie, F. (2004). Capital investments and stock returns. *Journal of financial and Quantitative Analysis*, *39*(4), 677-700.

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *econometrica*, *48*(4), 817-838.

Xing, Y. (2007). Interpreting the value effect through the Q-theory: An empirical investigation. *The Review of Financial Studies*, *21*(4), 1767-1795.

Appendix A

Figure 1.

Equity industry codes and numbers that indicate if the security is not classified as common equity. All securities with these listed codes are excluded from the dataset. This list is obtained from the table B.1 of the appendix of Griffin, Kelly & Nadari (2010).

Panel B: Industry Codes for Investment Vehicles		
Code	**Number**	**Industry Name**
ITSPL	73	SPLIT CAPITAL INV.TST
ITVNT	76	INV.TST.VENTURE + DEV
INVNK	77	INVESTMENT COS.(6)
ITGSP	88	INV.TST.GEOG.SPECLSTS
IVTUK	89	INVESTMENT TRUST UK
	96	INVESTMENT TRUST – OLD
ITINT	109	INV.TST INTERNATIONAL
UNITS	110	AUTH. UNIT TRUSTS
RLDEV	112	REAL ESTATE DEV.
CURFD	121	CURRENCY FUNDS
INVCO	124	INVESTMENT COS. (UK)
INSPF	125	INS.+ PROPERTY FUNDS
OFFSH	136	OFFSHORE FUNDS
INVTO	137	OTHER INV. TRUSTS
ITEMG	145	INV.TST.EMERGING MKTS
OEINC	148	OPEN ENDED INV. COS.
ITVCT	149	VENTURE CAPITAL TRUST
	154	REAL ESTATE
EXTRF	159	EXCHANGE TRADED FUNDS

Appendix B

Table 8: First quintile three factor alpha in developed and emerging markets.

This table reports the monthly alpha, in percentages, obtained from regressing the first quintile portfolio returns based on the sorting of the individual anomalies or mispricing score against a global three-factor model (Fama & French, 1996). Next to the alphas of the developed or emerging markets, the difference between the alphas is also reported. In panel A, the portfolio returns in a given month is the average of all the different country-level averages. In panel B, the portfolio returns in a given month is obtained through all available stocks from all countries after which a country-neutral time-series is used. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level. For the difference between the markets, the Chi-squared test is used and its χ^2 is reported in parentheses. The statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel A: Country Average						
Failure probability	0.959***	0.544***	0.416***	1.095***	0.524***	0.571***
	(18.26)	(6.11)	(16.18)	(17.18)	(5.70)	(26.06)
Ohlson's O	0.729***	0.795***	-0.067	0.633***	0.709***	-0.077
	(15.42)	(10.59)	(0.56)	(13.18)	(9.10)	(0.70)
Net stock issues	0.962***	1.089***	-0.127	1.005***	1.027***	-0.022
	(8.62)	(5.83)	(0.34)	(10.23)	(5.61)	(0.01)
Composite equity	0.860***	0.992***	-0.132	0.510***	1.180***	-0.670***
	(10.89)	(8.58)	(0.88)	(4.61)	(7.90)	(12.99)
Total accruals	0.874***	0.927***	-0.053	0.599***	0.781***	-0.181*
	(14.15)	(10.11)	(0.23)	(10.40)	(8.63)	(2.86)
Net operating assets	0.422***	0.288***	0.134	-0.330***	0.023	-0.352***
	(7.06)	(4.41)	(2.29)	(-4.98)	(0.24)	(9.29)
Momentum	0.490***	0.251***	0.239**	-0.133	0.485***	-0.618***
	(7.25)	(2.95)	(4.86)	(-1.63)	(4.15)	(18.83)
Gross profitability	0.079	-0.163**	0.242**	-0.422***	-0.115	-0.307***
	(1.35)	(-2.15)	(6.40)	(-6.69)	(-1.19)	(7.03)
Asset growth	0.219***	0.210***	0.009	-0.365***	0.459***	-0.824***
	(3.60)	(2.90)	(0.01)	(-4.75)	(3.67)	(31.60)
Return on assets	0.208***	0.076	0.132	-0.810***	0.097	-0.906***
	(3.09)	(1.00)	(1.68)	(-9.56)	(0.89)	(43.58)
Investment-to-assets	0.249***	0.135**	0.114	-0.447***	-0.624***	0.178
	(4.41)	(2.01)	(1.69)	(-6.35)	(-6.43)	(2.20)
Mispricing Score	1.119***	1.214***	-0.095	1.000***	1.150***	-0.150
	(11.32)	(7.33)	(0.24)	(10.22)	(6.70)	(0.58)

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel B: Country Composite						
Failure probability	1.053***	0.432***	0.621***	0.664***	0.714***	-0.051
	(10.33)	(2.69)	(10.84)	(5.46)	(3.54)	(0.05)
Ohlson's O	0.762***	0.674***	0.088	0.347***	0.621***	-0.274
	(8.49)	(4.63)	(0.27)	(3.19)	(3.29)	(1.60)
Net stock issues	0.608**	0.631*	-0.023	0.101	0.536***	-0.435
	(2.53)	(1.86)	(0.00)	(0.36)	(1.11)	(0.62)
Composite equity	0.738***	0.805**	-0.067	0.264	0.831**	-0.567
	(3.59)	(2.46)	(0.03)	(0.90)	(1.97)	(1.24)
Total accruals	0.445***	0.236	0.209	-0.514***	0.248	-0.762***
	(2.80)	(1.29)	(0.75)	(-3.12)	(1.17)	(8.14)
Net operating assets	0.516***	0.221	0.295	-0.291*	-0.294	0.003
	(3.25)	(1.20)	(1.50)	(-1.72)	(-1.17)	(0.00)
Momentum	0.478***	0.104	0.373	-0.169	0.230	-0.400
	(2.97)	(0.47)	(1.86)	(-0.86)	(0.75)	(1.22)
Gross profitability	0.200	-0.221	0.420	-0.371**	-0.291	-0.08
	(1.27)	(-1.04)	(2.57)	(-2.29)	(-1.16)	(0.07)
Asset growth	0.411**	0.115	0.297	-0.180	0.049	-0.228
	(2.54)	(0.57)	(1.33)	(-0.93)	(0.15)	(0.39)
Return on assets	0.332*	0.030	0.302	-0.746***	-0.156	-0.589*
	(1.84)	(0.14)	(1.18)	(-3.50)	(-0.55)	(2.77)
Investment-to-assets	0.390**	0.102	0.288	-0.411**	-0.868***	0.458
	(2.53)	(0.54)	(1.42)	(-2.30)	(-3.33)	(2.12)
Mispricing Score	0.796***	0.692**	0.104	0.560***	0.322	0.238
	(4.23)	(2.36)	(0.09)	(2.82)	(1.00)	(0.40)

Table 9: Second quintile three factor alpha in developed and emerging markets.

This table reports the monthly alpha, in percentages, obtained from regressing the second quintile portfolio returns based on the sorting of the individual anomalies or mispricing score against a global three-factor model (Fama & French, 1996). Next to the alphas of the developed or emerging markets, the difference between the alphas is also reported. In panel A, the portfolio returns in a given month is the average of all the different country-level averages. In panel B, the portfolio returns in a given month is obtained through all available stocks from all countries after which a country-neutral time-series is used. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level. For the difference between the markets, the Chi-squared test is used and its χ^2 is reported in parentheses. The statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel A: Country Average						
Failure probability	0.860***	0.575***	0.285*	0.779***	0.681***	0.098
	(13.53)	(4.31)	(3.72)	(11.25)	(4.65)	(0.37)
Ohlson's O	0.731***	0.867***	-0.136	0.657***	0.651***	0.006
	(14.20)	(9.94)	(1.80)	(13.60)	(7.92)	(0.00)
Net stock issues	0.308**	-0.119	0.427	0.579***	-0.179	0.758
	(1.98)	(-0.14)	(0.24)	(3.80)	(-0.19)	(0.68)
Composite equity	0.894***	0.955***	-0.061	0.439***	2.357***	-1.918***
	(11.21)	(8.15)	(0.19)	(3.93)	(10.78)	(61.14)
Total accruals	0.772***	0.879***	-0.108	0.653***	0.686***	-0.032
	(14.11)	(9.67)	(1.03)	(13.82)	(8.14)	(0.11)
Net operating assets	0.271***	0.265***	0.006	-0.400***	0.791***	-1.191***
	(5.05)	(3.91)	(0.01)	(-5.78)	(8.68)	(108.54)
Momentum	0.557***	0.571***	-0.014	0.090	0.533***	-0.443***
	(9.46)	(5.36)	(0.01)	(1.13)	(3.68)	(7.18)
Gross profitability	0.024	0.183**	-0.159*	-0.418***	0.218**	-0.636***
	(0.41)	(2.55)	(2.98)	(-5.56)	(2.42)	(29.44)
Asset growth	0.207***	0.353***	-0.146	-0.516***	-0.143*	-0.373***
	(4.03)	(4.85)	(2.69)	(-7.92)	(-1.77)	(12.87)
Return on assets	0.169***	0.240***	-0.071	-0.540***	0.265***	-0.805***
	(3.25)	(3.38)	(0.65)	(-7.42)	(3.12)	(51.84)
Investment-to-assets	0.246***	0.280***	-0.034	-0.325***	0.385***	-0.711***
	(4.68)	(4.14)	(0.16)	(-4.89)	(4.66)	(44.85)
Mispricing Score	1.013***	1.129***	-0.116	1.071***	1.024***	0.047
	(9.06)	(6.36)	(0.31)	(10.27)	(5.69)	(0.05)

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel B: Country Composite						
Failure probability	0.948***	0.260	0.687***	0.406***	0.649	-0.243
	(7.68)	(1.17)	(7.43)	(2.68)	(1.63)	(0.33)
Ohlson's O	0.768***	0.681***	0.087	0.158	0.621***	-0.463*
	(8.23)	(4.22)	(0.22)	(1.27)	(2.97)	(3.67)
Net stock issues	0.676***	0.490	0.186	0.234**	0.047	0.187
	(4.01)	(0.50)	(0.04)	(2.16)	(0.05)	(0.04)
Composite equity	0.754***	0.744**	0.01	0.244	1.568***	-1.324**
	(3.67)	(2.30)	(0.00)	(0.83)	(2.62)	(4.01)
Total accruals	0.372***	0.084	0.288	-0.324**	0.271	-0.594**
	(2.67)	(0.43)	(1.45)	(-2.05)	(1.22)	(4.80)
Net operating assets	0.384***	0.235	0.149	-0.362**	0.716***	-1.078***
	(2.61)	(1.23)	(0.39)	(-2.03)	(2.95)	(12.95)
Momentum	0.529***	0.285	0.244	-0.042	0.082	-0.125
	(4.26)	(1.30)	(0.96)	(-0.25)	(0.26)	(0.12)
Gross profitability	0.136	0.137	-0.001	-0.380**	-0.012	-0.367
	(0.86)	(0.67)	(0.00)	(-2.01)	(-0.05)	(1.44)
Asset growth	0.345**	0.262	0.084	-0.423***	-0.285	-0.138
	(2.50)	(1.26)	(0.11)	(-2.59)	(-1.31)	(0.26)
Return on assets	0.292**	0.171	0.121	-0.464**	0.079	-0.543*
	(2.04)	(0.85)	(0.24)	(-2.50)	(0.34)	(3.33)
Investment-to-assets	0.340**	0.232	0.108	-0.324*	0.201	-0.525*
	(2.38)	(1.22)	(0.21)	(-1.91)	(0.91)	(3.58)
Mispricing Score	0.703***	0.589*	0.114	0.550***	0.293	0.256
	(3.45)	(1.83)	(0.09)	(2.62)	(0.85)	(0.41)

Table 10: Third quintile three factor alpha in developed and emerging markets.

This table reports the monthly alpha, in percentages, obtained from regressing the third quintile portfolio returns based on the sorting of the individual anomalies or mispricing score against a global three-factor model (Fama & French, 1996). Next to the alphas of the developed or emerging markets, the difference between the alphas is also reported. In panel A, the portfolio returns in a given month is the average of all the different country-level averages. In panel B, the portfolio returns in a given month is obtained through all available stocks from all countries after which a country-neutral time-series is used. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level. For the difference between the markets, the Chi-squared test is used and its χ^2 is reported in parentheses. The statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel A: Country Average						
Failure probability	0.792***	0.526***	0.265	0.731***	0.499***	0.232
	(10.15)	(3.04)	(1.95)	(8.52)	(2.88)	(1.45)
Ohlson's O	0.725***	0.766***	-0.041	0.589***	0.523***	0.066
	(12.90)	(8.35)	(0.15)	(11.24)	(5.90)	(0.41)
Net stock issues	0.684***	0.160	0.524	0.800***	0.426	0.374
	(4.76)	(0.44)	(1.78)	(5.73)	(1.16)	(0.92)
Composite equity	0.828***	0.905***	-0.077	0.716***	0.977***	-0.261
	(9.63)	(7.15)	(0.25)	(6.35)	(4.73)	(1.23)
Total accruals	0.715***	0.867***	-0.151	0.663***	0.665***	-0.002
	(13.66)	(9.17)	(1.97)	(14.18)	(7.09)	(0.00)
Net operating assets	0.169***	0.233***	-0.064	-0.579***	0.142	-0.721***
	(3.25)	(3.36)	(0.55)	(-8.31)	(1.60)	(41.02)
Momentum	0.655***	0.740***	-0.084	0.116	0.579***	-0.464***
	(11.62)	(6.07)	(0.39)	(1.50)	(4.17)	(8.54)
Gross profitability	0.075	0.088	-0.013	-0.512***	-0.014	-0.498***
	(1.38)	(1.28)	(0.02)	(-7.48)	(-0.16)	(19.98)
Asset growth	0.189***	0.333***	-0.144*	-0.482***	0.431***	-0.913***
	(3.77)	(4.74)	(2.78)	(-7.87)	(4.72)	(69.09)
Return on assets	0.146***	0.101	0.045	-0.542***	-0.087	-0.455***
	(2.94)	(1.49)	(0.29)	(-8.76)	(-1.09)	(20.22)
Investment-to-assets	0.271***	0.200***	0.071	-0.533***	0.238***	-0.771***
	(5.42)	(2.98)	(0.71)	(-8.75)	(2.84)	(55.30)
Mispricing Score	0.875***	1.069***	-0.194	0.993***	1.038***	-0.045
	(7.11)	(5.51)	(0.71)	(8.83)	(5.30)	(0.04)

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel B: Country Composite						
Failure probability	0.827***	0.180	0.647**	0.482***	0.416	0.067
	(5.97)	(0.73)	(5.35)	(2.63)	(1.09)	(0.03)
Ohlson's O	0.778***	0.655***	0.123	0.212	0.644***	-0.432
	(7.89)	(3.90)	(0.40)	(1.64)	(2.60)	(2.41)
Net stock issues	0.555***	0.536	0.019	0.258*	0.536	-0.278
	(2.94)	(1.16)	(0.00)	(1.66)	(1.00)	(0.25)
Composite equity	0.678***	0.673*	0.005	0.374	0.625	-0.251
	(3.09)	(1.96)	(0.00)	(1.25)	(1.20)	(0.18)
Total accruals	0.309**	0.222	0.087	-0.345**	-0.206	-0.139
	(2.24)	(1.16)	(0.14)	(-2.12)	(-0.82)	(0.22)
Net operating assets	0.294**	0.180	0.114	-0.528***	-0.026	-0.501*
	(2.07)	(0.92)	(0.22)	(-2.96)	(-0.11)	(2.89)
Momentum	0.582***	0.569***	0.013	-0.049	0.457	-0.506
	(5.10)	(2.43)	(0.00)	(-0.32)	(1.48)	(2.18)
Gross profitability	0.176	0.047	0.129	-0.506***	-0.176	-0.330
	(1.19)	(0.24)	(0.28)	(-2.94)	(-0.74)	(1.28)
Asset growth	0.362***	0.237	0.125	-0.328**	0.19	-0.517*
	(2.65)	(1.16)	(0.26)	(-2.06)	(0.76)	(3.12)
Return on assets	0.247*	0.04	0.207	-0.491***	-0.274	-0.216
	(1.82)	(0.21)	(0.79)	(-3.02)	(-1.24)	(0.63)
Investment-to-assets	0.364***	0.162	0.201	-0.470***	0.093	-0.562**
	(2.66)	(0.84)	(0.73)	(-2.98)	(0.40)	(4.14)
Mispricing Score	0.613***	0.533	0.08	0.381*	0.222	0.158
	(2.79)	(1.54)	(0.04)	(1.71)	(0.60)	(0.14)

Table 11: Fourth quintile three factor alpha in developed and emerging markets.

This table reports the monthly alpha, in percentages, obtained from regressing the fourth quintile portfolio returns based on the sorting of the individual anomalies or mispricing score against a global three-factor model (Fama & French, 1996). Next to the alphas of the developed or emerging markets, the difference between the alphas is also reported. In panel A, the portfolio returns in a given month is the average of all the different country-level averages. In panel B, the portfolio returns in a given month is obtained through all available stocks from all countries after which a country-neutral time-series is used. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level. For the difference between the markets, the Chi-squared test is used and its χ^2 is reported in parentheses. The statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel A: Country Average						
Failure probability	0.541***	0.377**	0.164	0.490***	0.354**	0.136
	(6.75)	(2.47)	(0.91)	(5.51)	(2.24)	(0.57)
Ohlson's O	0.726***	0.925***	-0.199*	0.577***	0.636***	-0.058
	(12.14)	(9.20)	(2.89)	(10.75)	(6.53)	(0.27)
Net stock issues	0.761***	0.846***	-0.085	0.752***	0.975***	-0.223
	(4.81)	(3.55)	(0.09)	(5.53)	(4.36)	(0.73)
Composite equity	0.776***	0.869***	-0.094	0.667***	1.480***	-0.813***
	(8.14)	(6.41)	(0.32)	(5.50)	(7.94)	(13.41)
Total accruals	0.707***	0.876***	-0.169	0.711***	0.646***	0.065
	(11.98)	(8.81)	(2.15)	(13.18)	(6.90)	(0.36)
Net operating assets	0.056	0.058	-0.002	-0.526***	-0.067	-0.459***
	(1.06)	(0.84)	(0.00)	(-7.50)	(-0.79)	(17.27)
Momentum	0.724***	0.780***	-0.057	0.120	0.784***	-0.665***
	(13.00)	(7.80)	(0.24)	(1.51)	(5.95)	(18.64)
Gross profitability	0.230***	0.194***	0.036	-0.521***	0.054	-0.575***
	(4.47)	(3.07)	(0.20)	(-8.32)	(0.60)	(27.40)
Asset growth	0.179***	0.258***	-0.079	-0.209***	0.485***	-0.695***
	(3.29)	(3.51)	(4.72)	(-3.07)	(4.90)	(33.43)
Return on assets	0.180***	0.218***	-0.038	-0.311***	0.206***	-0.517***
	(3.67)	(3.34)	(0.22)	(-5.15)	(2.70)	(28.30)
Investment-to-assets	0.129**	0.008	0.122	-0.395***	0.229***	-0.624***
	(2.52)	(0.11)	(2.06)	(-6.26)	(2.83)	(37.06)
Mispricing Score	0.670***	0.861***	-0.191	0.743***	0.876***	-0.134
	(4.91)	(4.14)	(0.59)	(5.87)	(4.35)	(0.32)

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel B: Country Composite						
Failure probability	0.773***	0.139	0.634**	0.417**	0.483	-0.066
	(5.56)	(0.56)	(5.04)	(2.35)	(1.23)	(0.02)
Ohlson's O	0.824***	0.711***	0.112	0.184	0.831***	-0.647**
	(8.00)	(3.93)	(0.30)	(1.42)	(2.95)	(4.41)
Net stock issues	0.435*	0.212	0.223	0.220	0.700	-0.481
	(1.91)	(0.55)	(0.25)	(0.91)	(1.27)	(0.65)
Composite equity	0.608**	0.595	0.013	0.308	1.110**	-0.802
	(2.53)	(1.61)	(0.00)	(0.98)	(1.96)	(1.55)
Total accruals	0.224	0.033	0.191	-0.384**	-0.128	-0.256
	(1.56)	(0.18)	(0.66)	(-2.13)	(-0.50)	(0.68)
Net operating assets	0.169	0.015	0.155	-0.486***	-0.237	-0.248
	(1.18)	(0.07)	(0.41)	(-2.74)	(-1.00)	(0.71)
Momentum	0.642***	0.658***	-0.016	-0.012	0.574**	-0.586*
	(5.53)	(3.22)	(0.00)	(-0.07)	(1.99)	(3.22)
Gross profitability	0.326**	0.170	0.155	-0.490***	-0.096	-0.394
	(2.31)	(0.94)	(0.47)	(-3.00)	(-0.38)	(1.74)
Asset growth	0.316**	0.137	0.178	-0.138	0.289	-0.427
	(2.16)	(0.65)	(0.49)	(-0.82)	(1.08)	(1.85)
Return on assets	0.270**	0.163	0.107	-0.277*	0.022	-0.299
	(2.01)	(0.88)	(0.22)	(-1.81)	(0.11)	(1.39)
Investment-to-assets	0.215	-0.045	0.260	-0.377**	0.016	-0.394
	(1.52)	(-0.23)	(1.20)	(-2.35)	(0.07)	(1.94)
Mispricing Score	0.457*	0.328	0.128	0.132	0.034	0.098
	(1.89)	(0.90)	(0.09)	(0.55)	(0.09)	(0.05)

Table 12: Fifth quintile three factor alpha in developed and emerging markets.

This table reports the monthly alpha, in percentages, obtained from regressing the fifth quintile portfolio returns based on the sorting of the individual anomalies or mispricing score against a global three-factor model (Fama & French, 1996). Next to the alphas of the developed or emerging markets, the difference between the alphas is also reported. In panel A, the portfolio returns in a given month is the average of all the different country-level averages. In panel B, the portfolio returns in a given month is obtained through all available stocks from all countries after which a country-neutral time-series is used. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level. For the difference between the markets, the Chi-squared test is used and its χ^2 is reported in parentheses. The statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel A: Country Average						
Failure probability	0.404***	-0.039	0.443***	0.581***	-0.052	0.633***
	(5.09)	(-0.33)	(9.64)	(6.64)	(-0.42)	(17.36)
Ohlson's O	0.791***	0.876***	-0.084	0.555***	0.458***	0.097
	(11.12)	(8.17)	(0.43)	(7.87)	(4.13)	(0.55)
Net stock issues	0.583***	0.646***	-0.063	0.745***	0.854***	-0.109
	(3.90)	(2.95)	(0.06)	(5.22)	(4.03)	(0.18)
Composite equity	0.584***	0.549***	0.034	0.596***	1.110***	-0.514**
	(5.33)	(3.83)	(0.04)	(4.44)	(5.11)	(4.06)
Total accruals	0.634***	0.641***	-0.007	0.441***	0.368***	0.073
	(9.72)	(6.31)	(0.00)	(7.29)	(3.79)	(0.41)
Net operating assets	-0.119**	-0.189***	0.070	-0.331***	-0.288***	-0.043
	(-2.10)	(-2.70)	(0.61)	(-5.85)	(-3.24)	(0.16)
Momentum	0.953***	0.878***	0.075	0.430***	1.076***	-0.646***
	(16.73)	(11.81)	(0.64)	(5.09)	(9.40)	(20.63)
Gross profitability	0.446***	0.229***	0.217***	-0.150***	0.492***	-0.642***
	(8.82)	(3.75)	(7.54)	(-2.60)	(6.09)	(41.84)
Asset growth	-0.008	0.206***	-0.214**	-0.468***	0.340***	-0.808***
	(-0.12)	(2.66)	(4.54)	(-5.89)	(4.21)	(50.92)
Return on assets	0.220***	0.105*	0.115	-0.291***	-0.056	-0.235**
	(4.12)	(1.73)	(2.03)	(-4.53)	(-0.67)	(5.00)
Investment-to-assets	-0.08	-0.101	0.021	-0.492***	0.251***	-0.743***
	(-1.37)	(-1.42)	(0.05)	(-7.45)	(2.81)	(44.72)
Mispricing Score	0.456***	0.600***	-0.144	0.587***	0.806***	-0.219
	(2.87)	(2.63)	(0.27)	(3.84)	(3.75)	(0.69)

	Developed	Emerging	Difference	Developed	Emerging	Difference
	Equally weighted returns			Value-weighted returns		
Panel B: Country Composite						
Failure probability	0.878***	0.009	0.869***	0.321	0.428	-0.107
	(5.83)	(0.04)	(12.19)	(1.60)	(1.27)	(0.08)
Ohlson's O	0.930***	0.703***	0.227	-0.127	0.324	-0.451
	(7.40)	(4.01)	(1.13)	(-0.90)	(1.28)	(2.45)
Net stock issues	0.231	0.105	0.127	-0.066	0.121	-0.187
	(0.83)	(0.28)	(0.07)	(-0.19)	(0.21)	(0.08)
Composite equity	0.431	0.238	0.192	0.227	0.594	-0.367
	(1.57)	(0.60)	(0.16)	(0.66)	(1.08)	(0.33)
Total accruals	0.102	-0.238	0.339	-0.448**	-0.716***	0.268
	(0.65)	(-1.18)	(1.80)	(-2.56)	(-2.93)	(0.81)
Net operating assets	-0.007	-0.243	0.236	-0.314**	-0.550**	0.236
	(-0.04)	(-1.21)	(0.89)	(-2.20)	(-2.29)	(0.72)
Momentum	0.941***	0.792***	0.149	0.322	0.705***	-0.383
	(6.91)	(4.15)	(0.41)	(1.63)	(2.69)	(1.38)
Gross profitability	0.528***	0.203	0.325	-0.132	0.316	-0.448*
	(3.84)	(1.17)	(2.19)	(-0.89)	(1.37)	(2.71)
Asset growth	0.134	0.080	0.054	-0.348*	0.065	-0.413
	(0.80)	(0.36)	(0.04)	(-1.82)	(0.28)	(1.92)
Return on assets	0.280*	0.070	0.210	-0.314*	-0.285	-0.029
	(1.96)	(0.40)	(0.87)	(-1.94)	(-1.24)	(0.01)
Investment-to-assets	0.017	-0.160	0.177	-0.482***	0.029	-0.510*
	(0.11)	(-0.79)	(0.48)	(-2.87)	(0.12)	(3.14)
Mispricing Score	0.243	0.047	0.196	-0.08	-0.145	0.065
	(0.88)	(0.12)	(0.17)	(-0.28)	(-0.37)	(0.02)

Table 13: Three factor alphas of mispricing quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on mispricing score (based on Stambaugh, Yu & Yuan, 2015) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.733***	0.491**	0.412	-0.087	-0.781**	1.514***
	(3.31)	(2.01)	(1.53)	(-0.27)	(-2.01)	(6.05)
Canada	0.789***	0.679**	0.216	-0.177	-0.411	1.200***
	(3.52)	(2.48)	(0.67)	(-0.45)	(-0.88)	(3.73)
China	0.497	0.406	0.393	0.327	0.267	0.230
	(0.83)	(0.67)	(0.63)	(0.52)	(0.41)	(1.52)
France	1.187***	0.990***	0.849***	0.692***	0.193	0.994***
	(5.84)	(4.58)	(3.62)	(2.63)	(0.63)	(5.57)
Germany	1.038***	0.842***	0.619**	0.324	-0.024	1.063***
	(4.72)	(3.72)	(2.48)	(1.14)	(-0.07)	(5.52)
India	1.025**	0.795*	0.739	0.501	0.138	0.887***
	(2.36)	(1.68)	(1.45)	(0.95)	(0.25)	(3.86)
Japan	0.328	0.270	0.272	0.218	0.098	0.230
	(1.18)	(0.90)	(0.85)	(0.63)	(0.26)	(1.46)
Malaysia	0.814**	0.527	0.409	0.105	-0.082	0.896***
	(2.21)	(1.27)	(0.85)	(0.20)	(-0.14)	(3.23)
Poland	0.991**	0.699*	0.315	0.022	-0.251	1.242***
	(2.39)	(1.81)	(0.82)	(0.05)	(-0.52)	(4.85)
Singapore	0.953***	0.735*	0.461	0.298	0.207	0.746***
	(2.77)	(1.74)	(0.99)	(0.62)	(0.39)	(3.03)
South Africa	1.045***	0.895***	0.609**	0.223	-0.279	1.323***
	(3.98)	(3.47)	(2.23)	(0.81)	(-0.93)	(6.86)
South Korea	0.465	0.374	0.333	0.132	-0.345	0.810***
	(0.98)	(0.70)	(0.57)	(0.22)	(-0.56)	(3.18)
Taiwan	0.572	0.542	0.421	0.215	-0.092	0.663***
	(1.34)	(1.17)	(0.86)	(0.42)	(-0.17)	(2.95)
Thailand	1.307***	1.348***	1.312***	1.201**	0.887	0.421
	(4.15)	(3.68)	(3.39)	(2.56)	(1.45)	(1.04)
UK	0.880***	0.728***	0.551**	0.222	-0.282	1.162***
	(3.86)	(2.99)	(2.12)	(0.77)	(-0.85)	(6.54)
U.S.	0.099	-0.052	-0.185	-0.343**	-0.603***	0.702***
	(0.88)	(-0.41)	(-1.30)	(-2.11)	(-2.91)	(4.18)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.522**	0.561**	0.470*	0.045	-0.507	1.029***
	(2.10)	(2.20)	(1.75)	(0.15)	(-1.25)	(3.32)
Canada	0.699***	0.673**	0.550**	-0.099	-0.466	1.166***
	(2.70)	(2.31)	(2.10)	(-0.27)	(-0.98)	(2.91)
China	0.522	0.268	0.175	0.110	0.054	0.468**
	(0.93)	(0.47)	(0.29)	(0.18)	(0.09)	(2.10)
France	0.967***	1.026***	0.864***	0.581**	0.623*	0.343
	(3.78)	(4.10)	(3.27)	(1.97)	(1.76)	(1.22)
Germany	0.842***	1.002***	0.865***	0.706**	0.479	0.364
	(2.96)	(3.32)	(2.65)	(2.11)	(1.18)	(1.39)
India	0.612	0.379	0.573	0.262	0.324	0.288
	(1.48)	(0.87)	(1.18)	(0.51)	(0.59)	(0.82)
Japan	0.265	0.272	0.215	0.199	0.142	0.123
	(0.99)	(0.338)	(0.76)	(0.68)	(0.43)	(0.68)
Malaysia	0.495**	0.355	0.315	-0.049	0.138	0.522
	(2.07)	(1.06)	(0.80)	(-0.11)	(0.27)	(1.61)
Poland	0.864**	0.467	0.250	0.238	0.522	0.342
	(2.07)	(1.12)	(0.59)	(0.50)	(1.01)	(0.99)
Singapore	0.606*	0.269	0.513	0.516	0.544	0.062
	(1.92)	(0.73)	(1.26)	(1.18)	(1.12)	(0.20)
South Africa	0.505	0.802**	0.646**	0.389	-0.039	0.544**
	(1.42)	(2.61)	(2.08)	(1.23)	(-0.12)	(1.99)
South Korea	0.495	-0.077	0.256	0.054	-0.487	0.982**
	(0.95)	(-0.14)	(0.39)	(0.09)	(-0.82)	(2.36)
Taiwan	0.411	0.380	0.241	0.098	0.109	0.303
	(1.11)	(0.88)	(0.55)	(0.22)	(0.22)	(1.11)
Thailand	1.458***	1.476***	1.206***	1.135**	0.906*	0.553
	(3.31)	(3.55)	(2.79)	(2.34)	(1.65)	(1.46)
UK	0.814***	0.844***	0.613**	0.516*	0.224	0.590*
	(3.98)	(3.82)	(2.58)	(1.80)	(0.61)	(1.84)
U.S.	0.309***	0.267***	0.052	-0.227**	-0.418***	0.727***
	(4.87)	(4.70)	(0.75)	(-2.30)	(-2.76)	(3.84)

Table 14: Three factor alphas of failure probability quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on failure probability (based on Campbell, Hilscher and Szilagyi, 2008) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.722***	0.489***	0.498***	0.157	-0.415**	1.137***
	(6.73)	(3.22)	(2.65)	(0.98)	(-2.24)	(8.11)
Canada	0.849***	0.793***	0.367*	0.080	0.217	0.632***
	(6.68)	(5.00)	(1.74)	(0.33)	(1.04)	(4.37)
China	-0.093	-0.336	-0.514	-0.330	-0.564*	0.517***
	(-0.27)	(-0.68)	(-0.91)	(-0.64)	(-1.68)	(3.09)
France	1.379***	1.300***	0.974***	0.589***	0.749***	0.630***
	(9.59)	(7.44)	(4.34)	(2.80)	(3.95)	(4.82)
Germany	1.184***	1.149***	0.659***	0.732***	0.601***	0.583***
	(9.21)	(6.71)	(3.61)	(3.83)	(3.16)	(4.89)
India	0.654***	0.705**	0.603	0.533	0.125	0.529***
	(2.80)	(2.25)	(1.59)	(1.49)	(0.45)	(3.57)
Japan	0.832***	0.689***	0.608***	0.577***	0.520***	0.311***
	(6.05)	(4.45)	(3.50)	(3.21)	(2.65)	(3.01)
Malaysia	0.435***	0.468***	0.387	-0.152	-1.180***	1.614***
	(3.10)	(2.60)	(1.52)	(-0.50)	(-4.75)	(8.39)
Poland	1.119***	-0.007	-0.067	0.078	-0.074	1.181***
	(4.61)	(-0.02)	(-0.19)	(0.24)	(-0.26)	(5.92)
Singapore	0.395**	-0.135	0.575**	-0.397	-0.821***	1.217***
	(2.41)	(-0.76)	(2.19)	(-1.42)	(-3.51)	(6.05)
South Africa	0.690***	0.622***	1.256***	0.617***	0.176	0.514***
	(5.39)	(3.01)	(5.24)	(3.98)	(1.04)	(4.18)
South Korea	0.738***	0.429	0.564	0.664	0.406	0.333*
	(3.49)	(1.21)	(1.29)	(1.57)	(1.29)	(1.84)
Taiwan	-0.134	-0.099	-0.122	-0.403	-1.082***	0.838***
	(-0.55)	(-0.32)	(-0.35)	(-1.12)	(-4.49)	(4.65)
Thailand	0.586***	1.088***	0.541	1.252***	0.616**	0.234
	(3.94)	(5.29)	(1.46)	(4.14)	(2.36)	(1.08)
UK	0.790***	0.695***	0.581***	0.261*	-0.131	0.921***
	(7.40)	(5.43)	(4.10)	(1.80)	(-0.81)	(8.19)
U.S.	0.710***	0.408**	0.372**	0.378**	0.896***	-0.186
	(5.44)	(2.48)	(2.11)	(2.04)	(3.82)	(-1.23)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.742***	0.164	0.383**	0.340**	0.466**	0.276*
	(6.25)	(1.19)	(1.99)	(2.10)	(2.12)	(1.70)
Canada	0.977***	0.646***	0.470**	-0.025	0.556**	0.422**
	(6.37)	(3.76)	(2.15)	(-0.09)	(2.12)	(2.03)
China	0.002	-0.288	-0.429	-0.523	-0.693**	0.740***
	(0.01)	(-0.57)	(-0.74)	(-1.08)	(-1.99)	(3.38)
France	1.552***	1.164***	0.805***	0.343	1.003***	0.550**
	(7.54)	(6.07)	(2.93)	(1.14)	(3.61)	(2.32)
Germany	1.416***	1.340***	0.325	0.392	0.682***	0.734***
	(9.05)	(6.56)	(1.52)	(1.50)	(2.98)	(3.72)
India	0.18	0.232	0.629*	0.606	0.362	-0.182
	(0.83)	(0.81)	(1.95)	(1.60)	(1.15)	(-0.71)
Japan	0.769***	0.572***	0.642***	0.593***	0.439**	0.331***
	(6.68)	(4.09)	(4.04)	(3.49)	(2.32)	(2.68)
Malaysia	0.375***	0.668***	0.349	-0.174	-1.278***	1.689***
	(2.68)	(3.67)	(1.44)	(-0.65)	(-5.26)	(7.94)
Poland	1.170***	-0.030	-1.012	-0.136	0.406	0.774***
	(4.92)	(-0.10)	(-2.62)	(-0.38)	(1.23)	(2.74)
Singapore	0.955***	-0.066	0.514*	-0.258	-0.555**	1.51***
	(4.62)	(-0.35)	(1.83)	(-0.90)	(-2.25)	(5.78)
South Africa	0.610***	0.703***	1.109***	0.594***	0.190	0.420**
	(4.21)	(2.83)	(4.30)	(3.46)	(0.92)	(2.35)
South Korea	0.701***	0.672	0.344	0.480	0.223	0.478*
	(3.22)	(1.61)	(0.81)	(1.08)	(0.64)	(1.82)
Taiwan	0.163	-0.169	-0.105	0.134	-1.146***	1.199***
	(0.66)	(-0.57)	(-0.33)	(0.36)	(-4.78)	(5.19)
Thailand	0.475**	1.588***	0.684	0.927***	0.339	0.675**
	(2.55)	(4.59)	(1.63)	(3.16)	(1.12)	(2.38)
UK	0.728***	0.644***	0.706***	0.522***	0.427***	0.302**
	(7.37)	(5.45)	(4.89)	(3.80)	(3.00)	(2.32)
U.S.	0.477***	0.173	0.119	0.073	0.224	0.253*
	(3.35)	(0.96)	(0.60)	(0.35)	(1.05)	(1.74)

Table 15: Three factor alphas of Ohlson's O score quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on financial distress (based on Ohlson, 1980) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.543***	0.494***	0.445***	0.563***	0.817***	-0.275***
	(4.53)	(3.98)	(3.53)	(4.08)	(4.69)	(-2.58)
Canada	0.399***	0.648***	0.684***	0.641***	0.832***	-0.433***
	(3.02)	(4.69)	(4.49)	(4.17)	(4.33)	(-4.13)
China	0.809**	0.882***	0.687**	0.685**	0.760**	0.049
	(2.54)	(2.63)	(2.04)	(2.05)	(2.21)	(0.48)
France	0.905***	0.780***	0.890***	0.734***	0.715***	0.190***
	(9.04)	(6.64)	(6.95)	(5.70)	(5.40)	(2.84)
Germany	0.686***	0.845***	0.902***	0.734***	0.567***	0.120*
	(5.49)	(7.05)	(7.22)	(6.02)	(4.42)	(1.65)
India	1.038***	0.897***	1.305***	1.289***	1.123***	-0.085
	(4.88)	(3.92)	(4.99)	(4.53)	(3.98)	(-0.64)
Japan	0.560***	0.530***	0.482***	0.469***	0.333**	0.227***
	(4.60)	(4.03)	(3.45)	(3.26)	(2.08)	(2.93)
Malaysia	0.580***	0.652***	0.407*	0.378*	-0.099	0.679***
	(4.11)	(3.68)	(1.95)	(1.74)	(-0.46)	(6.35)
Poland	0.733***	1.467***	0.046	0.892***	0.833***	-0.084
	(3.49)	(5.53)	(0.22)	(3.40)	(2.95)	(-0.46)
Singapore	0.819***	0.808***	0.523**	0.751***	0.568**	0.250*
	(5.04)	(3.97)	(2.33)	(3.08)	(2.18)	(1.80)
South Africa	0.759***	0.475***	0.663***	0.737***	0.633***	0.127
	(5.58)	(3.52)	(4.83)	(5.24)	(4.58)	(1.36)
South Korea	0.499***	0.553***	0.582***	0.667***	0.607**	-0.109
	(2.69)	(2.73)	(2.61)	(2.72)	(2.30)	(-0.75)
Taiwan	0.405**	0.481**	0.326	0.403*	0.462**	-0.057
	(2.24)	(2.47)	(1.58)	(1.91)	(2.10)	(-0.55)
Thailand	0.980***	1.225***	1.093***	1.323***	1.248***	-0.269
	(7.65)	(7.16)	(6.07)	(6.46)	(4.76)	(-1.34)
UK	0.703***	0.660***	0.666***	0.532***	0.418***	0.285***
	(6.35)	(5.64)	(5.67)	(4.35)	(2.73)	(3.18)
U.S.	0.599***	0.709***	0.770***	0.867***	0.974***	-0.374***
	(5.08)	(6.62)	(7.04)	(6.92)	(5.00)	(-3.52)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.585***	0.262***	0.414***	0.562***	0.502**	0.083
	(4.96)	(2.61)	(3.61)	(4.30)	(2.36)	(0.61)
Canada	0.177	0.790***	0.564***	0.646***	0.575**	-0.398**
	(1.09)	(6.77)	(4.73)	(4.76)	(2.52)	(-2.09)
China	0.638**	0.598*	0.451	0.467	0.353	0.285**
	(2.31)	(1.89)	(1.34)	(1.44)	(1.08)	(2.25)
France	0.741***	0.524***	0.830***	0.821***	0.600***	0.141
	(6.75)	(4.07)	(6.19)	(5.30)	(4.15)	(1.29)
Germany	0.639***	1.001***	0.630***	0.410***	0.546***	0.093
	(4.75)	(7.71)	(5.02)	(3.24)	(3.41)	(0.72)
India	0.681***	0.224	1.030***	0.897***	0.691***	-0.01
	(3.65)	(1.16)	(4.27)	(3.39)	(2.16)	(-0.04)
Japan	0.479***	0.283**	0.346***	0.323***	-0.053	0.531***
	(4.09)	(2.22)	(2.63)	(2.59)	(-0.40)	(4.41)
Malaysia	0.445***	0.461***	0.133	0.254	-0.240	0.684***
	(3.30)	(3.42)	(0.75)	(1.28)	(-1.15)	(5.14)
Poland	0.447**	0.702***	0.188	0.693***	0.774***	-0.319
	(2.40)	(3.05)	(0.91)	(3.08)	(2.79)	(-1.33)
Singapore	0.380***	0.550***	0.434*	0.344*	0.512**	-0.132
	(3.01)	(3.02)	(1.94)	(1.77)	(2.27)	(-0.75)
South Africa	0.634***	0.881***	0.573***	0.257	0.227	0.407**
	(3.72)	(5.98)	(3.76)	(1.62)	(1.45)	(2.27)
South Korea	0.328*	0.540**	0.290	0.474*	0.027	0.301
	(1.75)	(2.50)	(1.22)	(1.68)	(0.10)	(1.32)
Taiwan	0.406**	0.325*	0.07	0.197	-0.006	0.412***
	(2.27)	(1.74)	(0.37)	(0.98)	(-0.03)	(2.91)
Thailand	0.879***	0.909***	0.798***	0.785***	0.532*	0.346
	(5.74)	(5.04)	(3.65)	(3.72)	(1.92)	(1.28)
UK	0.565***	0.657***	0.485***	0.637***	0.403***	0.162
	(6.38)	(7.02)	(4.93)	(6.02)	(2.72)	(1.21)
U.S.	0.565***	0.669***	0.597***	0.496***	0.426**	0.139
	(5.98)	(8.57)	(7.26)	(4.60)	(2.38)	(1.09)

Table 16: Three factor alphas of Net stock issue quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on net stock issues (based on Ritter, 1991 and Fama & French, 2008) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.563**	-0.087	0.242	-0.154	-0.123	0.686***
	(2.41)	(-0.29)	(0.86)	(-0.48)	(-0.35)	(3.45)
Canada	0.671***	0.364	0.383	-0.197	-0.236	0.907***
	(2.65)	(1.19)	(1.10)	(-0.54)	(-0.56)	(3.88)
China	0.370	-	-	0.022	0.413	-0.043
	(0.60)	-	-	(0.02)	(0.67)	(-0.39)
France	0.907***	0.867	-	0.732***	0.438	0.469***
	(4.32)	(1.36)	-	(2.61)	(1.39)	(2.91)
Germany	0.662***	-	-	0.769*	0.206	0.456***
	(2.75)	-	-	(1.69)	(0.60)	(2.72)
India	0.755	-	0.180	0.571	0.283	0.472***
	(1.53)	-	(0.11)	(0.95)	(0.53)	(2.91)
Japan	0.310	-	-0.568	-0.615	-0.110	0.420***
	(0.95)	-	(-0.15)	(-1.05)	(-0.33)	(3.53)
Malaysia	0.454	-	-1.652	0.481	0.100	0.355**
	(1.02)	-	(-1.37)	(0.94)	(0.19)	(2.10)
Poland	0.423	-	-	-0.776	0.211	0.212
	(1.08)	-	-	(-0.89)	(0.43)	(0.82)
Singapore	0.643	0.504	0.154	0.514	0.227	0.416***
	(1.51)	(0.36)	(0.28)	(1.07)	(0.47)	(2.58)
South Africa	0.741***	-0.657	1.014***	0.484*	-0.069	0.810***
	(2.84)	(-0.72)	(2.64)	(1.74)	(-0.22)	(4.26)
South Korea	0.347	-	-3.196	-0.173	-0.477	0.824***
	(0.65)	-	(-1.22)	(-0.28)	(-0.76)	(4.04)
Taiwan	0.622	-0.357	0.228	0.251	-0.047	0.669***
	(1.25)	(-0.31)	(0.33)	(0.51)	(-0.09)	(3.16)
Thailand	1.304***	-	2.326	0.342	0.841	0.462**
	(3.41)	-	(0.94)	(0.60)	(1.56)	(1.99)
UK	0.662***	0.760***	0.582**	0.415	-0.252	0.914***
	(2.74)	(2.75)	(2.07)	(1.50)	(-0.81)	(6.77)
U.S.	0.240*	-0.013	-0.148	-0.381**	-0.927***	1.167***
	(1.80)	(-0.09)	(-0.94)	(-2.38)	(-4.81)	(7.38)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.572**	0.321	0.441*	0.245	-0.093	0.665***
	(2.20)	(1.10)	(1.65)	(0.82)	(-0.28)	(2.85)
Canada	0.792***	0.628**	0.434	0.279	-0.194	0.985***
	(3.40)	(2.10)	(1.53)	(0.87)	(-0.42)	(2.80)
China	0.324	-	-	-0.170	0.202	0.122
	(0.55)	-	-	(-0.18)	(0.35)	(0.85)
France	0.894***	-	1.052	0.789***	0.674**	0.220
	(3.78)	-	(1.64)	(3.08)	(2.08)	(1.02)
Germany	0.847***	-	-	0.462	0.687*	0.160
	(2.92)	-	-	(1.00)	(1.75)	(0.63)
India	0.577	-	0.932	0.350	0.677	-0.100
	(1.30)	-	(0.53)	(0.68)	(1.29)	(-0.32)
Japan	0.241	-	1.373	0.358	0.118	0.124
	(0.90)	-	(0.59)	(0.61)	(0.34)	(0.70)
Malaysia	0.468	-	0.090	0.26	0.074	0.394
	(1.43)	-	(0.08)	(0.62)	(0.17)	(1.64)
Poland	0.367	-	-	-0.624	0.547	-0.180
	(0.88)	-	-	(-0.65)	(1.14)	(-0.70)
Singapore	0.592*	0.774	0.483	0.109	0.637	-0.045
	(1.66)	(0.63)	(0.91)	(0.28)	(1.37)	(-0.16)
South Africa	0.485	-1.123	0.610	0.585*	0.512	-0.026
	(1.54)	(-0.97)	(1.51)	(1.66)	(1.37)	(-0.09)
South Korea	0.071	-	-1.724	0.272	-0.37	0.441
	(0.13)	-	(-0.49)	(0.38)	(-0.59)	(1.31)
Taiwan	0.251	-0.629	-0.129	0.252	0.072	0.179
	(0.61)	(-0.57)	(-0.21)	(0.56)	(0.14)	(0.64)
Thailand	1.377***	-	2.173	0.418	0.490	0.886***
	(3.18)	-	(1.27)	(0.73)	(0.99)	(3.19)
UK	0.805***	0.774***	0.788***	0.694**	0.058	0.748***
	(3.87)	(2.64)	(2.98)	(2.56)	(0.16)	(2.64)
U.S.	0.481***	0.253**	0.082	0.103	-0.372***	0.853***
	(4.89)	(2.52)	(0.71)	(0.72)	(-2.76)	(4.94)

Table 17: Three factor alphas of Composite equity issue quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on Composite equity issues (based on Daniel & Titman, 2006) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.520**	0.511**	0.284	-0.077	-0.911**	1.430***
	(2.29)	(2.17)	(1.02)	(-0.24)	(-2.50)	(6.07)
Canada	0.650***	0.639***	0.252	-0.013	-0.227	0.877***
	(2.73)	(2.59)	(0.81)	(-0.03)	(-0.49)	(2.83)
China	0.445	0.345	0.326	0.286	0.236	0.209**
	(0.71)	(0.56)	(0.52)	(0.45)	(0.37)	(1.96)
France	1.100***	1.004***	1.041***	0.848***	0.363	0.737***
	(5.43)	(4.74)	(4.54)	(3.36)	(1.12)	(3.81)
Germany	0.726***	0.886***	0.824***	0.599**	0.244	0.482***
	(3.20)	(3.96)	(3.54)	(2.18)	(0.79)	(2.83)
India	1.139**	0.841*	0.775	0.901*	0.126	1.013***
	(2.31)	(1.75)	(1.56)	(1.65)	(0.21)	(4.78)
Japan	0.686**	0.726**	0.622**	0.573*	0.318	0.368***
	(2.30)	(2.54)	(2.13)	(1.80)	(0.87)	(2.78)
Malaysia	0.681**	0.739**	0.585	0.281	0.034	0.647***
	(2.40)	(2.36)	(1.57)	(0.69)	(0.08)	(2.89)
Poland	0.432	0.630	0.434	0.138	-0.008	0.441
	(0.97)	(1.49)	(0.95)	(0.31)	(-0.02)	(1.30)
Singapore	0.879***	0.926***	0.747**	0.467	0.376	0.503*
	(2.66)	(2.70)	(1.96)	(1.12)	(0.73)	(1.86)
South Africa	0.999***	1.076***	0.839***	0.622**	0.270	0.729***
	(3.71)	(4.08)	(3.28)	(2.10)	(0.89)	(3.30)
South Korea	0.593	0.582	0.817*	0.668	0.180	0.414
	(1.38)	(1.35)	(1.67)	(1.31)	(0.32)	(1.57)
Taiwan	0.870**	0.723	0.483	0.515	-0.052	0.923***
	(1.96)	(1.56)	(0.97)	(0.97)	(-0.09)	(3.59)
Thailand	1.110***	1.176***	1.430***	1.289***	1.154**	-0.044
	(3.81)	(3.82)	(3.94)	(3.42)	(2.12)	(-0.11)
UK	1.011***	1.069***	0.869***	0.720**	-0.041	1.052***
	(3.87)	(3.92)	(3.09)	(2.31)	(-0.11)	(5.12)
U.S.	0.319**	0.204	0.001	-0.095	-0.277*	0.597***
	(2.51)	(1.61)	(0.01)	(-0.65)	(-1.77)	(4.74)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.51*	0.644**	0.411	0.305	-0.424	0.934***
	(1.84)	(2.38)	(1.36)	(0.93)	(-1.19)	(2.95)
Canada	0.309	0.930***	0.331	0.025	-0.185	0.494
	(1.19)	(3.60)	(1.03)	(0.06)	(-0.43)	(1.32)
China	0.513	0.280	0.172	0.067	0.010	0.502**
	(0.85)	(0.48)	(0.29)	(0.11)	(0.02)	(2.55)
France	0.828***	0.948***	0.911***	0.868***	0.399	0.429*
	(3.29)	(3.48)	(3.12)	(2.92)	(1.31)	(1.65)
Germany	0.949***	0.775**	0.666*	1.022***	0.397	0.552*
	(3.20)	(2.40)	(1.93)	(2.88)	(1.10)	(1.76)
India	0.795*	0.850*	0.613	0.719	0.458	0.337
	(1.66)	(1.78)	(1.32)	(1.34)	(0.71)	(0.76)
Japan	0.448	0.479*	0.567*	0.452	0.305	0.143
	(1.51)	(1.65)	(1.92)	(1.42)	(0.89)	(0.73)
Malaysia	0.652***	0.662**	0.564*	0.578	0.372	0.279
	(3.04)	(2.33)	(1.73)	(1.64)	(0.99)	(1.07)
Poland	0.276	1.188**	0.366	0.759	0.199	0.077
	(0.56)	(2.51)	(0.71)	(1.48)	(0.47)	(0.19)
Singapore	0.901**	0.788**	1.039***	0.783*	0.956*	-0.055
	(2.50)	(2.16)	(2.65)	(1.95)	(1.91)	(-0.15)
South Africa	1.113***	0.936***	0.604*	0.800**	0.534	0.579*
	(3.14)	(2.63)	(1.79)	(2.19)	(1.49)	(1.72)
South Korea	0.539	1.249**	0.207	0.810	0.352	0.187
	(1.27)	(2.02)	(0.38)	(1.44)	(0.63)	(0.50)
Taiwan	0.811**	0.431	0.324	0.641	0.058	0.753**
	(2.16)	(1.07)	(0.72)	(1.35)	(0.11)	(2.05)
Thailand	1.141***	1.226***	1.439***	1.386***	1.116**	0.026
	(2.82)	(3.26)	(3.46)	(3.62)	(2.21)	(0.06)
UK	1.087***	0.891***	0.657**	0.615*	0.697	0.390
	(4.32)	(3.22)	(2.33)	(1.74)	(1.62)	(0.99)
U.S.	0.435***	0.392***	0.175*	0.004	0.007	0.428**
	(4.26)	(3.69)	(1.81)	(0.04)	(0.06)	(2.48)

Table 18: Three factor alphas of Total accruals quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on Total accruals (based on Sloan, 1996) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.900***	0.793***	0.581***	0.809***	0.656***	0.244**
	(5.34)	(5.04)	(3.58)	(4.89)	(3.83)	(2.56)
Canada	0.506**	0.330*	0.325	0.387*	0.098	0.408***
	(2.14)	(1.71)	(1.60)	(1.70)	(0.44)	(3.70)
China	0.419	0.357	0.368	0.303	0.238	0.181***
	(1.20)	(1.00)	(1.03)	(0.85)	(0.67)	(3.48)
France	0.566***	0.349**	0.267	0.303*	0.171	0.395***
	(2.92)	(2.24)	(1.61)	(1.87)	(0.98)	(5.64)
Germany	0.176	0.254	0.195	-0.205	-0.232	0.408***
	(1.08)	(1.64)	(1.35)	(-1.24)	(-1.39)	(4.54)
India	1.185***	1.006***	1.240***	1.340***	1.043***	0.143
	(4.62)	(3.81)	(4.44)	(4.69)	(3.40)	(1.29)
Japan	-0.334*	-0.334*	-0.375**	-0.446**	-0.585***	0.251***
	(-1.77)	(-1.93)	(-2.14)	(-2.50)	(-3.05)	(8.13)
Malaysia	-0.414*	-0.575**	-0.476**	-0.771***	-0.767***	0.353***
	(-1.87)	(-2.47)	(-2.07)	(-3.62)	(-3.14)	(6.02)
Poland	0.623***	0.753***	0.516*	1.298***	0.563*	0.060
	(2.59)	(2.99)	(1.66)	(3.27)	(1.82)	(0.28)
Singapore	-0.255	-0.110	-0.279	-0.165	-0.332	0.077
	(-0.99)	(-0.50)	(-1.30)	(-0.65)	(-1.26)	(0.74)
South Africa	1.259***	0.732***	1.316***	0.580***	0.183	1.076***
	(6.65)	(4.24)	(6.80)	(3.23)	(0.90)	(8.96)
South Korea	-0.045	-0.022	0.007	-0.296	-0.701**	0.656***
	(-0.17)	(-0.08)	(0.02)	(-1.11)	(-2.54)	(9.66)
Taiwan	-0.359	-0.338	-0.343	-0.577**	-0.903***	0.544***
	(-1.45)	(-1.35)	(-1.40)	(-2.42)	(-3.63)	(5.45)
Thailand	1.291***	0.476**	0.490**	0.823***	0.217	1.074***
	(5.07)	(2.07)	(2.39)	(3.70)	(0.80)	(5.76)
UK	0.601***	0.569***	0.587***	0.346**	0.578***	0.022
	(3.44)	(3.48)	(3.48)	(2.11)	(3.01)	(0.33)
U.S.	0.592**	0.606***	0.607***	0.440**	0.248	0.343***
	(2.43)	(2.97)	(3.28)	(2.08)	(1.04)	(5.29)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.238	0.171	0.273*	0.73***	0.042	0.195
	(1.62)	(1.19)	(1.93)	(5.03)	(0.23)	(1.06)
Canada	0.524**	0.207	0.292*	-0.044	-0.406	0.931***
	(2.04)	(1.18)	(1.80)	(-0.23)	(-1.62)	(3.98)
China	0.152	0.062	0.159	-0.207	-0.110	0.263***
	(0.47)	(0.19)	(0.45)	(-0.61)	(-0.32)	(2.70)
France	0.117	0.157	0.037	0.191	0.009	0.107
	(0.58)	(1.04)	(0.23)	(1.11)	(0.05)	(0.67)
Germany	0.363*	0.040	-0.199	-0.045	-0.226	0.588***
	(1.82)	(0.20)	(-1.16)	(-0.22)	(-0.99)	(3.58)
India	0.538**	0.744***	0.484*	1.104***	0.254	0.284
	(2.30)	(2.86)	(1.94)	(4.49)	(0.97)	(1.60)
Japan	-0.352**	-0.158	-0.189	-0.227	-0.334*	-0.018
	(-2.01)	(-0.96)	(-1.12)	(-1.23)	(-1.89)	(-0.22)
Malaysia	-0.011	-0.618***	-0.257	-0.836***	-0.639***	0.628***
	(-0.07)	(-3.12)	(-1.18)	(-3.61)	(-3.17)	(5.39)
Poland	0.643***	0.468**	-0.314	0.566**	0.151	0.492*
	(2.70)	(1.98)	(-1.02)	(2.24)	(0.54)	(1.92)
Singapore	-0.656***	0.063	-0.277	-0.248	-0.972***	0.316*
	(-2.89)	(0.36)	(-1.45)	(-1.09)	(-4.62)	(1.74)
South Africa	0.749***	1.116***	0.960***	0.770***	-0.087	0.837***
	(3.26)	(5.47)	(3.60)	(4.14)	(-0.37)	(5.06)
South Korea	0.069	-0.089	-0.457*	-0.369	-0.767***	0.836***
	(0.33)	(-0.41)	(-1.71)	(-1.32)	(-2.82)	(3.86)
Taiwan	-0.126	-0.398	-0.014	-0.308	-0.900***	0.775***
	(-0.57)	(-1.59)	(-0.06)	(-1.45)	(-3.76)	(6.44)
Thailand	0.063	0.465*	0.696***	0.863***	-0.235	0.297
	(0.27)	(1.87)	(2.68)	(3.10)	(-0.80)	(1.44)
UK	0.275*	0.340***	0.594***	0.374***	0.473**	-0.197
	(1.79)	(2.73)	(4.50)	(3.34)	(2.55)	(-1.19)
U.S.	0.350*	0.432***	0.479***	0.327***	0.090	0.260**
	(1.90)	(3.03)	(3.23)	(1.95)	(0.46)	(2.23)

Table 19: Three factor alphas of Net operating assets quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on Net operating assets (based on Hirshleifer, Hou, Teoh & Zhang, 2004) against a local three-factor model (Fama & French,1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	1.289***	0.968***	0.858***	0.57***	0.067	1.222***
	(7.76)	(6.29)	(5.50)	(3.55)	(0.38)	(13.75)
Canada	0.551***	0.449**	0.413**	0.164	0.194	0.357***
	(2.60)	(2.20)	(2.17)	(0.79)	(0.78)	(3.34)
China	0.659*	0.454	0.296	0.267	0.053	0.605***
	(1.85)	(1.28)	(0.83)	(0.75)	(0.15)	(9.51)
France	0.661***	0.405**	0.360**	0.246	0.078	0.583***
	(3.81)	(2.42)	(2.15)	(1.56)	(0.47)	(8.39)
Germany	0.240*	0.481***	0.075	-0.111	-0.309*	0.549***
	(1.66)	(2.81)	(0.46)	(-0.75)	(-1.86)	(6.86)
India	1.162***	1.309***	1.260***	1.198***	0.835***	0.327**
	(4.69)	(5.05)	(4.41)	(4.14)	(2.83)	(2.49)
Japan	-0.41**	-0.432**	-0.440**	-0.418**	-0.352**	-0.059
	(-2.06)	(-2.33)	(-2.43)	(-2.34)	(-2.01)	(-1.16)
Malaysia	-0.502**	-0.483**	-0.717***	-0.599***	-0.715***	0.213***
	(-2.28)	(-2.19)	(-3.03)	(-2.43)	(-3.10)	(3.44)
Poland	0.559**	0.977***	0.714***	0.588**	0.785**	-0.226
	(2.01)	(3.39)	(2.73)	(2.22)	(2.29)	(-0.82)
Singapore	-0.134	-0.071	-0.131	-0.399*	-0.302	0.168
	(-0.61)	(-0.29)	(-0.54)	(-1.69)	(-1.14)	(1.56)
South Africa	1.323***	0.626***	1.149***	0.829***	0.105	1.218***
	(7.33)	(3.31)	(6.04)	(4.45)	(0.59)	(10.74)
South Korea	-0.199	0.065	0.052	-0.254	-0.791***	0.592***
	(-0.74)	(0.23)	(0.19)	(-0.93)	(-2.94)	(7.82)
Taiwan	-0.470**	-0.421*	-0.358	-0.541**	-0.767***	0.297***
	(-2.08)	(-1.74)	(-1.42)	(-2.18)	(-3.03)	(3.16)
Thailand	1.293***	0.750***	0.706***	0.447**	0.450*	0.843***
	(4.81)	(3.32)	(3.15)	(2.02)	(1.69)	(4.79)
UK	0.783***	0.632***	0.524***	0.472***	0.310*	0.473***
	(3.98)	(3.64)	(3.15)	(2.98)	(1.69)	(4.47)
U.S.	0.713***	0.661***	0.603***	0.444**	0.025	0.688***
	(2.62)	(3.10)	(3.17)	(2.26)	(0.11)	(4.27)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.824***	0.440***	0.3**	0.004	0.018	0.806***
	(4.98)	(3.11)	(2.44)	(0.03)	(0.10)	(6.90)
Canada	0.421**	0.020	0.523***	0.300	-0.429*	0.851***
	(2.17)	(0.10)	(3.18)	(1.57)	(-1.85)	(5.77)
China	0.337	0.224	0.141	-0.077	-0.393	0.730***
	(0.96)	(0.68)	(0.41)	(-0.23)	(-1.15)	(7.95)
France	0.415**	-0.033	0.258*	-0.026	0.162	0.253**
	(1.98)	(-0.19)	(1.71)	(-0.18)	(0.85)	(2.03)
Germany	0.029	0.294	0.162	-0.299	-0.444**	0.472***
	(0.18)	(1.55)	(0.82)	(-1.41)	(-2.02)	(2.75)
India	0.299	0.867***	0.740***	0.827***	0.160	0.139
	(1.43)	(3.93)	(2.97)	(2.80)	(0.56)	(0.73)
Japan	-0.170	-0.234	-0.399**	-0.304*	-0.156	-0.014
	(-0.99)	(-1.27)	(-2.11)	(-1.66)	(-1.05)	(-0.20)
Malaysia	-0.374*	-0.341**	-0.464**	-0.393*	-0.649***	0.274**
	(-1.82)	(-2.09)	(-2.51)	(-1.77)	(-2.90)	(2.14)
Poland	0.097	1.398***	0.115	0.720***	-0.660***	0.757***
	(0.31)	(4.70)	(0.46)	(2.78)	(-2.76)	(3.26)
Singapore	-0.029	-0.373*	-0.188	-0.407**	-0.236	0.207
	(-0.17)	(-1.69)	(-0.97)	(-1.98)	(-1.03)	(1.28)
South Africa	0.852***	0.550***	1.175***	0.975***	0.735***	0.117
	(4.17)	(2.66)	(4.86)	(4.58)	(3.53)	(0.81)
South Korea	-0.428	0.487**	-0.321	-0.498**	-0.898***	0.470***
	(-1.62)	(2.00)	(-1.32)	(-2.09)	(-3.49)	(3.47)
Taiwan	-0.783***	-0.489**	-0.103	-0.218	-0.284	-0.499***
	(-3.72)	(-2.23)	(-0.45)	(-0.99)	(-1.16)	(-3.17)
Thailand	0.990***	0.187	0.105	0.239	0.600*	0.390*
	(4.26)	(0.61)	(0.46)	(0.93)	(1.94)	(1.89)
UK	0.477***	0.389***	0.540***	0.385***	0.055	0.422***
	(3.25)	(3.44)	(4.75)	(2.88)	(0.31)	(3.49)
U.S.	0.902***	0.336**	0.471***	0.332**	0.080	0.822***
	(4.36)	(2.36)	(3.22)	(2.08)	(0.41)	(7.26)

Table 20: Three factor alphas of Momentum quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on Momentum (based on Jegadeesh & Titman, 1993) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	-0.390*	0.263	0.417**	0.682***	1.335***	1.726***
	(-1.66)	(1.31)	(2.56)	(3.90)	(7.29)	(9.87)
Canada	-0.155	0.059	0.581***	0.620***	0.852***	1.006***
	(-0.60)	(0.22)	(3.05)	(3.29)	(4.19)	(5.38)
China	0.510	0.454	0.258	-0.157	0.395	-0.115
	(1.23)	(0.99)	(0.64)	(-0.32)	(1.09)	(-0.81)
France	0.140	0.403**	0.893***	0.616***	1.284***	1.144***
	(0.74)	(2.24)	(5.08)	(3.30)	(8.17)	(8.34)
Germany	-0.119	0.299*	0.536***	0.988***	1.209***	1.327***
	(-0.55)	(1.72)	(3.09)	(6.16)	(7.83)	(9.76)
India	0.160	0.360	0.888**	0.891**	1.504***	1.347***
	(0.46)	(0.97)	(2.14)	(2.42)	(5.12)	(6.08)
Japan	0.362	0.419**	0.577***	0.323*	0.298*	-0.064
	(1.59)	(2.08)	(3.32)	(1.81)	(1.69)	(-0.45)
Malaysia	-0.331	-0.024	-0.072	0.375	0.816***	1.151***
	(-1.16)	(-0.08)	(-0.30)	(1.33)	(3.26)	(6.11)
Poland	-0.367	-0.114	0.362	-0.025	1.443***	1.694***
	(-1.12)	(-0.23)	(0.61)	(-0.07)	(4.76)	(7.09)
Singapore	-0.030	0.152	0.377	0.682***	0.998***	1.142***
	(-0.10)	(0.39)	(1.43)	(2.61)	(3.69)	(6.07)
South Africa	-0.259	0.442	0.322	0.961***	1.476***	1.754***
	(-1.40)	(1.46)	(1.00)	(3.87)	(7.21)	(10.82)
South Korea	-0.083	0.203	0.784**	0.411	0.522*	0.609***
	(-0.27)	(0.69)	(2.43)	(1.41)	(1.88)	(3.35)
Taiwan	-0.099	0.746**	0.356	0.782***	0.509*	0.534***
	(-0.32)	(2.49)	(1.19)	(2.85)	(1.84)	(2.63)
Thailand	0.681**	0.827***	0.900***	1.247***	1.566***	1.029***
	(2.27)	(2.99)	(2.86)	(4.44)	(5.64)	(4.29)
UK	-0.106	0.265	0.560***	0.646***	0.956***	1.062***
	(-0.48)	(1.57)	(3.18)	(4.13)	(5.90)	(6.80)
U.S.	0.326*	0.348**	0.417***	0.420***	0.598***	0.272*
	(1.71)	(2.57)	(3.42)	(3.32)	(3.42)	(1.96)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	-0.360	0.538***	0.433***	0.596***	0.893***	1.253***
	(-1.53)	(2.73)	(2.66)	(3.38)	(5.30)	(5.74)
Canada	-0.543*	0.409*	0.749***	0.454***	0.557***	1.100***
	(-1.88)	(1.66)	(4.65)	(2.79)	(2.82)	(4.17)
China	0.294	0.147	0.092	-0.459	0.248	-0.046
	(0.71)	(0.33)	(0.24)	(-1.03)	(0.73)	(-0.24)
France	0.325*	0.442**	0.675***	0.516**	0.814***	0.489***
	(1.70)	(2.03)	(3.30)	(2.50)	(5.11)	(2.93)
Germany	0.136	0.298	0.457**	0.818***	1.181***	1.045***
	(0.62)	(1.30)	(2.14)	(4.06)	(6.98)	(5.12)
India	-0.102	0.126	0.791*	0.802**	1.138***	1.231***
	(-0.30)	(0.37)	(1.93)	(2.21)	(3.98)	(4.44)
Japan	0.084	0.182	0.317**	0.213	0.428**	0.344*
	(0.41)	(1.02)	(2.06)	(1.30)	(2.23)	(1.66)
Malaysia	-0.263	-0.143	-0.082	0.572**	0.713***	0.992***
	(-1.02)	(-0.57)	(-0.37)	(2.31)	(3.11)	(4.77)
Poland	-0.443	-0.382	0.927	-0.332	1.248***	1.552***
	(-1.33)	(-0.72)	(1.48)	(-0.92)	(4.40)	(5.42)
Singapore	0.115	0.093	0.576**	0.519**	0.685***	0.654***
	(0.40)	(0.29)	(2.28)	(2.05)	(3.04)	(2.80)
South Africa	-0.247	0.661*	0.635	0.739**	1.147***	1.453***
	(-1.15)	(1.93)	(1.59)	(2.33)	(4.77)	(5.90)
South Korea	-0.050	-0.137	0.414	0.374	0.403	0.457*
	(-0.16)	(-0.47)	(1.26)	(1.17)	(1.38)	(1.68)
Taiwan	-0.095	0.433*	0.249	0.532**	0.438	0.423*
	(-0.33)	(1.66)	(0.94)	(2.12)	(1.61)	(1.71)
Thailand	0.371	0.648**	1.246***	1.265***	0.969***	0.780***
	(1.29)	(2.06)	(3.38)	(3.91)	(3.43)	(3.05)
UK	0.095	0.320*	0.667***	0.491***	0.684***	0.589***
	(0.39)	(1.70)	(4.35)	(3.40)	(4.66)	(2.67)
U.S.	-0.005	0.318***	0.463***	0.392***	0.504***	0.509***
	(-0.03)	(3.06)	(5.82)	(4.41)	(3.17)	(2.90)

Table 21: Three factor alphas of Gross profitability quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on gross profitability (based on Novy-Marx, 2013) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.334	0.385*	0.897***	0.783***	1.317***	0.983***
	(1.54)	(1.86)	(6.14)	(5.43)	(8.99)	(6.62)
Canada	0.282	0.179	0.215	0.264	0.628***	0.346
	(0.96)	(0.69)	(1.06)	(1.50)	(3.71)	(1.63)
China	0.364	0.252	0.308	0.379	0.454	0.089
	(0.96)	(0.69)	(0.85)	(1.09)	(1.35)	(0.78)
France	0.154	0.171	0.271	0.454***	0.442***	0.288***
	(1.02)	(1.00)	(1.59)	(2.57)	(2.75)	(4.44)
Germany	-0.045	-0.022	0.055	0.225	0.15	0.194***
	(-0.30)	(-0.14)	(0.35)	(1.39)	(0.95)	(2.72)
India	0.864***	1.349***	1.116***	1.368***	1.186***	0.323**
	(2.99)	(4.19)	(3.76)	(5.13)	(5.15)	(2.00)
Japan	-0.501**	-0.432**	-0.516***	-0.418**	-0.197	0.304***
	(-2.54)	(-2.26)	(-2.83)	(-2.31)	(-1.17)	(3.66)
Malaysia	-1.101***	-0.910***	-0.505**	-0.581***	0.091	1.192***
	(-3.98)	(-3.72)	(-2.20)	(-2.73)	(0.44)	(8.39)
Poland	0.243	0.517**	1.094***	0.856***	1.258***	1.015***
	(0.87)	(2.02)	(3.24)	(3.16)	(4.56)	(5.98)
Singapore	-0.589**	-0.214	-0.463*	0.063	0.109	0.698***
	(-2.35)	(-0.82)	(-1.93)	(0.27)	(0.48)	(6.56)
South Africa	0.771***	0.953***	0.575***	0.645***	0.974***	0.203
	(4.10)	(4.99)	(2.96)	(3.51)	(5.02)	(1.32)
South Korea	-0.877***	0.008	-0.149	-0.053	-0.063	0.814***
	(-3.08)	(0.03)	(-0.56)	(-0.21)	(-0.24)	(6.62)
Taiwan	-0.810***	-0.416	-0.503**	-0.353	-0.474**	0.336*
	(-2.74)	(-1.60)	(-2.02)	(-1.54)	(-2.20)	(1.83)
Thailand	0.052	0.716***	0.801***	0.950***	0.830***	0.778***
	(0.17)	(2.85)	(3.22)	(4.86)	(5.01)	(4.09)
UK	0.417**	0.434***	0.401**	0.598***	0.819***	0.402***
	(2.13)	(2.68)	(2.39)	(3.61)	(4.57)	(4.83)
U.S.	0.457**	0.318	0.411*	0.566***	0.704***	0.247***
	(2.08)	(1.44)	(1.90)	(2.72)	(3.27)	(3.14)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	-0.186	0.028	0.552***	-0.314**	0.575***	0.761***
	(-0.74)	(0.14)	(4.27)	(-2.45)	(3.85)	(3.32)
Canada	-0.096	-0.387	-0.023	0.300*	0.755***	0.851***
	(-0.32)	(-1.57)	(-0.13)	(1.83)	(3.36)	(2.85)
China	-0.153	0.000	-0.165	0.172	0.231	0.384**
	(-0.41)	(-0.00)	(-0.47)	(0.52)	(0.72)	(2.41)
France	0.129	0.255	-0.311*	-0.082	0.312*	0.183
	(0.66)	(1.46)	(-1.65)	(-0.53)	(1.84)	(1.46)
Germany	-0.522***	0.16	0.021	0.238	0.164	0.685***
	(-2.66)	(0.82)	(0.11)	(1.20)	(0.86)	(3.60)
India	0.400	0.526*	0.481*	0.972***	0.657***	0.257
	(1.31)	(1.79)	(1.95)	(3.57)	(3.35)	(1.15)
Japan	-0.194	-0.207	-0.353**	-0.356**	-0.014	0.180*
	(-1.17)	(-1.05)	(-1.96)	(-2.09)	(-0.09)	(1.76)
Malaysia	-1.136***	-0.946***	-0.258	-0.113	-0.067	1.069***
	(-5.04)	(-4.24)	(-1.22)	(-0.63)	(-0.36)	(6.98)
Poland	0.027	0.521**	0.816***	0.536*	0.814***	0.787***
	(0.10)	(2.15)	(3.14)	(1.95)	(2.94)	(3.52)
Singapore	-0.394	-0.417*	-0.476**	0.002	-0.096	0.298
	(-1.54)	(-1.81)	(-2.48)	(0.01)	(-0.51)	(1.47)
South Africa	0.252	1.138***	0.634***	0.977***	0.551**	0.299
	(1.10)	(4.59)	(3.27)	(4.79)	(2.43)	(1.61)
South Korea	-0.604**	-0.123	-0.332	-0.399	0.163	0.767***
	(-2.37)	(-0.46)	(-1.34)	(-1.53)	(0.69)	(3.54)
Taiwan	-0.872***	0.079	-0.175	-0.298	-0.366*	0.506***
	(-3.32)	(0.31)	(-0.75)	(-1.37)	(-1.73)	(2.67)
Thailand	-0.137	0.809***	0.434	0.695***	0.309	0.446**
	(-0.45)	(3.00)	(1.48)	(2.97)	(1.56)	(2.13)
UK	0.538***	0.261**	0.583***	0.366***	0.546***	0.008
	(3.44)	(2.04)	(4.47)	(2.68)	(4.76)	(0.05)
U.S.	0.256	0.147	0.392**	0.395***	0.545***	0.289***
	(1.60)	(0.87)	(2.33)	(2.68)	(3.54)	(2.61)

Table 22: Three factor alphas of Asset growth quintiles, country level results

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on Asset growth (based on Cooper, Gulen & Schill, 2008) against a local three-factor model (Fama & French, 1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	1.099***	0.815***	0.819***	0.353**	-0.029	1.128***
	(6.12)	(5.92)	(5.70)	(2.07)	(-0.16)	(10.60)
Canada	0.512**	0.448**	-0.018	0.268	-0.272	0.784***
	(2.34)	(2.44)	(-0.09)	(1.16)	(-1.06)	(6.44)
China	0.644*	0.385	0.289	0.225	0.415	0.229***
	(1.80)	(1.06)	(0.81)	(0.65)	(1.16)	(2.71)
France	0.337*	0.377**	0.393**	0.291*	0.213	0.125
	(1.93)	(2.25)	(2.49)	(1.68)	(1.08)	(1.28)
Germany	0.216	0.202	0.183	0.124	-0.581***	0.798***
	(1.30)	(1.40)	(1.23)	(0.76)	(-3.12)	(8.58)
India	1.394***	1.606***	1.338***	1.075***	1.356***	0.039
	(4.79)	(5.77)	(5.45)	(3.93)	(4.69)	(0.35)
Japan	-0.495**	-0.372**	-0.266	-0.228	-0.338	-0.157**
	(-2.41)	(-2.03)	(-1.53)	(-1.27)	(-1.63)	(-2.27)
Malaysia	-0.822***	-0.504**	-0.562**	-0.337	-0.635**	-0.187
	(-3.68)	(-2.39)	(-2.64)	(-1.43)	(-2.42)	(-1.62)
Poland	0.543*	0.774***	1.022***	0.498*	0.787***	-0.244
	(1.89)	(2.91)	(4.33)	(1.78)	(2.42)	(-1.40)
Singapore	-0.325	-0.184	-0.059	-0.149	-0.514**	0.189*
	(-1.31)	(-0.78)	(-0.26)	(-0.55)	(-2.00)	(1.91)
South Africa	1.226***	1.261***	0.769***	0.777***	0.541***	0.685***
	(7.04)	(6.73)	(4.19)	(4.07)	(2.94)	(7.22)
South Korea	-0.332	0.215	0.089	-0.000	-0.237	-0.095
	(-1.16)	(0.75)	(0.31)	(-0.00)	(-0.74)	(-0.85)
Taiwan	-0.525**	-0.403	-0.304	-0.463**	-0.816***	0.291***
	(-2.02)	(-1.56)	(-1.26)	(-1.99)	(-3.36)	(2.59)
Thailand	0.701***	0.407*	0.843***	0.834***	0.844***	-0.143
	(2.67)	(1.81)	(4.32)	(3.61)	(2.65)	(-0.78)
UK	0.479**	0.566***	0.532***	0.505***	0.362*	0.117
	(2.53)	(3.34)	(3.18)	(2.81)	(1.71)	(1.56)
U.S.	0.667***	0.619***	0.585***	0.494**	0.186	0.480***
	(2.83)	(3.34)	(3.11)	(2.41)	(0.72)	(5.13)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.737***	0.081	0.276**	0.421**	-0.158	0.895***
	(5.02)	(0.63)	(1.97)	(2.37)	(-0.88)	(5.66)
Canada	0.395**	0.507***	0.247	-0.135	-0.595**	0.990***
	(1.96)	(3.37)	(1.35)	(-0.73)	(-2.50)	(5.59)
China	0.125	0.232	-0.004	0.052	0.098	0.027
	(0.37)	(0.66)	(-0.01)	(0.16)	(0.27)	(0.22)
France	0.072	-0.173	-0.091	0.137	-0.016	0.087
	(0.39)	(-0.82)	(-0.52)	(0.78)	(-0.09)	(0.66)
Germany	-0.111	0.184	-0.541***	-0.094	-0.182	0.071
	(-0.49)	(1.21)	(-2.77)	(-0.49)	(-0.79)	(0.47)
India	0.630**	1.013***	0.854***	0.311	0.859***	-0.229
	(2.13)	(4.34)	(3.39)	(1.39)	(3.01)	(-1.13)
Japan	-0.178	-0.328*	-0.308*	-0.078	-0.339*	0.161
	(-0.88)	(-1.85)	(-1.88)	(-0.44)	(-1.70)	(1.42)
Malaysia	-0.781***	-0.291*	-0.338*	-0.029	-0.386	-0.395**
	(-3.99)	(-1.66)	(-1.74)	(-0.15)	(-1.54)	(-1.99)
Poland	0.158	0.806***	0.287	0.571**	0.731***	-0.573**
	(0.57)	(3.26)	(1.12)	(2.26)	(3.03)	(-2.35)
Singapore	0.158	-0.764***	0.064	-0.223	-0.411*	0.569***
	(0.71)	(-3.28)	(0.38)	(-1.03)	(-1.65)	(2.85)
South Africa	0.877***	0.878***	0.676***	1.033***	0.685***	0.192
	(4.48)	(4.16)	(3.45)	(5.03)	(3.02)	(1.19)
South Korea	-0.351	-0.482**	-0.015	-0.059	-0.049	-0.302
	(-1.09)	(-2.18)	(-0.06)	(-0.22)	(-0.20)	(-1.57)
Taiwan	-0.753***	-0.582***	-0.001	-0.064	-0.464*	-0.289*
	(-3.42)	(-2.86)	(-0.01)	(-0.27)	(-1.87)	(-1.89)
Thailand	0.590**	0.180	0.527**	0.086	0.370	0.220
	(2.06)	(0.74)	(2.37)	(0.32)	(1.21)	(0.95)
UK	0.419**	0.420***	0.395***	0.196	-0.093	0.512***
	(2.48)	(3.48)	(2.69)	(1.45)	(-0.54)	(3.54)
U.S.	0.500***	0.283**	0.347**	0.421**	0.315	0.185
	(2.95)	(1.99)	(2.18)	(2.35)	(1.42)	(1.32)

Table 23: Three factor alphas of Return on assets quintiles, country level results.

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on Return on assets (based on Fama & French, 2008 and Chen, Novy-Marx & Zhang, 2010) against a local three-factor model (Fama & French,1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.669***	0.444**	0.725***	0.938***	1.006***	0.338***
	(3.17)	(2.31)	(5.50)	(6.86)	(6.63)	(2.65)
Canada	0.361	0.243	0.349*	0.313*	0.526***	0.165
	(1.31)	(0.98)	(1.75)	(1.85)	(2.85)	(0.98)
China	0.450	0.357	0.271	0.333	0.326	-0.124
	(1.20)	(0.97)	(0.75)	(0.95)	(0.98)	(-1.04)
France	0.167	0.348**	0.395**	0.370**	0.491***	0.324***
	(0.88)	(2.16)	(2.39)	(2.31)	(3.02)	(3.34)
Germany	-0.141	0.026	0.285*	0.021	0.118	0.260***
	(-0.82)	(0.17)	(1.91)	(0.14)	(0.72)	(3.13)
India	0.908***	1.404***	1.038***	1.324***	1.110***	0.202
	(3.23)	(4.48)	(3.83)	(4.79)	(4.71)	(1.38)
Japan	-0.630***	-0.376**	-0.360**	-0.328*	-0.355*	0.275***
	(-3.08)	(-2.11)	(-2.06)	(-1.89)	(-1.88)	(3.74)
Malaysia	-1.069***	-0.583**	-0.685***	-0.404*	-0.17	0.899***
	(-3.78)	(-2.50)	(-2.98)	(-1.85)	(-0.83)	(5.32)
Poland	0.516*	1.038***	0.500*	0.458*	1.378***	0.862***
	(1.76)	(4.40)	(1.80)	(1.92)	(4.09)	(3.89)
Singapore	-0.707***	0.001	-0.057	-0.139	0.006	0.712***
	(-2.71)	(0.01)	(-0.24)	(-0.62)	(0.02)	(5.83)
South Africa	0.827***	1.152***	0.589***	0.725***	0.539***	-0.288**
	(4.69)	(6.06)	(3.22)	(4.18)	(2.73)	(-2.13)
South Korea	-0.477	0.008	-0.102	-0.008	-0.47**	0.007
	(-1.49)	(0.03)	(-0.39)	(-0.03)	(-1.91)	(0.05)
Taiwan	-0.766***	-0.386	-0.282	-0.435*	-0.667***	0.099
	(-2.63)	(-1.51)	(-1.19)	(-1.88)	(-2.92)	(0.56)
Thailand	0.668**	0.505*	0.597***	0.956***	0.905***	0.237
	(2.28)	(1.90)	(2.61)	(4.50)	(4.39)	(1.35)
UK	0.272	0.487***	0.582***	0.674***	0.704***	0.432***
	(1.23)	(2.85)	(3.45)	(4.37)	(4.46)	(4.37)
U.S.	0.702**	0.607***	0.444***	0.432**	0.336	-0.366**
	(2.26)	(3.20)	(2.42)	(2.27)	(1.55)	(-2.33)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.356	0.229	0.444***	0.286**	0.355**	-0.001
	(1.56)	(1.41)	(3.49)	(2.31)	(2.21)	(-0.01)
Canada	-0.102	-0.188	0.359**	0.092	0.662***	0.763***
	(-0.30)	(-0.81)	(2.49)	(0.60)	(3.47)	(3.02)
China	0.19	-0.075	-0.022	0.037	0.107	-0.083
	(0.54)	(-0.20)	(-0.06)	(0.12)	(0.33)	(-0.54)
France	0.255	-0.010	0.171	0.064	0.314**	0.058
	(0.95)	(-0.05)	(1.01)	(0.41)	(2.02)	(0.28)
Germany	-0.165	0.122	-0.038	-0.251	-0.102	0.064
	(-0.76)	(0.66)	(-0.19)	(-1.21)	(-0.50)	(0.38)
India	0.358	0.648**	0.468*	0.975***	0.590***	0.232
	(1.31)	(2.33)	(1.90)	(3.83)	(3.19)	(1.26)
Japan	-0.606***	-0.302	-0.341**	-0.106	-0.178	0.427***
	(-2.85)	(-1.58)	(-2.05)	(-0.65)	(-1.04)	(3.77)
Malaysia	-0.727***	-0.365*	-0.925***	-0.042	-0.042	0.685***
	(-2.97)	(-1.71)	(-4.33)	(-0.24)	(-0.22)	(3.76)
Poland	0.785***	0.906***	0.067	0.255	0.608**	-0.177
	(2.94)	(4.18)	(0.28)	(1.09)	(2.15)	(-0.92)
Singapore	-0.927***	-0.067	-0.481**	-0.126	-0.14	0.787***
	(-3.49)	(-0.29)	(-2.40)	(-0.68)	(-0.77)	(3.08)
South Africa	0.695**	0.491**	0.815***	0.644***	0.948***	0.254
	(3.96)	(2.29)	(4.50)	(3.44)	(3.57)	(1.22)
South Korea	-0.629**	-0.075	-0.460*	-0.181	-0.534**	0.095
	(-2.12)	(-0.31)	(-1.93)	(-0.85)	(-2.17)	(0.58)
Taiwan	-0.964***	-0.231	-0.373*	-0.121	-0.339	0.625***
	(-3.44)	(-0.88)	(-1.86)	(-0.52)	(-1.51)	(3.05)
Thailand	0.252	-0.256	0.266	0.935***	0.475**	0.223
	(0.79)	(-1.06)	(1.04)	(3.66)	(2.23)	(1.05)
UK	0.691***	0.101	0.489***	0.405***	0.356***	-0.334**
	(4.00)	(0.56)	(3.78)	(2.99)	(2.94)	(-2.17)
U.S.	0.382	0.323*	0.306**	0.382***	0.509***	0.127
	(1.51)	(1.78)	(2.00)	(2.76)	(3.15)	(0.87)

Table 24: Three factor alphas of Investment-to-assets quintiles, country level results.

This table reports the monthly alpha, in percentages, obtained from regressing the individual quintile portfolio returns or long-short strategy sorted on Investment-to-assets (based on Titman, Wei & Xie, 2004) against a local three-factor model (Fama & French,1996). In panel A, the portfolio returns are equally weighted. In panel B, the portfolio returns value weighted based on the market values of the respective stocks. T-statistics are reported in parentheses are based on heteroskedasticity-consistent standard errors based on White (1980) for the developed and emerging markets. Two-tailed statistical significance is reported on the 10% (*), 5% (**) and 1% (***) level.

Panel A:	Equally weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	1.089***	0.813***	0.925***	0.636***	0.161	0.927***
	(6.79)	(5.12)	(6.51)	(3.85)	(0.76)	(7.28)
Canada	0.485**	0.491***	0.434**	0.071	0.052	0.433***
	(2.50)	(2.58)	(2.34)	(0.31)	(0.19)	(2.91)
China	0.436	0.377	0.457	0.244	0.182	0.254***
	(1.22)	(1.04)	(1.28)	(0.70)	(0.51)	(2.99)
France	0.491***	0.368**	0.399**	0.119	0.145	0.347***
	(2.86)	(2.22)	(2.51)	(0.74)	(0.84)	(5.23)
Germany	-0.037	0.332**	0.428***	0.145	-0.303*	0.266***
	(-0.24)	(2.32)	(2.73)	(0.89)	(-1.92)	(4.00)
India	1.232***	1.091***	1.099***	1.247***	1.219***	0.013
	(4.48)	(4.08)	(4.21)	(4.39)	(4.13)	(0.13)
Japan	-0.505***	-0.480***	-0.380**	-0.422**	-0.369**	-0.136***
	(-2.59)	(-2.66)	(-2.20)	(-2.41)	(-2.03)	(-2.59)
Malaysia	-0.776***	-0.526**	-0.440*	-0.501**	-0.722***	-0.054
	(-3.20)	(-2.30)	(-1.92)	(-2.42)	(-2.99)	(-1.03)
Poland	1.775***	0.830***	0.535***	0.521*	0.442	1.339***
	(4.36)	(3.20)	(1.96)	(1.92)	(1.48)	(3.63)
Singapore	-0.246	-0.250	-0.180	-0.062	-0.503*	0.257***
	(-1.00)	(-1.15)	(-0.81)	(-0.23)	(-1.90)	(2.97)
South Africa	0.965***	1.270***	0.818***	0.535***	0.368*	0.597***
	(5.33)	(7.02)	(4.29)	(2.98)	(1.72)	(5.48)
South Korea	-0.238	-0.003	0.166	-0.307	-0.706***	0.468***
	(-0.89)	(-0.01)	(0.56)	(-1.15)	(-2.58)	(6.23)
Taiwan	-0.410	-0.283	-0.414*	-0.656***	-0.800***	0.390***
	(-1.60)	(-1.16)	(-1.75)	(-2.74)	(-3.09)	(3.40)
Thailand	0.799***	0.754***	0.675***	0.511**	0.525*	0.274**
	(3.50)	(3.00)	(3.29)	(2.23)	(1.94)	(2.06)
UK	0.554***	0.573***	0.640***	0.456***	0.285	0.269***
	(3.10)	(3.30)	(3.81)	(2.92)	(1.64)	(4.31)
U.S.	0.709***	0.638***	0.602***	0.460**	0.048	0.661***
	(3.22)	(3.06)	(3.07)	(2.23)	(0.20)	(7.17)

Panel B:	Value weighted return quintiles					
Country	1	2	3	4	5	long/short
Australia	0.638***	0.459***	0.231*	0.4***	-0.313	0.951***
	(4.63)	(3.71)	(1.79)	(2.78)	(-1.45)	(6.13)
Canada	0.831***	0.607***	0.108	-0.010	-0.577**	1.408***
	(4.48)	(3.15)	(0.62)	(-0.05)	(-2.25)	(8.35)
China	0.059	0.005	0.091	-0.029	-0.096	0.154
	(0.17)	(0.01)	(0.28)	(-0.09)	(-0.28)	(1.38)
France	0.014	0.229	0.066	0.055	-0.216	0.231**
	(0.08)	(1.41)	(0.44)	(0.28)	(-1.36)	(1.96)
Germany	-0.054	0.163	0.648***	-0.565***	-0.494**	0.440***
	(-0.28)	(0.94)	(3.46)	(-2.71)	(-2.50)	(2.80)
India	0.261	0.604**	0.556***	0.220	0.926***	-0.665***
	(0.90)	(2.42)	(2.75)	(0.95)	(3.24)	(-2.74)
Japan	-0.293	-0.197	-0.320	-0.214	-0.311*	0.018
	(-1.56)	(-1.09)	(-1.94)	(-1.30)	(-1.79)	(0.25)
Malaysia	-0.785***	-0.813***	-0.286	-0.060	-0.496**	-0.288***
	(-3.57)	(-4.12)	(-1.55)	(-0.34)	(-2.33)	(-2.81)
Poland	0.804***	1.050***	0.380	0.329	0.086	0.734***
	(2.69)	(3.70)	(1.52)	(1.23)	(0.38)	(2.61)
Singapore	-0.171	-0.296	-0.392**	0.093	-0.667**	0.496**
	(-0.85)	(-1.54)	(-2.49)	(0.42)	(-2.55)	(2.50)
South Africa	0.809***	1.278***	1.202***	0.989***	0.133	0.676***
	(3.74)	(5.49)	(5.82)	(4.13)	(0.51)	(3.06)
South Korea	-0.987***	0.026	-0.080	-0.225	-0.240	-0.747***
	(-3.47)	(0.11)	(-0.33)	(-0.94)	(-0.99)	(-4.71)
Taiwan	-0.635***	-0.240	-0.268	-0.543***	-0.147	-0.488***
	(-2.92)	(-1.25)	(-1.15)	(-2.31)	(-0.59)	(-3.29)
Thailand	0.694***	0.484**	0.351	0.209	0.327	0.368*
	(2.83)	(2.07)	(1.26)	(0.82)	(1.08)	(1.65)
UK	0.427***	0.576***	0.592***	0.131	0.356**	0.071
	(3.04)	(4.62)	(5.01)	(1.14)	(2.20)	(0.72)
U.S.	0.241	0.431***	0.380***	0.486***	0.158	0.084
	(1.50)	(2.81)	(2.60)	(2.97)	(0.83)	(0.81)