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Unraveling the puzzling Value Premium in Emerging Markets

THE TESTING OF AND EXPLANATION FOR THE VALUE PREMIUM IN EMERGING MARKETS

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Contents

1. Introduction

Value investing is a phenomenon that can be dated back to Graham and Dodd (1934). They only invested in stocks with a price-to-earnings ratio that was beneath a certain threshold. Back in 1977, Basu and other researchers found that low valued stocks, stocks with a low price-to-earnings ratios or high book-to-market ratio generated excess returns. Early evidence of the value premium was focused on US markets, though more recent papers show its existence in overseas markets.

A significant field of research on asset pricing refocused on the risk-return relationship after Fama and French (1992) found that cross-sectional differences in stock return are not adequately explained by a single risk (beta) factor. Consequently, numerous papers have studied the cross-sectional variation in stock returns, challenging the generally accepted capital asset pricing model (CAPM). Since then, several anomalies, patterns unexplained by the CAPM, have been discovered and this field of research is still developing. This thesis will focus on one of the most evident anomalies, the value premium and looks for risk factors that could best explain this premium in emerging markets.

Fama and French (1992, 1996, 1998) found that mean stock returns of firms with relatively low price-to-book ratios are generally higher than the mean stock returns of firms with relatively higher price-to-book ratios. Fama and French (1998) found evidence for the existence of the value premium by using a sample of 13 developed countries over 1975-1995. They found statistically significant results for the value premium in 12 of 13 the tested countries. Fama and French (1998) estimate the difference in average returns of a portfolio consisting of low price-to-book stocks and a portfolio consisting of high price-to-book stocks ratio to be 7.68% per year. They also tested for the value premium in 16 emerging markets but their results can be 'hazardous' due to the high volatility of returns and the use of a relatively short sample period. However, they concluded the evidence to be generally consistent with the value effect.

The value premium in emerging markets has gotten more attention over the years. Amongst others, Achour et al. (1998), Rouwenhorst (1999), Barry et al. (2002), Drew & Veeraraghavan (2002), Van der Hart (2003) and Kouwenberg and Salomons (2005), Lischewski & Voronkova (2010) and Cakici et al. (2013) confirm the existence of the value premium in emerging markets. By means of economic, social, regulatory and institutional differences between developed and emerging markets, more research into the field of emerging markets would be essential to understand the full picture of the value premium. Moreover, for a risk-based explanation of the value premium, emerging markets are particularly interesting as during the sample period of 1991 to 2014 emerging markets endured several financial and economic crisis events (1995 in Mexico, 1997 in Asia, 1998 in Russia, 1999 in Brazil, 2002 in Argentina, the global financial crisis as well as the more recent recessions in Brazil and Russia).

The interpretation of the value premium is still strongly debated and a number of papers have questioned the soundness of the value premium. Black (1993) and MacKinlay (1995) questioned whether the effect is sample-specific. Early results of the value premium depended on Compustat-based samples. Kim et al. (1999) found evidence for the existence of the value premium in a sample that includes all non-Compustat firms while Fama and French (1998) addressed this issue by studying global equity markets. According to amongst others Fama and French (1992, 1996) the value premium is a compensation for risk. Other argue that the value premium is related to future GDP growth (Liew and Vassalou (2000) and Vassalou (2003)), or see it as proof of market inefficiency and offer behavioral explanations (La Porta et al. (1997)). Disagreement also still remains over the existence and significance of the value premium in emerging markets (Brown et al. (2008)).

The first objective of this thesis is to show the existence of the value premium in 22 emerging equity markets over the period January 1991 – December 2014, when setting a country allocation based on price-to-book ratio. The scope of this thesis is limited to country selection in emerging markets, a strategic asset allocation decision often made by emerging market equity managers, as opposed to individual stock selection within emerging market for which evidence is already available (Van der Hart et al. (2003), Barry et al. (2002), Lischewski et al. (2012)). The second objective is to analyze the risk –return tradeoff at the county level, of the value premium in emerging markets in order to make this thesis practically relevant to (professional) investors. The third objective is to try to find an explanation why a value premium in emerging markets exists at the country selection level. The value premium could possibly be explained by differences in exposure to global risk factors or local macroeconomic factors between countries. In the last part of this thesis different measures of value will be discussed and compared, moreover the value premium will be compared to the size premium.

The main research question this thesis will be attempting to answer is:

Do we still observe a value premium in emerging equity market country selections, and if we do, how can this value premium be explained?

Compared to prior research, this thesis uses a broad sample consisting of data from 22 countries, over a 24 year period. When testing for the value premium in emerging markets it is important to consider relatively long sample periods to control for the high volatility of these markets. Moreover, this thesis regresses the price-to-book portfolio excess returns on the Fama and French 5 factor model. This thesis makes as well a clear comparison between the years 1991 – 2014 and 2003 – 2014 to evaluate how the value premium has developed over time.

The remainder of this thesis is organized as follows. Section II presents the literature review. Section III describes the dataset, in section IV the existence of the value premium in emerging markets will be tested. Section V attempts to find explanations for the value premium. Section VI studies the relation of the value premium to the size premium and compares different measures of value. Directions for future research and the conclusion of this thesis will be presented in Sections VII and VIII respectively.

2. Literature review

Fama and French (1992) found that the cross-section of stock returns cannot solely be explained by the single-factor capital asset pricing model (CAPM). According to Fama and French (1993, 2015) and a significant amount of other empirical studies, returns can be better explained by a combination of risk factors than just a by single risk factor (beta). Examples of the factors which help explain the cross-section of average returns, are size (Banz (1981) Fama and French (1992), Keim (1983), Reinganum (1981)), momentum effect (Brennan et al. (1998), Jagadeesh and Titman (1993)), price-earnings ratio (Basu, (1977); Reingaum, (1981)), value (Fama and French, (1992)), investment and profitability (Fama and French, (2015)) and liquidity (Amihud and Mendelson, (1986)). This thesis will focus on the value factor.

Mean stock returns of firms with relatively low price-to-book ratios (value stocks) are generally higher than the mean stock returns of firms with relatively high price-to-book ratios (growth stocks). The findings of Fama amd French sparked a hot debate in the academic world. According to Black (1993) and MacKinlay (1995) the value premium was caused by data-snooping. Kothari et al. (1995) proposed survivorship bias as the explanation for the value premium and Lakonishok et al. (1994) and Haugen (1995) claimed that the value premium might be real and explained by behavioral biases, such as over-extrapolation of past trends.

The value anomaly has already been extensively researched in the finance literature and investors can (at least on paper) extensively outperform the market by trading on it (Fama and French, (1992)). Fama and French (1992) among others, discovered a value premium in returns for US stocks for the period after 1963. Fama, and French (2002) found the existence of a value premium in earlier periods dating back to 1926. Furthermore, according to Fama and French (1993), the post-1963 value premium cannot be explained by capital asset pricing model of Sharpe (1964) and Lintner (1965).

The majority of this research has been particularly focused on developed markets. According to Dey (2005), the concept of risk is different between developed markets and emerging markets, and this should be considered when analyzing asset prices. Next to that, emerging stock markets undoubtedly represent a substantial part of the world portfolio nowadays, therefore more empirical research into these markets is required. Numerous studies have been done into the size, value, and momentum effects in the U.S. equity market though size, value, and momentum effects are a lot less explored for emerging markets. This thesis will try to contribute to this gap by looking deeper into the value premium in emerging markets.

In 1998, Fama and French looked into the value premium in markets outside the United States. They only based their conclusions on the size of the return difference between high and low value stocks due to a low number of stocks and short sample period in emerging markets. Returns from 16 emerging markets were included in their sample. The difference of the returns between the high and low book to market

portfolios is 14% when countries were value weighted and 17% when countries were equally weighted. Barry et al. (2002) researched the value effect in 35 emerging markets and Malkiel and Jun (2009) did the same for Chinese stocks. Both papers show the existence of the value effect in the investigated markets. Another paper, written by Kouwenberg and Salomons (2005), found that the return difference between a portfolio of emerging equity markets with low price-to-book ratios and markets with high price-to-book ratios is 33% per year on average in the period 1991-2002. 40% of this value premium can be explained by exposure to a local macroeconomic risk factor. Countries in the portfolio with the low price-to-book have on average, lower economic growth, higher inflation and more unstable currencies compared to the high price-to-book portfolios. Cakici, Fabozzi, Tan (2013) used a more recent dataset ranging from 1990 to 2011 and found a strong value premium for stock selection in 18 emerging markets worldwide. Lischewski and Voronkova (2011) also found in their paper existing evidence for developed markets regarding the value premium.

There has as well been some interesting research on the value premium for country selection in emerging countries. Kim and Daehwan (2012), used a dataset consisting of 23 developed markets and 13 emerging markets over the period ranging from July 1990 till June 2010. They showed that high earnings to price ratio countries markets significantly outperformed low earnings to price countries for 18 out of the 23 developed markets and for 10 out of the 13 emerging markets. The difference in return for the low and high earnings to price ratios differs largely between the different countries. They as well tried to predict variation in the value premium between the countries. According to the Fama-Macbeth regressions this difference can be predicted by return dispersion and the earnings to price spread. Moreover, predictive power improved compared to only using the Fama and French global factors. Based on the two variables return dispersion and earnings to price spread, Kim and Daehwan formed global HML portfolios and obtained significant excess returns. And the Fama and French global factors can only partly explain these excess returns. Based on these results, Kim and Daewhan concluded that emerging market investors value investors should be able to use a profitable country selection strategy.

Other studies focused on stock market anomalies at the country level are for example Macedo (1995), Desrosiers et al. (2004), Asness et al. (2013) and Zaremba (2015). They found that stock markets with a low value measures as price to earnings ratio or book to market value experienced higher returns compared to high price to earning markets. Macedo (1995) for example found that the bottom quartile of portfolios formed on book to market ratio were outperformed by 5.57% on an annual basis compared to the top quartile over the period 1974 till 1990. Whereas Asness et al.(2013) found this number to be 6% per year over the period 1975 till 2011. A study performed by Desrosiers et al. (2004) found countries with low book to market ratios to be outperformed by high book to market countries by just 0.32% per month over the over the period 1975 – 2003. And Zaremba (2015) found the average monthly return on the zero-

investment value portfolio to 0.72% over the sample period February 1999 to September 2014. These differences might be caused the difference in size of the sample and timing of the sample period.

Another paper, written by Zaremba in 2016 presented a risk based explanation of the value premium at the country level. According to this paper, the cross-sectional variation in the country risk can explain the small country effect completely. The alpha on the value strategy was condensed by roughly 30% by taking the non-market risk into consideration. This resulted in an insignificant alpha for the value strategy. According to the literature, there are two main methods of explaining stock market anomalies. The first method tells us that behavioral biases are causing the anomalies and arbitraging away these anomalies is usually not possible. The second method tell us that non-market risk factors are causing the anomalies and these factors are not caught by asset pricing models. For the value premium the literature has found several risk factors, examples are liquidity (Stoll and Whaley, (1983)), credit risk (Fama and French, (1996)), information risk (Hong et al., (2000)) and operational risk (Zhang, (2005)).

What makes this thesis particularly interesting is that the explanation for the value premium is still under debate. According to the literature, potential interpretations for the value premium are that it is a compensation for risk (Fama and French, (1992) and (1996)), news related to future GDP growth could explain the cross-section of US stock returns according to Liew and Vassalou (2000) or the value premium could be caused by market inefficiency and more behavioral explanations according to among others Lakonishok et al., (1994). Testing the value premium in emerging markets is specifically interesting as during the period ranging from January 1991 to December 2014 several severe financial and economic events have occurred. (Mexico in 1994, Asia in 1997, Russia in 1998, Brazil in 1999 and Argentina in 2002). The current challenges faced by emerging markets will not be fully incorporated in this research since 2015-2016 data will not be part of the dataset.

According to the literature, local macroeconomic variables could be better in explaining the value premium than global economic variables. The level of integration is an important factor in determining the relative importance of global and local factors according to Harvey and Bekaert (1995). High levels of integration should result in high exposures to global factors, vice versa. By relating emerging market returns to world growth, world inflation, oil and trade weighted exchange rates, Harvey (1995) finds a limited connection. Another study done by Robert D. Gay, Jr. (2008) found no significant relationship between respective exchange rate and oil price on the stock market index prices of the BRIC countries. According to Robert D. Gay, Jr. this may be due to the influence of other domestic and international macroeconomic factors on stock market returns, warranting further research.

3. Data and Descriptive Statistics

The dataset used to measure the return of emerging equity markets, dividend yields, price-to-book ratios, price-earnings ratios markets is obtained from the Standard & Poor's and International Financial Corporation Investable indices (S&P/IFCI). These indices consider the ease of access of markets and individual stocks for foreign investors. As this thesis takes the standpoint of foreign investors, the monthly returns are denominated in US dollars.

The International Financial Statistics (IFS) database from the International Monetary Fund is used to retrieve macroeconomic variables. When confronted with missing data or periods of unavailable IFS real GDP data, data is obtained by interpolating the annual IFS GDP data. When necessary, the dataset in complemented with GDP data from official government sources. See the appendix for a description of the data.

3.1 Dataset

In this thesis data from 22 emerging markets will be analyzed. The 22 countries are located in Asia, Latin America and Europe, Middle East and Africa (EMEA). For practical implications, smaller and less liquid markets are not included in this research. High transaction costs and other limitations could make it hard to implement investment strategies in these markets (Bekaert and Urias, (1996)). See Table 1 for the countries considered in this thesis.

Table 1: Emerging Markets

Table 1 lists the emerging equity markets used in this thesis.

Asia	EMEA	Latin America
China	Czech Republic	Argentina
India	Egypt	Brazil
Indonesia	Hungary	Chile
Korea	Israel	Colombia
Malaysia	Poland	Mexico
Philippines	Russia	Peru
Taiwan	South Africa	
Thailand	Turkey	

The dataset ranging from January 1991 to December 2014, is a more extensive and recent dataset compared to datasets used in previous research. During this time, emerging markets experienced numerous financial, economic and currency crises. The 1995 crisis in Mexico, the 1997-1998 Asian crisis, the Russian debt

default in 1998, the 1999 devaluation of the Brazilian real, the 2002 crisis in Argentina and the 2007 global financial crisis. Specifically this volatility delivers an interesting opportunity to test whether the value premium is linked to risk.

In the late 1980s and the early 1990s many equity market liberalizations were observed in emerging markets (Bekaert and Harvey, (2000)). In order to diminish this effect on the results, the start date of the data used in this thesis is January 1991. This is when the majority of the equity market liberalizations already occurred (Kouwenberg and Salomon, (2005)). Equity market liberalizations increases integration of emerging markets in world capital markets which causes major changes in the real as well as financial sectors (Bekaert and Harvey, (2003)). According to Bekaert et al., (2003), the integration of the equity markets affects its functioning, the ability of local investors to diversify, the price levels, foreign capital flows and the cost of capital. Generally speaking, a lower cost of capital will stimulate investment and increase the outlook of GDP growth. Moreover, Umutlu et al. (2010) found that a higher degree of financial liberalization due to a more widespread investor base relates to a decline in the total volatility of stock returns.

3.2 Descriptive Statistics

Table 2: Summary Statistics of Emerging Market Equity Returns

Table 2 displays the per country the starting date of the sample, ending date of the sample, monthly average return, standard deviation, downside deviation, skewness, excess kurtosis and the p-value of the Jarque Bera Test to test for normality.

Country	Start of Sample	End of Sample	Average Return (%)	Standard Deviation (%)	Downside Deviation (%)	Skewness	Kurtosis	Jarque - Bera Test (%)
Argentina	Jan-91	Sep-09	1.87	13.44	7.92	1.71	12.24	0.00
Brazil	Jan-91	Dec-15	2.26	12.64	7.90	0.58	2.99	0.00
China	Nov-93	Dec-15	0.84	9.91	6.51	0.31	1.75	0.00
Chile	Jan-91	Dec-15	1.28	7.09	4.63	-0.14	1.48	0.00
Colombia	Apr-91	Oct-01	1.41	10.83	5.19	0.98	1.90	0.00
Czech Rep.	Feb-94	Dec-15	1.01	9.28	5.85	0.93	8.34	0.00
Egypt	Apr-97	Dec-15	1.17	9.43	5.28	0.51	2.28	0.00
Hungary	Feb-94	Dec-15	1.13	11.35	7.58	0.37	4.65	0.00
India	Jan-93	Dec-15	1.05	8.64	5.25	0.10	0.90	0.01
Indonesia	Jan-91	Dec-15	1.16	12.32	8.40	0.18	2.83	0.00
Israel	Mar-97	Sep-10	1.01	6.57	5.04	-0.63	0.51	0.00
Korea	Mar-92	Dec-15	1.06	11.10	6.44	1.14	6.67	0.00
Malaysia	Jan-91	Dec-15	0.91	8.48	5.81	0.87	7.89	0.00
Mexico	Jan-91	Dec-15	1.34	8.44	6.56	-0.84	2.52	0.00
Peru	Nov-93	Dec-15	1.57	8.45	5.73	-0.05	2.40	0.00
Philippines	Jan-91	Dec-15	1.10	8.87	5.41	0.45	2.84	0.00
Poland	Feb-94	Dec-15	0.93	11.00	7.33	-0.02	1.61	0.00
Russia	Apr-97	Dec-15	1.48	14.27	9.94	0.10	3.74	0.00
South Africa	Mar-94	Dec-15	1.16	7.72	5.63	-0.59	1.54	0.00
Taiwan	Mar-91	Dec-15	0.77	8.96	4.69	0.98	3.62	0.00
Thailand	Jan-91	Dec-15	1.08	10.52	6.93	0.20	2.15	0.00
Turkey	Jan-91	Dec-15	1.64	15.37	8.70	0.60	2.12	0.00
MSCI World	Jan-91	Dec-15	0.56	4.60	3.51	-0.52	2.01	0.00

In Table 2 the descriptive statistics of the monthly emerging equity market returns and the MSCI world index returns are showed. The monthly returns are retrieved from the S&P/IFCI indices and are in US dollar. The table shows the average returns, standard deviation, downside deviation, skewness, excess kurtosis and Jargue Bera test p-value. As could be observed, returns were not available for every country during the full sample period. For example, data for Colombia started in April 1991 and was only available till October 2001. For the majority of the countries we have data covering the full or almost full sample period. The average returns for the countries studied in this thesis differ substantially. For Taiwan we observe an average return of 0.77% per month while for Brazil the average monthly returns is 2.26%. For every emerging market studied in this thesis we observe a higher average returns compared to the MSCI World Index. This can be expected since the expected return of the US market will be lower since it is a less risky investment. We observe a considerably lower standard deviation for the MSCI World Index compared to the emerging market countries. The average standard deviation for the emerging market countries is 10.21% compared to a standard deviation of 4.79% for the MSCI World Index. Looking at the skewness and kurtosis we find positive skewness for almost all emerging markets and excess kurtosis. For all countries we find the monthly returns to be non-normally distributed, tested making use of the Jarque Bera Test.

4. The Value Premium in Emerging Markets

This part of the thesis will test whether the value premium in emerging equity markets is still exists at the country selection level, using data from January 1991 until December 2014. As well the strength of this value premium over time will be discussed. This sections starts with testing the existence and size of the value premium in emerging equity markets. Then it continues with attempting to explain the value premium with global and local risk factors.

4.1 Methodology

For testing the value premium in emerging markets this thesis will stick to the standard approach used by among others Kouwenberg and Salomon (2005). The countries will be ranked according to their price-to-book ratio at the end of each quarter. Then four portfolios will be constructed consisting of equally weighted portfolios of the emerging countries in each of the four price-to-book quartiles. During the next three months the returns of each portfolio will be reported. After these three months, the portfolios will be rebalanced according to their price-to-book ratios and start the process again.

Subsequently, a "zero-investment" strategy will be constructed, consisting of a long position in the first quartile portfolio (low price-to-book markets) and a short position in the fourth quartile portfolio (high price-to-book markets). Short selling constraints may prevent investors from profiting from this strategy but it can still be useful in showing that the low price-to-book countries (the long portfolio) have higher returns than the high price-to-book countries (the short portfolio).

4.2 Hypotheses

Based on previous conducted research from among others Drew and Veeraraghaven, 2002, Kouwenberg and Salomon (2005) and Cakici et al. (2013), low price-to-book countries are expected to earn higher monthly average returns compared to high price-to-book countries. In addition, monthly average returns are expected to decline steadily from the first till the fourth quartile. I as well expect the zero-investment strategy to offer a good risk-return relationship, especially as diversification for MSCI World market index investors. As could be observed in previous research (Kouwenberg and Salomon, (2005)) the value premium in emerging equity markets at the country selection level was significantly positive. Moreover, the correlation with the MSCI World Index was very low.

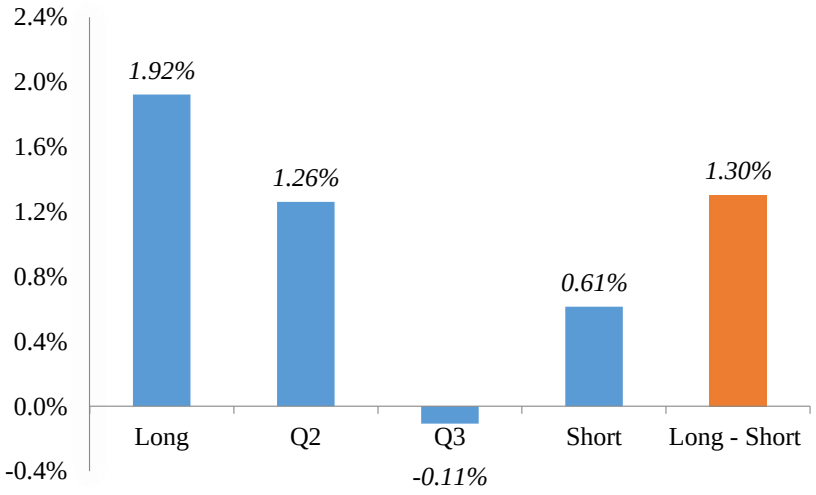
As already discussed in the literature review, there are two main methods of explaining stock market anomalies according to the literature (Zaremba, (2016)). The first method tells us that behavioral biases are causing the anomalies and arbitraging away these anomalies is usually not possible. The second method tell

us that non-market risk factors are causing the anomalies and these factors are not caught by asset pricing models. The literature shows different findings regarding risk factors as explanation for the value premium. Van der Hart et al. (2003) and Kouwenberg and Salomons (2005) find that the cross-section of stock returns in emerging markets is not explained by global risk factors. While Zaremba (2016) presented a risk based explanation of the value premium at the country level. In section 5 of this thesis I will test whether the value premium is a compensation for risk by running linear regressions of the price-to-book excess returns on the MSCI World Index excess returns. In a second effort to try to explain the value premium, I will regress the price-to-book excess returns on the Fama and French (2015) five-factor model using the size, value, operating profitability and investment factor for the global market. If the value premiums is just a compensation for risk I would expect alpha's which are not significantly different from zero in the regression which will be done in Section 5. I would as well expect a negative value premium during the global financial crisis which will be tested in Section 4.3.

4.3 Results

Figure 1: P/B Quartile Portfolios

Figure 1 shows the average monthly returns of the portfolios formed on the price-to-book ratios. The data used for this graph spans from January 1991 till December 2014. The "Long" column displays the quartile portfolio consisting of low price-to-book countries, the "short" column displays the quartile portfolio consisting of high price-to-book countries. "Q2" and "Q3" are the portfolios in between the "Long" (low P/B countries) and the "Short" (high P/B countries). The four portfolios are rebalanced on a quarterly basis.



As can be observed in Figure 1, over the sample period of January 1991 till December 2014, investing in countries with low price-to-book ratios will result in a significantly positive average monthly return of 1.92% which amounts to an 25.6% annualized return. Investing in countries with a high price-to-book ratio

resulted in an average monthly return of 0.61%, which amounts to an 7.6% annualized return. This return is not significantly different from zero. By investing in the long-short portfolio, investors could have realized a significantly positive average monthly return of 1.30%, which amounts to a 16.8% annualized return. What is particularly interesting about the results shown in Figure 1 is the fact the returns in the highest price-to-book quartile are higher than the results found in the third quarter consisting of lower price-to-book countries. Kouwenberg and Salomons (2005) found a stable decline in the returns from the long portfolio to the short portfolio. Although, the monthly average return in Q3 and in the Short quartile are both not significantly different from zero.

To check the validity of the data used in this thesis, the average monthly returns over the period January 1991 till December 2002 are calculated as well, which is the timespan used in the paper written by Kouwenberg and Salomons (2005). This way a comparison between the value premium the period January 1991 – December 2014 and January 1991 and December 2002 can be made as well.

Figure 2: P/B Quartile Portfolios

Figure 2 shows the average monthly returns of the portfolios formed on the price-to-book ratios. The data used for this graph spans from January 1991 till December 2002. The "Long" column displays the quartile portfolio consisting of low P/B countries, the "short" column displays the quartile portfolio consisting of high P/B countries. "Q2" and "Q3" are the portfolios in between the "Long" (low P/B countries) and the "Short" (high P/B countries). The four portfolios are rebalanced on a quarterly basis.

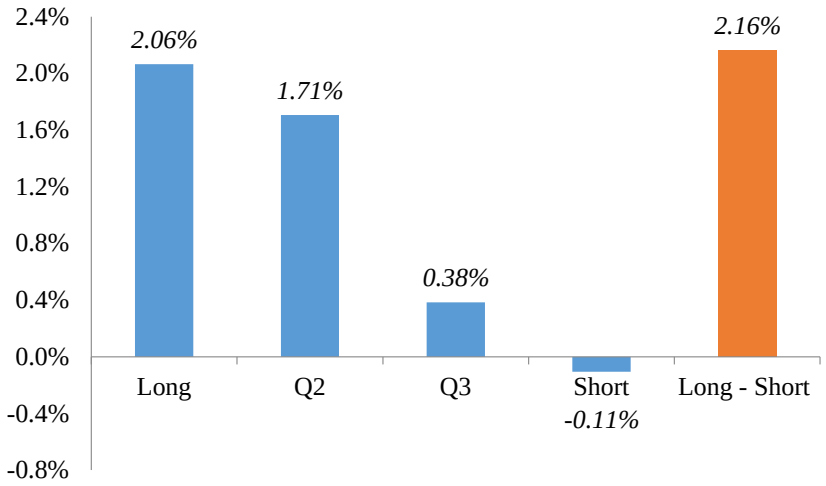


Figure 2 shows the results over the sample period of January 1991 till December 2002. In this figure we observe a stable decline in the returns from the long portfolio to the short portfolio, which is in line with the results found by Kouwenberg and Salomons (2005). In both samples the monthly average returns in the Q3 and Short portfolios are not significantly different from zero. As we can observe, the value premium weakened over the period January 2003 till December 2014. During the January 1991 – December 2014

sample period we observe a significantly positive average monthly long-short return of 1.30%, which amounts to an 15.60% annualized return. When we shorten the sample period and test for the period January 1991 - December 2002, we observe a significantly positive average monthly long-short return of 2.16%, which amounts to an 25.92% annualized return.

Figure 3: P/B Quartile Portfolios

Figure 3 shows the average monthly returns of the portfolios formed on the price-to-book ratios. The data used for this graph spans from January 2003 till December 2014. The "Long" column displays the quartile portfolio consisting of low P/B countries, the "short" column displays the quartile portfolio consisting of high P/B countries. "Q2" and "Q3" are the portfolios in between the "Long" (low P/B countries) and the "Short" (high P/B countries). The four portfolios are rebalanced on a quarterly basis.

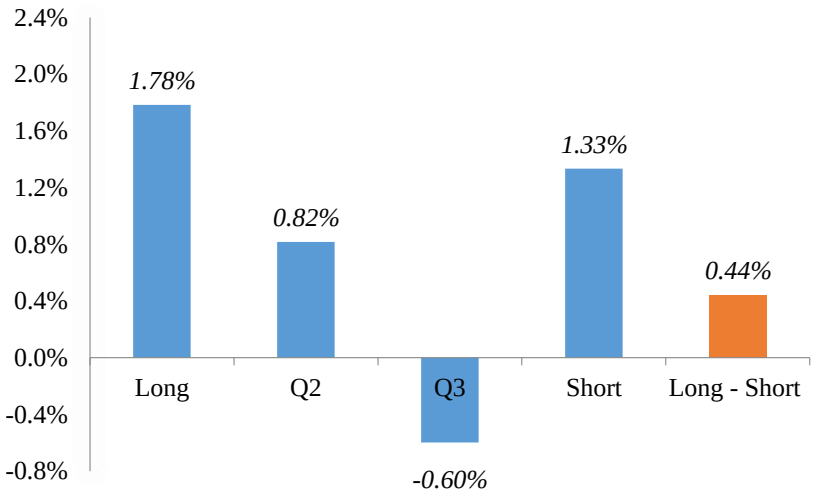
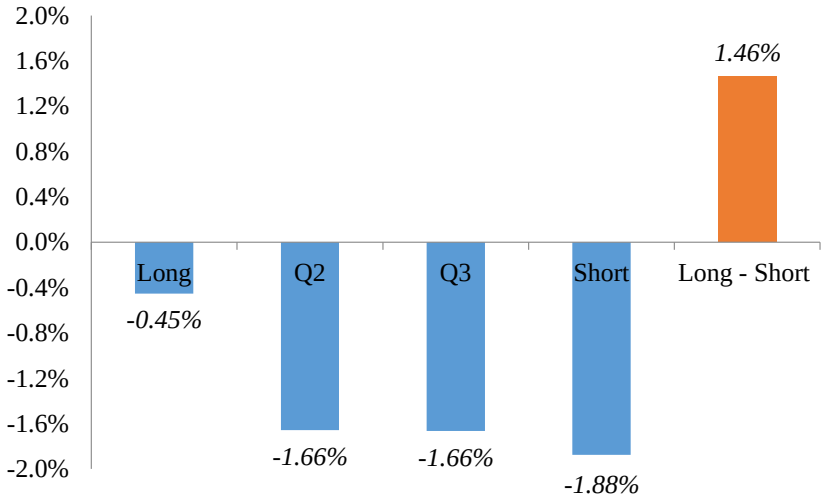


Figure 3 shows the results over the sample period of January 2003 till December 2014. This is exactly the 12 years after the sample period of Kouwenberg and Salomon (2005), which spans from January 1991 till December 2002. In this figure we do not observe the stable decline in the returns from the long portfolio to the short portfolio, which we observed in the sample period January 1991 till December 2002 (Figure 2). The most interesting takeaway from this table is the fact that the long-short portfolio return is not significantly different from zero anymore. We observe a value premium of 0.44% per month on average which annualizes to 5.28% per year. The long portfolio has a significantly positive return of 1.78%, which is lower than the 2.06% significantly positively return observed over the period January 1991 till December 2002. The value premium clearly weakened over time. The 0.82% return for the Q2 portfolio and the Q3 return of -0.60% are both not significantly different from zero.

Figure 4: P/B Quartile Portfolios

Figure 4 shows the average monthly returns of the portfolios formed on the price-to-book ratios. The data used for this graph dates from December 2007 till June 2009, the timespan of the United States recession according to the National Bureau of Economic Research . The "Long" column displays the quartile portfolio consisting of low P/B countries, the "short" column displays the quartile portfolio consisting of high P/B countries. "Q2" and "Q3" are the portfolios in between the "Long" (low P/B countries) and the "Short" (high P/B countries). The four portfolios are rebalanced on a quarterly basis.



It is as well interesting to look at the effect of the global financial crisis on the monthly average returns of the zero-investment strategy and thus the value premium. In Section 5 I will look for an explanation for the value premium. The value premium could for example just be a compensation for the increased risk taken by investors.

As a starting point of the global financial crisis I take the start of the United States recession, as an ending point of the global financial crisis I take end of the United States recession. These dates are determined by the National Bureau of Economic Research. Figure 4 shows the monthly average return for the period December 2007 till June 2009. We can observe clear negative returns for every portfolio sorted on price-to-book ratio. As well, steadily declining returns from the long portfolio to the short portfolio are observed. The returns for the low price-to-book countries are clearly higher than the returns for the high price-to-book countries. We observe a significantly positive value premium of 1.46%, which amounts to annualized return of 17.52% per year. The long, Q2, Q3 and Short quartile portfolio returns are not significantly different from zero, which could partly be explained by the relatively small sample period. As already touched upon above, in Section 5 I will look for explanations for the value premium. The results above make a risk-based explanation less likely since we observe a significantly positive and strong value premium during the global financial crisis.

Figure 5: Cumulative Returns Price-to-Book Strategy

Figure 5 shows the cumulative returns of the price-to-book strategy and the MSCI World Index. It shows the cumulative returns of the Short strategy, the Long strategy, the Long-Short strategy and the MSCI World Index. This graph shows results for the total sample period from January 1991 till December 2014.

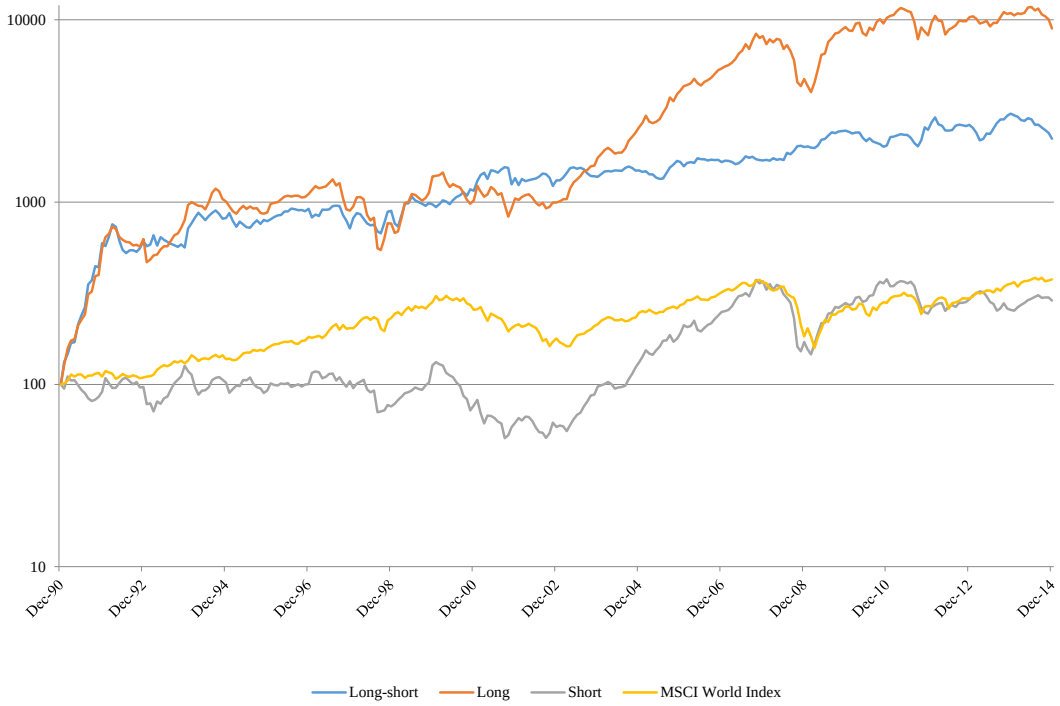


Figure 5 shows the cumulative return of the price-to-book strategy over the sample period January 1991 till December 2014. Around 2004 we observe increasing returns for the short portfolio. We can as well observe a steep decline in cumulative returns for the long as well as short portfolio around the start of Global Financial Crisis in 2008. The price-to-book quartile portfolio returns are as well benchmarked to the MSCI World Index. The MSCI World Index clearly trails the returns of the zero-investment strategy.

Table 3: Risks and Returns Value Strategy

Table 3 shows the summary statistics of the price-to-book portfolio returns, the long – short return, the return of the equally weighted emerging market index (EW Index) and the MSCI World Index. The table includes the average returns, standard deviation, downside deviation, correlation with the MSCI World Index, the worst return, the month of the worst return and the Sharpe Ratio. The Long, Q2, Q3 , Short are the quartile portfolios with Long including the low price-to-book countries and Short the high price-to-book countries.

	Long	Q2	Q3	Short	Long/Short Return	Long/Short Return After T-Cost	EW Index	MSCI World Index
Average Returns	1.92%	1.26%	-0.11%	0.61%	1.30%	1.03%	1.36%	0.56%
(t-value)	*(3.87)*	*(2.67)*	*-(0.22)*	*(1.50)*	*(3.22)*	*(2.53)*	*(3.53)*	*(1.65)*
Standard deviation	8.44%	8.00%	8.43%	6.92%	6.87%	6.88%	6.52%	4.60%
Downside deviation	5.66%	5.53%	6.91%	5.00%	3.38%	3.38%	4.99%	3.52%
Correlation	62.36%	58.62%	51.59%	62.18%	13.77%	13.21%	73.95%	100.00%
Worst Return	-31.94%	-32.38%	-35.25%	-30.20%	-18.65%	-18.65%	-30.06%	-19.51%
Worst Return	Aug-98	Oct-08	Oct-08	Oct-08	Nov-01	Nov-01	Oct-08	Oct-08
Sharpe Ratio	0.69	0.44	-0.14	0.19	0.54	0.40	0.59	0.24

As mentioned earlier, emerging markets are less liquid and developed. This could make it more expensive to implement certain investment strategies. To take into account the possibility of transaction costs, in this thesis the long-short returns are calculated assuming transaction costs of 1% per trade. Even with transaction costs of 1% per trade this strategy delivers a significantly positive average monthly return of 1.03%, which amounts to a 12.36% annualized return.

To make the results of this study more interesting to investors I examined the risk of the value strategy. Table 3 gives more information regarding the risk-return trade-off of this strategy. Table 3 shows the average returns, standard deviations, downside deviation, correlation with the MSCI World index, worst return and month of the worst return for the different price-to-book portfolios, the long-short portfolio, the long-short portfolio after transaction costs, the equally weighted emerging equity market index and the MSCI world index. The long (low price-to-book portfolio) seems to be riskier than the short (high price-to-book) portfolio on the basis of standard deviation and downside deviation. By means of correlation with the MSCI World Index and worst return we cannot observe big difference in risk between the two strategies.

More interesting is comparing the long-short portfolio to the EW Index and the MSCI World Index. Return wise we observe significantly positive average monthly returns for the long-short portfolio, the EW Index and the MSCI World Index (1.30% vs. 1.36% vs. 0.56%). Risk wise we observe the long-short portfolio having the highest standard deviation but the lowest downside deviation. The correlation with the MSCI World Index is considerably lower for the long-short portfolio compared to the EW Index (13.22% vs. 73.95%). As well the worst return is considerably lower for the long-short portfolio compared to the EW Index and the MSCI World Index (-18.65% vs. -30.06% vs. 19.51%).

Lastly, as well from the perspective of the Sharpe ratio the zero-investment portfolio seems to be an attractive investment. The portfolio of low price-to-book countries (Long portfolio) results in a higher Sharpe ratio but we as well observe a considerably higher worst returns and correlation with the MSCI World Index. The EW Index provides as well a slightly higher Sharpe ratio but worst return and correlation with the MSCI World Index makes it a less interesting investment opportunity compared to the zero investment portfolio.

To summarize, for investor who are invested in the MSCI World Index, the zero-investment portfolio seems to be a good addition. It provides additional diversification benefits and an attractive annualized return of 15.60%. But as well on a stand-alone basis, the value strategy seems to be an interesting investment opportunity with returns comparable to the Emerging Market index and more than double return on the MSCI World market. While at the same time being attractive from a risk point of view with relatively good-looking downside deviation, worst return and Sharpe ratio.

5.Explanation for the Value Premium

5.1 Exposure to global risk factors

As pointed out earlier, there is no consensus regarding the explanation for the value premium. According to amongst others Fama and French (1992, 1996) the value premium is a compensation for risk. Compared to the size premium, the value premium does not fade over time (Kiku, (2006)). Although we found the value premium to be less strong in the second half of the sample, assuming that the value premium stays relatively stable makes a risk based explanation more likely. The value premium could simply be a return required for taking on higher systematic risk. If this is true, the value premium could just be a compensation for the increased risk taken by investors. Although, it is important to note that the results in Section 4 showed a significantly positive value premium during the global financial crisis which tends to make a risk based explanation less likely.

By running linear regressions of the price-to-book excess returns on the MSCI World Index excess returns it could be tested whether the value premium is just a compensation for increased risk taken by investors:

$$R_t - R_{Ft} = \alpha + b_1(R_{Mt} - R_{Ft}) + e_t$$

R_t = return on the quartile portfolio month t

R_{Ft} = risk free rate

α = alpha of the quartile portfolio

b_1 = beta of the quartile portfolio

e_t = normally distributed error term

Table 4: Regressions of Excess Returns on MSCI World Index

Table 4 shows the results of regressing the price-to-book portfolio excess returns, equally weighted emerging market index (EW Index) and the Long-Short portfolio excess returns on the MSCI World Index. The Long, Q2, Q3 , Short are the quartile portfolios with Long including the low price-to-book countries and Short the high price-to-book countries.

	Long	Q2	Q3	Short	Long/Short Return	Long/Short Return After T-Cost	EW Index
Alpha	1.32%	0.69%	-0.65%	0.07%	1.24%	0.97%	0.78%
(t-value)	*(3.37)*	*(1.81)*	*-(1.52)*	*(0.23)*	*(3.07)*	*(2.39)*	*(3.00)*
Market Beta	1.14	1.02	0.94	0.94	0.20	0.19	1.05
(t-value)	*(13.44)*	*(12.21)*	*(10.11)*	*(13.48)*	*(2.26)*	*(2.16)*	*(18.61)*
R Squared	38.71%	34.26%	26.32%	38.85%	1.75%	1.60%	54.76%

Table 4 shows that the market beta of the long portfolio is 1.14, which is indeed higher than market beta of the short portfolio (0.94) and the market beta of the EW Index (1.05). Nevertheless, the alpha of the long portfolio is 1.32% and significant at the 5% level. Furthermore, the beta of the long-short portfolio is only 0.20 but significant. And finally, we only observe a 1.75% R Squared of the beta-regression for the long-short strategy. So the value premium does not seem to be explained by differences in exposure to the MSCI World Index beta. These results are in line with the findings of Kouwenberg and Salomons (2005).

In a second effort to try to explain the value premium, I will regress the price-to-book excess returns on the Fama and French (2015) five-factor model using the size, value, operating profitability and investment factor for the Global Developed markets:

$$R_t - R_{Ft} = \alpha + b_1(R_{Mt} - R_{Ft}) + b_2 SMB_t + b_3 HML_t + b_4 RMW_t + b_5 CMA_t + e_t$$

SMB = size factor (small minus big)

HML = value factor (high minus low book-to-market)

RMW = operating profitability factor (Robust minus Weak)

CMA = Investment factor (Conservative minus Aggressive)

Table 5: Regressions of Excess Returns on the Fama and French 5-factor model

Table 5 shows the results of regressing the price-to-book portfolio excess returns, equally weighted emerging market index (EW Index) and the Long-Short portfolio excess returns on the MSCI World Index excess returns, the Fama and French Size factor, Value factor, Operating Profitability factor and the Investment factor. The Long, Q2, Q3, Short are the quartile portfolios with Long including the low price-to-book countries and Short the high price-to-book countries. The data used for this graph spans from January 1991 till December 2014.

	Long	Q2	Q3	Short	Long/Short Return	Long/Short Return After T-Cost	EW Index
Alpha	1.28%	0.84%	-0.74%	0.19%	1.03%	0.76%	0.79%
(t-value)	*(3.20)*	*(2.16)*	*-(1.71)*	*(0.59)*	*(2.40)*	*(1.77)*	*(3.15)*
Market Beta	1.05	0.87	0.84	0.83	0.24	0.23	0.16
(t-value)	*(10.12)*	*(8.62)*	*(7.46)*	*(9.83)*	*(2.17)*	*(2.09)*	*(14.79)*
SMB Beta	0.70	0.74	0.80	0.55	0.28	0.29	0.72
(t-value)	*(3.44)*	*(3.74)*	*(3.63)*	*(3.33)*	*(1.26)*	*(1.32)*	*(5.63)*
HML Beta	0.65	0.65	0.86	0.27	0.30	0.29	0.52
(t-value)	*(2.54)*	*(2.61)*	*(3.12)*	*(1.31)*	*(1.11)*	*(1.04)*	*(3.24)*
RMW Beta	0.05	-0.43	0.15	0.01	0.20	0.18	-0.02
(t-value)	*(0.17)*	*-(1.47)*	*(0.45)*	*(0.05)*	*(0.62)*	*(0.55)*	*-(0.13)*
CMA Beta	-1.08	-1.08	-1.33	-0.99	-0.09	-0.07	-0.98
(t-value)	*-(3.38)*	*-(3.49)*	*-(3.84)*	*-(3.79)*	*-(0.27)*	*-(0.21)*	*-(4.89)*
R Squared	41.96%	39.32%	30.57%	42.93%	3.10%	2.96%	60.56%

As Table 5 shows, for the market beta, SMB beta, HML beta and RMW beta, we observe higher values for the long portfolio compared to the short portfolio. For the CMA beta we observe a lower negative beta. Still, we observe a significantly positive alpha for the long short return of 1.03%, while the R-squared shows that only 3.10% of the return variance can be explained by the Fama and French 5-factor model. Even when I take into account transaction costs we still observe an alpha of 0.76%, although this alpha is only significant at the 10% level. These results show that exposure to global risk factors cannot clarify the value premium in emerging markets fully, but only to a small extent. These results are in line with the results in Section 4, during the global financial crisis we still observed a positively significant and strong value premium which would make a risk based explanation less likely.

Table 6: Regressions of Excess Returns on the Fama and French 5-factor model

Table 6 shows the results of regressing the price-to-book portfolio excess returns, equally weighted emerging market index (EW Index) and the Long-Short portfolio excess returns on the MSCI World Index excess returns, the Fama and French Size factor, Value factor, Operating Profitability factor and the Investment factor. The Long, Q2, Q3, Short are the quartile portfolios with Long including the low price-to-book countries and Short the high price-to-book countries. The data used for this graph spans from January 2003 till December 2014.

	Long	Q2	Q3	Short	Long/Short Return	Long/Short Return After T-Cost	EW Index
Alpha	1.09%	0.42%	-1.23%	0.44%	0.57%	0.28%	0.83%
(t-value)	*(3.18)*	*(0.89)*	*-(1.82)*	*(1.24)*	*(1.56)*	*(0.77)*	*(3.16)*
Market Beta	1.01	0.85	0.70	0.90	0.06	0.06	0.16
(t-value)	*(12.31)*	*(7.66)*	*(4.34)*	*(10.67)*	*(0.68)*	*(0.73)*	*(15.41)*
SMB Beta	0.53	0.48	1.09	1.03	-0.36	-0.35	0.70
(t-value)	*(2.45)*	*(1.63)*	*(2.57)*	*(4.60)*	*-(1.59)*	*-(1.56)*	*(4.26)*
HML Beta	0.44	0.49	0.92	0.29	0.33	0.27	0.29
(t-value)	*(1.74)*	*(1.42)*	*(1.88)*	*(1.11)*	*(1.26)*	*(1.01)*	*(1.51)*
RMW Beta	-0.12	-0.79	0.22	0.67	-0.56	-0.58	0.23
(t-value)	*-(0.34)*	*-(1.69)*	*(0.33)*	*(1.88)*	*-(1.56)*	*-(1.62)*	*(0.87)*
CMA Beta	-0.94	-1.36	-1.96	-0.80	-0.17	-0.09	-1.00
(t-value)	*-(2.97)*	*-(3.14)*	*-(3.14)*	*-(2.43)*	*-(0.52)*	*-(0.27)*	*-(4.13)*
R Squared	70.36%	53.77%	31.96%	61.98%	5.96%	5.45%	76.82%

Table 6 shows the results for the regressions of excess returns on the Fama and French 5-factor model for the period January 2003 till December 2014. As could be seen in Figure 1 and 3, big differences are observed in the strength of the value premium between the period January 1991 – December 2014 and the period January 2003 – December 2014. This made it interesting to split the regressions as well into these two periods. And as expected we observe quite some different results in Table 6 compared to Table 5. The alpha of the long short return almost halved from 1.03% to 0.57% and is not significant anymore, while the R-squared increased from 310% to 5.96%. In Table 5 we observe higher values for the market beta, SMB beta, HML beta and RMW beta, for the long portfolio compared to the short portfolio. In Table 6

could be observed that for the SMB factor the beta for the short portfolio is around double compared to the beta for the long portfolio. Lastly, all alpha's seem to have decreased in value except for the alpha of the short strategy, thought the alpha of the short strategy is not significant. And as expected, the alpha of the equally weighted emerging market index has been relatively stable over time. The results seem to be in line with the results in Figure 1 and 3. We have seen the returns of the long short strategy in Figure 3 (January 2003 – December 2014) decrease to 0.44% from 1.30% (January 1991 – December 2014). By comparing Table 5 and 6 we see the alpha of the long short strategy decrease from 1.03% (significant, January 1991 – December 2014) to 0.57% (insignificant, January 2003 – December 2014).

5.2 Value premium and Local Macroeconomic Risk

Despite the intense globalization observed over the past decades, Bekaert and Harvey (2014) argue that it is still legitimate to separate global equity markets in "emerging" and "developed" markets. They argue that the integration process of emerging markets into world markets is incomplete. To further discover the explanation of the value premium in emerging markets, this section will focus on local macroeconomic risk factors. The exposure of the value premium to local macroeconomic variables is tested by linking the value premium to these variables..

Several attempts to link the returns in emerging markets to global as well as local macroeconomic variables can be found in the literature. Among others, Harvey (1995) linked the value premium to world economic growth, oil prices, trade weighted exchange rates and world inflation. Kuwornu and Owusu-Nantwi (2011) studied the relationship between the consumer price index (inflation), 91 day treasury bill rate (interest rate), exchange rate and the crude oil price for Ghana, a country outside the scope of this thesis. The data used by Kuwornu and Owusu-Nantwi (2011) spans from January 1992 to December 2008, a range close to the one used in this thesis. They found a significant relationship between stock market returns in Ghana and the consumer price index, 91 days treasury bill rate and exchange rate. This relationship was positive for the consumer price index and negative for the 91 days treasury bill and exchange rate. A significant relationship between stock market returns and oil prices was not found. Singh et al. (2011) studied the relationship between stock market returns and macroeconomic factor for the Taiwanese market for the period of January 2003 to December 2008. According to Singh et al. (2011), inflation, exchange rate and interest rate are the variables affecting stock markets as they directly impact corporate activity in the country. The macroeconomic variables used by Singh et al. (2011) are inflation, GDP, money supply, employment rate and return on the 50 listed companies of the Taiwan 50 index. They constructed portfolios on price earnings ratio, yield and price-to-book ratio. Singh et al. (2011) found a negative relationship between price-to-book ratio and employment rate, a positive relationship between price-to-book ratio and

exchange rates, a positive relationship between price-to-book ratio and GDP except for small companies, a positive relationship between price-to-book ratio and inflation except for small companies, finally, a negative relationship between price-to-book ratio and money supply.

Generally, the indicators for assessing the performance of the economy are real economic growth, rate of inflation, fiscal and debt position and the exchange rate (Singh et al., (2011)). According to Agenor et al. (2000), large fiscal deficits, high inflation and real exchange rate over-valuation are key indicators of macroeconomic instability. As far as economic growth is concerned, higher economic growth is expected to generate lower investment risk and equity returns and is therefore likely to cause valuation ratios to be higher. The local macroeconomic variables tested in this thesis are real GDP growth and inflation. This are not the only variables interesting to research though these are the variables most strongly affecting the performance of an economy according to the literature.

The first local macroeconomic variable tested is real GDP growth. There is a wide variety of papers studying effect of economic growth on stock markets. As already stated earlier, higher economic growth is expected to generate lower investment risk and higher equity returns and is therefore likely to cause valuation ratios to be higher. Moreover, it is as well interesting to look at the link between stock market development and economic growth. Caporale et al. (2004) found, using a sample of seven countries, that well-functioning stock markets can boost economic growth in the long run. Faster capital accumulation and better resource allocation would spur this economic growth.

The second local macroeconomic variables tested is inflation. Malkiel (1982) found a negative relationship between stock market prices and inflation. This relationship could be explained by the tendency of high inflation to increase interest rates causing lower stock prices. It could as well diminish stock prices for companies like public utilities depressing their stock prices. According to Omran and Pointon (2001), inflation correlates negatively with stock market returns, market activity and liquidity.

5.3Testing the link between the value premium and local macroeconomic risk

The link between the value premium and local macroeconomic risk could be tested by estimating an APT model. As noted by Kouwenberg and Salomons (2005) this can cause a few problems. First of all, the time-lag publication of variables such as GDP growth and inflation varies across countries. Moreover, the APT model takes current expectations into account, new macroeconomic information then causes the security market to respond. In accordance with Kouwenberg and Salomons (2005) this thesis does not intend to test a formal asset pricing model. The question this thesis will try to answer is:

Do we observe a significant difference in the above mentioned macroeconomic variables for countries with a high book-to-market ratio compared to countries with a low book-to-market ratio?

Specifically, do low book-to-market countries have more favorable macroeconomic conditions compared to high book-to-market ratios, and thus lower macro-economic risk.

Table 7: The macroeconomic conditions in the long and short portfolio countries

Table 7 shows the conditions of important local macroeconomic variables for the long and short portfolio countries. Local macroeconomic variables showed in this table are real GDP growth and inflation. It shows the local macroeconomic conditions for the long portfolio, the short portfolio and for the long/short portfolio. Moreover, this table shows the t-value for average difference in exposure between the long and short quartile portfolios. The results are shows over the sample period January 1991 – December 2014.

Macroeconomic variable	Long	Short	Long/Short	T-Value
At Portfolio Formation				
Real Growth	3.56%	5.31%	-1.75%	-8.70
Inflation	76.26%	11.69%	64.57%	3.77
36 Months After Portfolio Formation				
Real Growth	1.86%	2.03%	-0.18%	-1.12
Inflation	25.43%	4.60%	20.83%	1.27

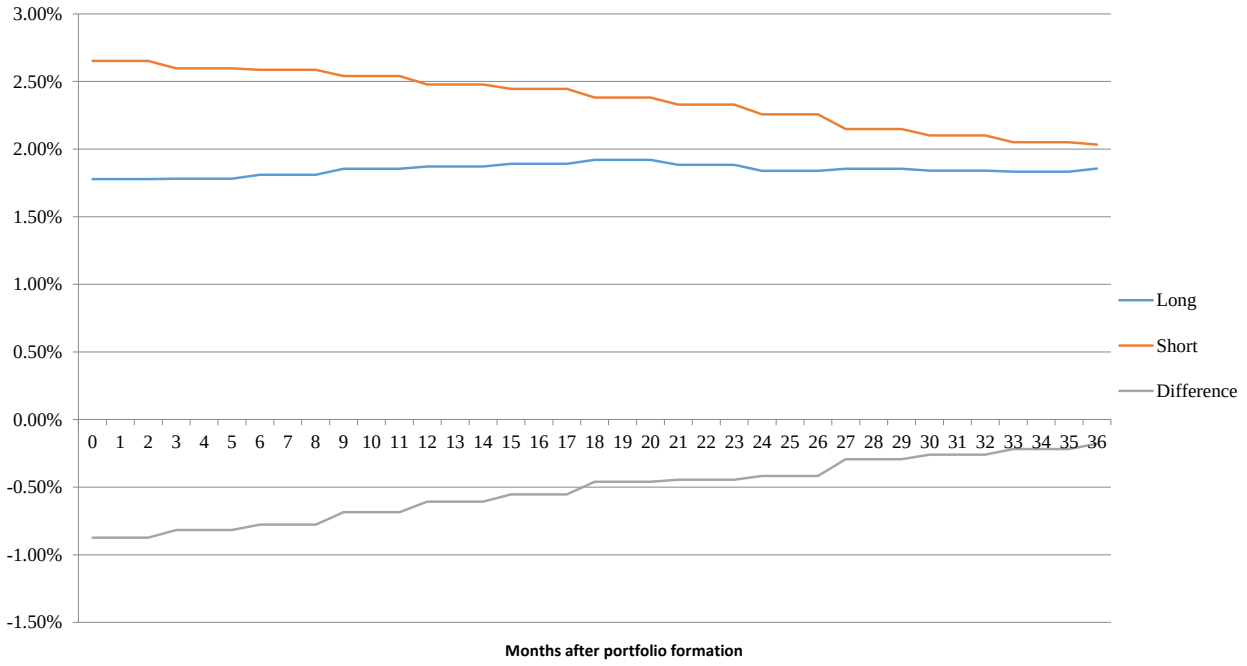
Table 7 shows that countries with low price-to-book ratios have on average lower real GDP growth and higher inflation than countries with high price-to-book ratios during the sample period January 1991 – December 2014. It seems that countries with low price-to-book ratios are macroeconomic losers and countries with high price-to-book ratios are macroeconomic winners. These results are in line with the results found by Kouwenberg and Salomons (2005).

Kouwenberg and Salomons (2005) found that after portfolio formation, the macroeconomic conditions between the low price-to-book countries and the high price to book countries converge. To test whether this is still the case for the longer sample period January 1991 – December 2014, I calculated the average of the local macroeconomic variables real growth and inflation 36 months after the formation of the portfolio. As can be seen in Table 7, the differences between the low price-to-book portfolio real growth and inflation and the high price-to-book portfolio real growth and inflation is clearly lower. Figure 6 provides a clear picture of the development of the real GDP growth from the start of portfolio formation till 36 months after. The countries in the low price-to-book portfolio "Long" have clearly lower average real GDP growth compare to the countries in the high price-to-book portfolio "Short". In line with the results found by Kouwenberg and Salomons (2005), we observe the growth rates to revert to the mean. After 36

months the difference between real growth rates for the low price-to-book countries is almost equal to the real growth rates for the high price-to-book countries.

Figure 6: Average real GDP Growth 36 month development

Figure 6 shows the development of the real average real GDP growth for the countries in the low price-to-book portfolio, the countries in the high price-to-book portfolio and the zero-investment portfolio. The starting time is the moment of portfolio formation and ends 36 months later (3 year).



6. Relation to size anomaly and other checks

This section of the thesis will compare the returns of the size anomaly and the value anomaly. Moreover, it will look at alternative value measures price-earnings ratio and dividend yield. To test the different strategies, the same method as used in Section 4 will be used. The countries will be ranked according to their price-to-book ratio, price earnings ratio, market value and dividend yield at the end of each quarter. Then four portfolios will be constructed consisting of equally weighted portfolios of the emerging countries in each of the four price-to-book quartiles. During the next three months the returns of each portfolio will be reported. After these three months, the portfolios will be rebalanced according to their price-to-book ratios and start the process again. Table 8 shows the risk and return relationship for the different strategies.

Table 8: Risk and Return value and size strategies

Table 8 shows average monthly returns of the three different zero-investment strategies. The strategies are based on the price-to-book (P/B) factor, the price-earnings (P/E) factor, the size factor (market value) and the dividend yield (D/Y) factor. The table shows the average returns, standard deviation, downside deviation, worst return, month of worst return and the Sharpe ratio. For the different factors I constructed equally weighted quartile portfolios, and all portfolios are rebalanced on a quarterly basis. The results are for the sample period April 1993 – December 2014. Shortening of the sample period is caused by missing data for the price-earnings strategy and the dividend yield strategy. To make the results comparable I use the same sample period for all strategies.

	P/B ***Low - High***	**P/E** ***Low - High***	**Market Value** ***Low - High***	**D/Y** ***Low - High***
Average Returns ***(t-value)***	0.61% *(1.82)*	1.47% *(3.50)*	0.05% *(0.15)*	0.42% *(1.02)*
Standard deviation	5.42%	6.80%	5.12%	6.72%
Downside deviation	3.20%	3.96%	3.95%	3.72%
Worst Return	-18.65%	-27.33%	-26.93%	-18.89%
Worst Month	Nov-01	Nov-01	Nov-01	Nov-11
Sharpe Ratio	0.25	0.63	-0.12	0.10

Return wise, the price-earnings zero-investment strategy seems to be the most attractive investment opportunity. From a risk perspective the strategy seems interesting too, providing investors with the highest Sharpe ratio. However, we observe as well the highest standard deviation, downside deviation and worst returns among all strategies. Since price-earnings is just an alternative value measure the big difference in return compared to the price-to-book strategy seems odd. An explanation for this difference lies outside the scope of this thesis. The dividend yield zero-investment strategy shows a risk return relationship relatively

comparable to the price-to-book strategy. However, from a risk return perspective seems the price-to-book strategy the more attractive option. The dividend strategy provides investors with a lower monthly average return, higher standard / downside deviation, lower worst returns and Sharpe ratio. The monthly average return for the dividend yield strategy is as well not distinguishable from zero.

The size zero-investment strategy does not seem attractive. Over the period April 1993- December 2014, it provides an insignificantly positive returns of 0.05%. The Sharpe ratio tells as well a negative story as could be observed in Table 8. These findings are consistent with the academic literature. Fama and French (2012) used a dataset ranging from November 1989 till March 2011 consisting of 23 developed markets and found no size premium. However, Fama and French (2012) did find a value premium ranging from 0.33% per month for the United States to 0.62% for Asia Pacific.

It is as well important to note that the average return of the price to book strategy is not significant over the period April 1993 till December 2014. In Section 4 a significantly positive value premium of 1.30% (average monthly return) was observed over the period January 1991 – December 2014. This value premium more than halved to 0.61% and became insignificantly different from zero over the period April 1993 – December 2014. This suggests that a major part of the initial outperformance is achieved in the period January 1991 – February 1993. This makes it interesting for further research to look into the period before 1991 and compare the period 1991-1992 with the period before and after this period.

Table 9: Correlations between value and size strategies

Table 9 shows the correlations between monthly average returns of the different value and size strategies. The strategies are based on the price-to-book (P/B) factor, the price-earnings (P/E) factor, the size factor (market value) and the dividend yield (D/Y) factor. For the different factors I constructed equally weighted quartile portfolios, and all portfolios are rebalanced on a quarterly basis. The results are for the sample period April 1993 – December 2014. Shortening of the sample period is caused by missing data for the price-earnings strategy and the dividend yield strategy. To make the results comparable I use the same sample period for all strategies.

	P/B ***Low - High***	**P/E** ***Low - High***	**Market Value** ***Low - High***	**D/Y** ***Low - High***
P/B ***Low - High***	100.00%	28.13%	0.63%	1.55%
P/E ***Low - High***	28.13%	100.00%	22.77%	-15.83%
Market Value ***Low - High***	0.63%	22.77%	100.00%	-17.13%
D/Y ***Low - High***	1.55%	-15.83%	-17.13%	100.00%

Table 9 shows the correlation between the different zero-investment strategies. The highest correlation (r = 28.1%) observed is between the price-to-book strategy and the price-earnings strategy. Since these are two alternative measures for value we would expect a positive correlation. Since dividend yield is as well an alternative measure of value we would expect similar results for the dividend yield strategy. As stated by Kouwenberg and Salomons (2005), the poor performance of the dividend yield strategy could be explained by a differing payout ratio and tax treatment of dividends in the different countries. Finally, we observe as well a very low correlation between the monthly average returns of the price-to-book strategy and the size factor.

To conclude, from a risk return perspective the price-to-book value strategy and the price-earnings strategy both seem attractive investment opportunities on the basis of the zero-investment strategy over the year April 1993 – December 2014. The size anomaly seems to have faded away since we do not find an average monthly return significantly higher than zero. The dividend yield strategy seems a less attractive value strategy from the perspective of the risk return relationship and the positive 0.42% monthly average return is not significantly distinguishable from zero.

7. Suggestions for further research

As noted earlier, the list of local macroeconomic variables used in this thesis is not exhaustive though these are the variables most strongly affecting the performance of an economy according to the literature. It would be interesting to test more local macroeconomic variables and try to explain an even bigger portion of the value premium in emerging markets. Next to that, this thesis used a limited amount of emerging countries. Time and resource constraints forced me to make a decision on the countries to include. The list of countries in this thesis includes the biggest and more liquid emerging markets in order to make this thesis relevant for emerging market investors. High transaction costs and other restriction can make it hard to implement this country selection strategy with smaller equity markets.

Another interesting addition to this research will be to look at differences between the countries in this thesis and see whether this premium is overrepresented in certain markets. If big differences between the different countries are observed it would be interesting to look at the cause of these differences. This information could point into a certain direction and possibly make it possible to better understand the value premium in general.

It would as well be interesting to have a deeper look into the years after the financial crisis. Unusually low and even negative interest rates are observed in several developed markets like the United State, Europe and Japan. This has resulted in a big hunt for yield among investors. Large sums of money have entered emerging market equity funds and emerging market bonds. It would be interesting to have a deeper look into the consequences of this hunt for yield and the effects for the value premium in emerging markets.

In Section 4 a significantly positive value premium of 1.30% was found over the period January 1991 – December 2014, while in Section 6 over the period April 1993 – December 2002 we found an insignificant value premium of 0.61%. This suggest that the majority of the outperformance is concentrated in the period January 1991 – February 1993. This is something which definitely deserves more attention in future research.

Lastly, I took a deeper look into the explanation for the differences between the average monthly returns for the different value strategies, price-to-book ratio, price-earnings ratio and dividend yield ratio. As well, a more extensive analysis of the connection between the different anomalies would be an interesting addition to this research.

It is clear that more research needs to be done into the value premium in emerging market. For a big part this premium still remains a puzzle for developed as well as developing countries. This thesis tried to find pieces of this puzzle in the less researched emerging markets. By extending this work more pieces of this puzzle should be found and the value premium will become more and more explained.

8. Conclusion

For a number of reasons, research into emerging markets increased substantially in the past two decades. Emerging markets contain the majority of the world's population and earth's surface. Additionally developed markets trail emerging markets in terms of economic growth. This thesis tried to contribute to the academic literature regarding the value premium in emerging markets. The value premium in emerging markets has not been researched extensively. Amongst others, Achour et al. (1998), Rouwenhorst (1999), Barry et al. (2002), Drew & Veeraraghavan (2002), Van der Hart (2003) and Kouwenberg and Salomons (2005), Lischewski and Voronkova (2010) and Cakici et al. (2013), confirmed the existence of the value premium in emerging markets.

This thesis confirms the existence of the value premium in emerging markets in line with previous research. The zero-investment portfolio, going long in the low price-to-book countries and going short in the high price-to-book countries, delivers an average monthly return of 1.30%, which amounts to a 15.6% annualized return. This is the average monthly return over the sample period January 1991 – December 2014. However, in Section 6 the value premium was tested over the period April 1993 – January 2014 and an insignificant value premium of just 0.61% (average monthly return) was found. This suggests that a major part of the initial outperformance is achieved in the period January 1991 – February 1993. By using a shortened sample period ranging from January 1991 – December 2002 a stronger value premium was found. Over this sample period, the zero-investment portfolio delivers an average monthly return of 2.16%, which amounts to a 25.92% annualized return. However, over the period January 2003 till December 2014, the long-short portfolio is, as expected, not significantly different from zero anymore. We observe a value premium of 0.44% per month on average which annualizes to 5.28% per year. These results show that the value premium has clearly weakened over time.

The second aim of this thesis was trying to find an explanation for the value premium in emerging markets. I first tried to explain the value premium by their exposure to global risk factors. By running linear regressions of the price-to-book excess returns on the MSCI World Index excess returns this thesis tests whether the value premium is not just a compensation for the increased risk taken by investors. The value premium cannot be explained well by regressions of the zero-investment excess returns on the MSCI World Index excess returns, using a simple market model (inspired by the CAPM). In a second effort to try to explain the value premium, I regressed the price-to-book excess returns on the Fama and French (2015) five factor model. These results show again that exposure to global risk factors cannot clarify the value premium in emerging markets. The results in Section 4 showed a significantly positive value premium during the global financial crisis which tends to make a risk based explanation as well less likely. Lastly, since I find a clear difference in the strength of the value premium between the period January 1991 –

December 2014 and the period January 2003 – December 2014, I split the regressions as well into these two periods. And as expected I observe quite some different results. The alpha of the long short return almost halved from 1.03% to 0.57% and is not significant anymore.

A second way of trying to explain the value premium is looking at macroeconomic variables. Table 6 shows that countries with low price-to-book ratios have on average lower real GDP growth and higher inflation than countries with high price-to-book ratios during the sample period January 1991 – December 2014. Hereby, I concluded that countries with low price-to-book ratios are macroeconomic losers and countries with high price-to-book ratios are macroeconomic winners. This is in line with results found in previous studies. This thesis found as well that after portfolio formation, the macroeconomic conditions between the low price-to-book countries and the high price to book countries converge. After 36 months the difference between real growth rates for the low price-to-book countries is almost equal to the real growth rates for the high price-to-book countries.

This thesis finally compared the value strategy to the size strategy and analyzed differences between alternative value measures. From a risk return perspective the price-to-book value strategy and the price-earnings strategy both seem attractive investment opportunities on the basis of the zero-investment strategy over the year April 1993 – December 2014. The size anomaly seems to have faded away since we do not find an average monthly return significantly higher than zero.

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10. Appendix

10.1 Macroeconomic data

The dataset used to measure the return of emerging equity markets, dividend yields, price-to-book ratios, price-earnings ratios markets is obtained from the Standard & Poor's and International Financial Corporation Investable indices (S&P/IFCI).

The International Financial Statistics (IFS) database from the International Monetary Fund is used to retrieve macroeconomic variables. When confronted with missing data or periods of unavailable IFS real GDP data, data is obtained by interpolating the annual IFS GDP data. When necessary, the dataset in complemented with GDP data from official government sources.

Except for Taiwan, the macroeconomic data comes from the International Financial Statistics (IFS) database of the International Monetary Fund. The inflation and quarterly real economic growth data for Taiwan comes from the Directorate General of Budget, Accounting and Statistics, Taiwan (http://www.dgbas.gov.tw).

For real GDP growth I retrieved quarterly data from the International Statistics if available. I used annual data when quarterly data was not available. I interpolated the annual observations, so for example for the real GDP growth in India for 2005 Q1 is (0.75* real GDP growth 2004) + (0.25*real GDP growth 2005).