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TESTING VALUE INVESTING STRATEGIES
AND ANALYZING THEIR CHARACTERISTICS:
EVIDENCE FROM NORTH AND LATIN AMERICA

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ABSTRACT

This thesis aims to study performance of value stocks and compare results from Latin and North America. These are compared to understand how these markets differ, and how value stock returns and behaviour differ between these emerging and developed economies. This research provides value due to the low amount of value investing research performed with Latin American data. Even previously performed research might not be valid anymore due to quick evolvement of the market during the 21st century. Latin America provides an interesting setting for a study due to its unique characteristics that include location, similar cultures and strong economic growth.

Main part of the thesis is to perform research with price-to-book, size, sales-to-price, dividend ratio, price-to-cashflow, and with price-to-earnings ratio to test their effectiveness in these markets during given timeframe from the year 2000 till the end of 2013. Best performing ratios are then studied further to understand their performance and possibly to see how they could be improved. Given results are used to understand best investment ratios, how Latin and North American markets differ and if one or the other should be preferred. Detailed look is also given to behavioural finance theories and specifics of economic development of American markets to understand their development and future possibilities and challenges.

Results show strong performance from size and price-to-sales strategies in American continents. Deeper study into these strategies reveals market capitalization is an important part of the success of companies as small companies are a vital part of sales-to-price strategy's success as well. Correspondingly long-term holding periods of over five years are generally better performing. It also becomes clear that using one ratio to group stocks is efficient enough with large groups that are then likely to contain a small number of outperforming stocks that bring majority of returns. To form small portfolios investor is likely better off if he avoids strict ratio based picking strategies, but use one effective ratio to group the stocks and then eliminate stocks with the worst factors, by using criteria such as market outlook and quality of management.

KEYWORDS: Value investing, behavioral finance, economic development, Latin America, North America

1. INTRODUCTION

1.1. Background and Motivation

Motivation to write this thesis was found as I was writing my bachelor's thesis based on value investing research. Then I noticed that only a very scarce amount of research exists that has looked at Latin America. Then I understood that I could most benefit value investing community by performing value investing research with Latin American data. By studying how emerging Latin American economies and developed North American economies compare in terms of economic development, and how value investors would have performed during the same time frame. By using simple stock picking strategies this thesis offers new and more up-to-date information to investors that are interested of Latin America and value investing.

Latin American market is interesting due to its unique characteristics. Firstly, there exists a very small number of published papers that have focused on Latin America and value investing. Therefore this thesis should provide useful and up-to-date information to anyone interested. Secondly, due to cultural, historical and linguistic similarities, Latin America is a unique area containing multiple countries that are more similar than perhaps any other group of countries anywhere else in the world. Then there exists many other interesting factors such as large young populations that are critical for a successful future. Thirdly, distance to the United States, to the country that has for decades been the world's economic and military leader, is unique compared to most developed economies or any emerging economy outside the Latin America. These three points summarize why emerging Latin American economies are very interesting to follow in the future.

This thesis is assembled by using information from three key areas: (I) Country specific indicators to understand how these countries have evolved from 2000 to 2013, what is their current situation and what challenges they still have in their future. (II) Behavioural finance theory is added because it is a valuable part to explain why value investing works. (III) Research is performed by using stock data from these countries to test multiple value investing strategies to see what methods provide the best returns and how emerging and developed market returns differentiate. I also analyze best performing strategies to try to understand if and how stock selection process could be

improved. As a conclusion I can determine (I) if emerging markets have outperformed developed and supposedly safer North American markets and therefore investor should prefer one market over the other, or aim to form a combined portfolio. (II) What are the best value investing strategies based on the data and what reasons there might be for their success.

Hypotheses are kept simple, yet important as they have not been actively studied in Latin American surroundings. (I) Value groups beat growth groups. (II) Emerging markets provide higher returns. (III) Longer investment period is more profitable than a shorter one. (IV) When grouping of a single ratio strategy is analyzed, it will reveal supporting behaviour from other ratios as well. These are explained to finer detail in chapter 5.

When I write Latin America I typically refer to Argentina, Brazil, Chile, Colombia, Mexico and Peru. Latin America contains many other countries as well, but those countries are chosen to be included in this thesis because they represent most of Latin American GDP, population and cumulative stock market. These countries are then compared with the United States and Canada. This comparison is done to better understand how these emerging and developed markets differentiate from each other. Research is performed by using multiple simple value investing strategies that are possible for any investor. This thesis focuses on 2000-2013 period because earlier periods cannot truthfully represent current situation of quickly changing emerging markets.

1.2. Structure of the thesis

First chapter explains motivation to do this research and explains what are the main supporting pillars for this thesis. I also go through the structure of the whole thesis, difficulties faced with such work and I end chapter one by defining most used terms associated with such studies. Chapter two moves on to actually explain what is meant by value investing and goes through most relevant value investing research to give the reader a strong understanding of the research that supports modern understanding of value investing. Most of the research papers mentioned are from the 1990's showing how this decade was an important step for value investing research to evolve to the stage where it is now. Chapter two ends by looking at riskiness of value stocks.

After explaining the concept of value investing text moves to look at details of the eight countries this thesis focuses on. This is done by the help of many different indicators such as GDP growth and education levels to comprehend the already happened change, their current situation, and to make conclusions of their future. Conclusions for this chapter can be taken from many points of view considering the many pieces of information handled.

Next, in chapter four main theories of traditional finance and behavioral finance are explained to gain stronger fundamental knowledge of the reasons that are typically used to explain why value investing works. This psychological aspect is important to better understand why markets behave as they do and value investing can be expected to work in the future as well. After that text moves to the actual research explaining my methodologies and going through my empirical results and their meaning. Research is performed by using six ratios. After testing these strategies I continue to study few of the best performing strategies to understand how other ratios behave inside them.

Limitations of the study are mainly related to the quality of the data data. University of Vaasa uses Datastream to provide all of its data. Problem is tha Datastream only contains data of stocks that are currently in the index. Therefore results are not completely truthful as failed stocks are not included in the sample. This will clearly have an effect, because success of value investing rests on the expectation that undervalued stocks of negatively performing companies are chosen and actually badly performing companies (future failures) are not chosen. It seems that Latin American data (since it is not based on any index) contains all stocks that are available. Though, quality of Latin American data was then an issue. In the end Latin American sample contains almost the same number of companies as Cakici, Fabozzi and Tan (2013) had in their Latin American sample with almost identical country selection.

1.3. Terms used

In this part, key terms typically used in this type of a research are defined. Following rations can be used to group stocks to value portfolios. If ratios are reported this way, growth stocks will be at the bottom and value stocks at the top. Opposite ratios can be used to have the growth stocks at the top.

- Holding period = Time period between buying and selling of the stock.

- MV, market capitalization or size = Market Value of a company
- Stock price = The closing price of the day in question. If it happens to be weekend or the market is otherwise closed, the latest closing price will be chosen.
- B/P = Book to price
- B/M = Book to market (Same as B/P)
- CF/P = Cash flow to price
- D/P = Dividend to price
- E/P = Earnings to price
- S/P = Sales to price
- Value Stock = A value stock is a stock that trades at a discount to the firm's financial situation, meaning that the value of firm's assets per share is high compared to the stock price and the P/E ratio of the stock will be below market average. (Alexander 2008: 13.)
- Growth Stock = Is the opposite of a value stock. It will also have a high price-earnings-growth ratio, meaning that the rate of growth of the firm's earnings is high relative to its price-earnings ratio. Consequently, growth stocks appear attractive to investors due to their strong recent growth. (Alexander 2008: 13.)

2. LITERATURE REVIEW

Value investing was originally pioneered by Benjamin Graham and David Dodd and originally presented in their classic 1934 publication, *Security Analysis*. By the original idea of value investing, an investor looks for securities that have their stock price at a bargain price compared to the company's actual book value. These kinds of stocks typically have high ratios of book-to-market equity (B/M), earnings to price (E/P), or cash flow to price (CF/P). Investor can also forget everything about financial ratios and just go through company's annual reports to understand the true value of its assets. Other factors can also be considered, such as quality of management that cannot be expressed by any financial ratio but is obviously an important factor for any company. After finding these undervalued companies, they then purchase these companies' stocks expecting markets to eventually notice the difference between the company's market price and actual, intrinsic value.

If investor does his job well with the fundamentals and manages to avoid value traps (companies that won't regain their true value) than he only has to face the waiting game, having the patience and time to wait until the market notices the difference between company's market price and actual, intrinsic value. As empirical results will later show, on average the best returns are received after holding periods of multiple years and therefore great amount of patience is needed from a value investor.

Although value investing was pioneered in 1934, the most groundbreaking research took decades to come out. There is a number of ways that have been used to test value investing strategies. Possibly the most well-known and most tested are price-to-book (P/B) and price-to-earnings (P/E) ratios, pioneering work performed by the likes of Stattman (1980) and Rosenberg, Reid and Lanstein (1985), who tested usage of P/B. Nicholson (1960), Basu (1977, 1983) and Jaffe, Keim and Westerfield (1989) test effectiveness of P/E ratio and find that stocks with low P/E ratios also tend to have higher returns than high P/E stocks. These and various other value effects have been reported in many other markets around the world across various time periods.

Market capitalization (size), one of the strategies used in this thesis, can be argued not to be accepted as a value investing criteria because it is not a clear valuation metric, such as price-to-book. Though, it has been proven to be a very effective sorting method

and is widely studied by academia. For example, Fama and French (2012: 22) state “value premiums are larger for small stocks”. Reason for high returns from small firm returns could be that they are not actively followed by analysts and therefore contain more room for surprises, with their obvious possibility to grow much more than firms that are already big. Market capitalization is often studied together with other ratios, but is also shown to work alone and results have shown that small capitalization stocks provide higher returns than their larger counterparts. For example Banz (1981) and Reinganum (1983) proved by their research that small-cap stocks earn higher returns than large-cap stocks in the U.S. stock market. Other examples are studies by Brown, Keim, Kleidon and Marsh (1983), Berges, McConnell and Schlasbaum (1984) and Chisholm (1991) that tested investing based on market capitalization outside the U.S. in stock market around the world.

Chan, Hamao and Lakonishok (1991) performed research in Japan and found strong support for value investing strategies. Fama and French (1992, 1996) and Lakonishok, Shleifer and Vishny (1994) proved the existence of value premium in the U.S. stock market. Fama and French (1992), among other strategies, also found evidence that portfolios of smaller firms outperform large firm portfolios. Dhatt, Kim & Mukherji (1999) had similar findings with their research on small-cap stocks and the value versus growth effect in returns. They find that out of P/E, P/S and P/B, the best ratio to use for stock is price-to-sales selection but the best results were gotten when using all three ratios. Interestingly Kouwenberg and Salomons (2007) find that whole countries behave like value stocks when countries are organized according to their stock market valuation. Lower P/B countries had, for example, higher inflation and lower GDP growth. Just like value stocks, these low P/B countries improved during the study frame and value investing at a country level was considered to be very profitable.

Studies by Capaul, Rowley and Sharpe (1993), Fama and French (1998) and also by Bauman, Conover and Miller (1998) prove that value returns exist in many international markets and tend to be higher than growth returns. The size of the value premium varies based on how the stocks are chosen and sorted, but it does exist. Antoniou, Ergul and Holmes (1997: 178-179) also state that perhaps returns by value strategies are greater in less developed markets, because those are dominated by less sophisticated investors that are slower to react to new information and also trading volume of the stocks is smaller. I'll note that growing markets can be expected to produce more new business opportunities and by this lead to more investing opportunities. Even with fully efficient market, huge price jumps could be expected.

Most studies finish with the notation that value strategy outperforms the growth strategy and numbers on different sized of portfolios are often clearly given, but we are never told about single stocks and of their performance. Rousseau and Rensburg (2003) find that not all the stocks perform well in their portfolio but that in reality a minority of the stocks causes a large part of the value effect that is seen in a portfolio. Also, they conclude that value investing should be taken and used as a long-term strategy. Therefore they state that this can be said to support the idea of larger portfolios, as the possibility of including a stock with huge returns would be more likely. However, I must note that overdiversifying could also bring the average return of the portfolio down. Anderson and Brooks (2007) tell different results based on their study on optimal size for the value and glamour portfolios. They find that smaller portfolios earned the highest returns with larger volatility, which could be a result of a few really volatile stocks making good returns.

Lakonishok et al. (1994: 1542) write that even though several different studies prove that value strategies have greater returns, none of them seems to be able to explain the reason for that. Lakonishok et al. claim that value premium is created due to the market undervaluing currently distressed companies and vice versa overvaluing so called growth stocks that have performed well. When the market eventually corrects its pricing errors, those previously distressed value stocks now provide high returns and growth stocks provide low returns. As a consequence we might see companies go through an endless cycle of stocks being undervalued at one point and overvalued growth stocks later. In their paper Chan and Lakonishok (2004: 71) state that the academic community has at least somewhat agreed that on average value investment strategies outperform growth investment strategies.

Piotroski (2000) finds that returns can be increased by performing a simple data analysis on financial statements of high book-to-market firms. Higher return is due to a more efficient removal of financially weak and underperforming companies from the portfolio. Dhatt, Kim and Mukherji (2004) showed that using P/E, B/M and P/S ratios together gave the best risk-return relationship and Chan, Lakonishok and Sougiannis (2001) noticed that value results could be improved by including intangibles in the book value. Specifically in case of firms that have high research and development costs, but also strategic investments for the future such as in advertising can be the keys in finding the stars of tomorrow.

As a conclusion to these and various other studies: Piotroski (2000) concludes that it

can be seen that a combination of various methods, such as value and momentum helps investors to find larger returns. Difficulties arise with firms that try to manipulate their accounting ratios to appear more desirable to investors. For example valuing inventory depends greatly on what accounting policies are used and this can lead to inflated book value. Therefore it is important for an investor to look at sales and revenues because those numbers are much more difficult to manipulate.

Based on the research covered previously, it can be seen that there are various ways to rank stocks to value and growth categories. These measures have proven to work around the globe with different methods working most efficiently in different markets or time frames, so absolute best method seems impossible to find. Also, Dhatt et al. (2004) suggest that using more than one ratio may result in even better returns. In their study Dhatt et al. documented that best results regarding both return and risk were achieved when the portfolio was formed based on P/S, M/B and P/E ratios rather than just one of these. Also momentum has been tested, but Bird and Whitaker (2003) find that results were better for only shorter holding periods. Also in a study by Bird and Casavecchia (2007a), they note that growth portfolios were getting more benefit from the momentum than value portfolios.

2.1. Risks of Value Investing

There has always been a lot controversy between value investing and supporters of other investing strategies. For example De Bondt and Thaler (1985, 1987) state that extreme losers outperform the market during following years. Chan (1988) and also Ball and Kothari (1989) have presented considerable criticism towards their statement because used method and variation in relative risk have a huge impact on the end result. Yet, their theory has most often stood firmly when tested (Chopra, Lakonishok and Ritter 1992).

Perhaps most well-known to oppose value investing are Fama and French (1992), who claim that value stocks are fundamentally riskier. In two papers Fama and French (1992, 1996) suggest that smaller stocks with low price-to-book ratios are riskier than larger stocks with high ratios. Kent and Titman (1997) argue against this claim made by Fama and French. They find that even though larger stock returns can be related to company size and price-to-book ratio, these do not seem to have a connection to traditional risk measures.

Cheng and Zhang (1998) state that according to their results value stocks are riskier than growth stocks due to them often being stocks of distressed companies. Also Petkova and Zhang (2005) claim that value stocks are riskier than growth stocks during bear markets. However it should be mentioned that both of these studies focus on short-term investment horizon when value investing should be looked at in the long-term. In any case we can see that value stocks are riskier in certain market situations. During a bull market growth stocks are more appealing to the public and therefore will often give larger returns than other type of stocks. It must be noted that risks of value investing can be lowered by using also other criteria than just a few simple numbers, such as quality of management, long-term business strategy, evaluation of their cash-flows, and multiple financial ratios.

Liu and Wang (2010) look at the risk and return characteristics of value and growth stocks in Scandinavia, Europe and Asia between 1975 and 2007. They find that value stocks contain less risk than growth stocks. They also notice that as investment horizon gets longer Scandinavian market comes up over European and Asian markets with the lowest risk and highest return for both value and growth stocks. Lakonishok et. al. (1994: 1564-1574) shows that value stocks are less risky than glamour stocks because of outperformance, and are also safer during negative market return months. He concludes that in terms of reward-to-risk ratio value stocks have this value extremely high and standard deviation is not able to explain these returns.

It can be concluded that in the end risk and return do not always go hand in hand and risk measurements do not explain value stocks' returns in the long-term, if even in the short term. There is also evidence that shows outperformance of value stocks to grow with longer time horizons. Something that mathematical theorists can never calculate to predict returns, is the behavioral aspect of the masses buying and selling shares. Behaviour of the masses is what in the end causes mispricing and outperformance to happen. Chapter four focuses into behavioural finance so our understanding of the psychology and reason behind value stocks becomes clearer.

3. OVERVIEW OF ECONOMIC INDICATORS

This chapter enlightens the economical situation and history of these eight countries. This chapter is important because an investor who aims to invest into an emerging economy should be aware of the potential in that country. How that country is doing economically and politically is vital information. As it will be shown, it is very different to invest to Argentina compared to Peru. Countries are in very different situations and present different type of opportunities for businesses. That is why this chapter is added here, so that a reader can gain a strong understanding of the fundamentals of these countries, to understand their potential and difficulties and by all this to make solid investment decisions in North and Latin America.

These six Latin American countries are chosen because they represent 84 % of Latin American GDP and 76 % of Latin American population (Brazil and Mexico being the most populous ones but also having the largest GDP) based on 2012 statistics. When USA and Canada are added to the calculation, then these eight countries cover 96 % of 2012 GDP, and 85 % of 2012 population compared to all countries in North and South American continents (World Bank Data). What is also interesting is that Brazil, in term of GDP, is already clearly bigger than Canada. Though even together these six Latin American countries don't count even half of the GDP of the US, their population is much larger. Information shown in this chapter is gathered by using different news sources and also economic indicators and statistics such as annual inflation, foreign direct investments, GDP growth rate and corruption. In this chapter Argentina becomes a common subject of a conversation due to its special situation which is not shared by any other of the seven countries studied in this thesis.

3.1. GDP Related Factors

According to International Monetary Fund's (IMF) listing, Canada and USA are developed countries and Argentina, Brazil, Chile, Colombia, Mexico, and Peru are emerging countries (IMF 2014a). Financial Times Stock Exchange (FTSE) is more specific in its listing of these countries: According to FTSE Canada and USA are developed countries; Brazil and Mexico are advanced emerging countries; Chile, Colombia and Peru are emerging countries while Argentina is listed as a frontier country

(FTSE 2012: 1). At the moment Argentina risks to be demoted from this group to an even lower standing (FTSE 2014a: 1). Reasons for this can be seen from FTSE's Quality of Markets Criteria (FTSE 2014b) that shows Argentina failing many listed criteria for an emerging market, such as free and well developed equity market.

Annual growth rate of GDP figure uses information by the World Bank for years 2000-2012, and International Monetary Fund's information for years 2013-2014 (IMF 2014b, 14). It shows, like most figures below will, that all countries basically have the same direction, so all these countries are somewhat tied to each other, or to the importance of international trade for them. What stands out is that Argentina has been experiencing some very challenging times in the early years of this study period and has not been able to fully recover since. One sign of this is Argentina's blooming black market exchange between Argentina's pesos and US dollars due to strong inflation (The Economist 2014a). Also it seems that data from Argentina is not fully trustable as Argentina apparently attempts to appear doing better than it actually does by manipulating its published data (IMF 2014b: page 14, notes 5 & 6.).

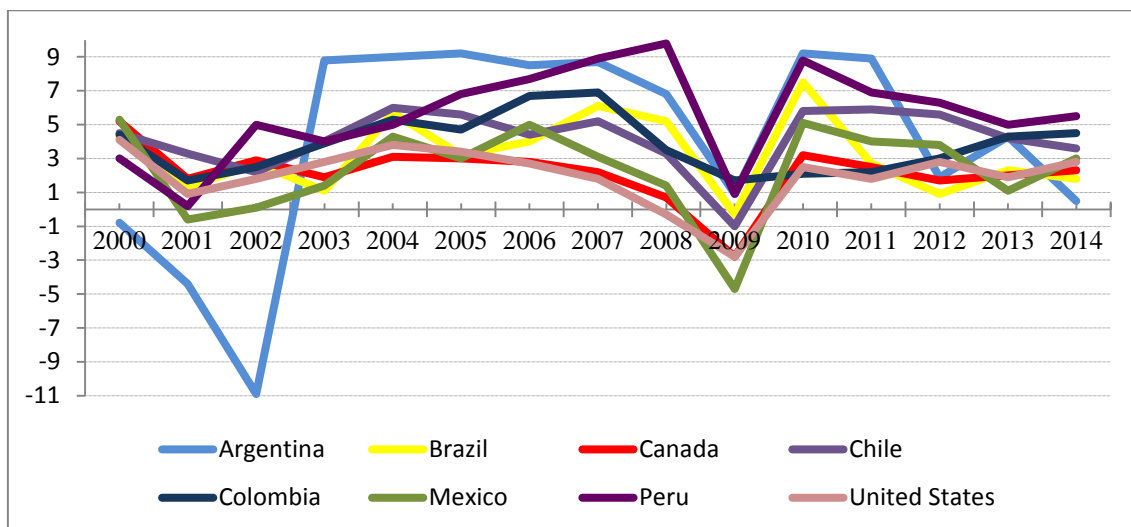


Figure 1. GDP annual growth rate.

What is also interesting is that during 2009 all of these countries experienced smaller growth rates, but it is North American countries that experienced the hardest drops. This could be due to a strong trade linkage that makes Mexico and Canada very dependant of the USA where the latest financial crises started. Because of this strong tie it can be that

Mexico and Canada have been chained to USA's growth rate as they need demand from USA to grow in order for their own productivity to grow as well. Rest of these Latin American countries are more tied to international demand than solely to that of USA.

Graph below shows development of government debt to GDP. Datastream was the information source for Brazil, and Trading Economics for rest of the countries. There we again see Argentina's difficult situation over ten years ago that apparently has improved to be comparable with the other countries. Peru and Chile have kept their debt levels extremely low while USA (101,5%) and Canada (89,1%) have distinguished themselves from all others.

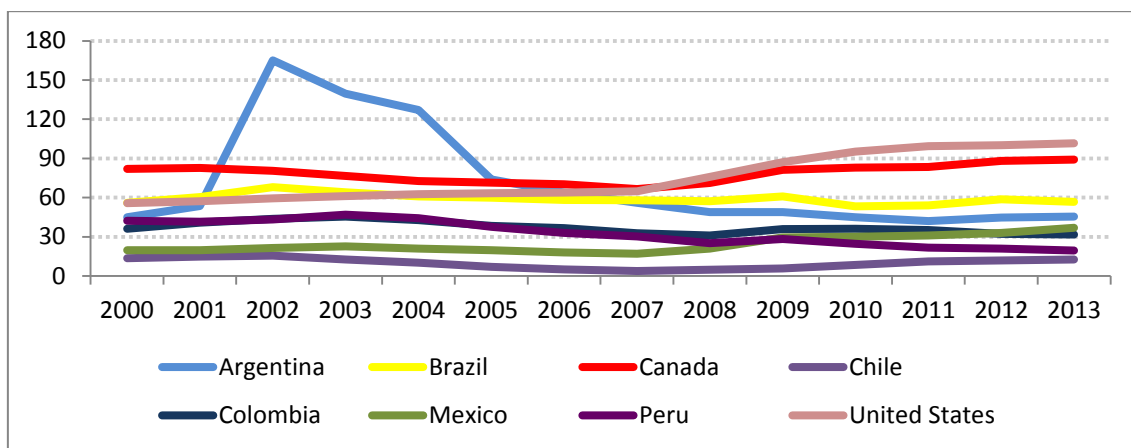


Figure 2. Government debt to GDP %.

Difference between Latin American countries and USA and Canada is clear. Mexico has showed the quickest rise in debt compared to other Latin American nations (started on 19,8% and currently is 36,9%), but it still well below Brazil's 56,8% that has maintained about the same level during the whole period. During this same time Peru has lowered its debt levels from 42,2% to 19,6% and Chile has managed to stay around the same numbers (2000 13,6% , 2007 3,9%, and 2013 12,8%).

Seeing strong GDP growth with low debt percentages is promising, because it shows that growth has not been achieved by debt, but is due to actual evolvment in business surroundings and international trade. That is a very positive sign for countries' long-term future. This is verified by looking at debt levels of prime examples, Peru and Chile. Since 2010 they have both roughly doubled their amount of debt (Trading Economics) yet, Peru's debt to GDP ratio has decreased and Chile's ratio has only

gotten as high as 12,8%. Considering that these countries are only, at best, still considered as emerging countries we can expect their debts to continue to increase while they continue to develop. This is also likely to happen if in the future their rapid growth starts slowing down, as can be expected from developed countries, and borrowing money becomes needed to reach those final stages of development.

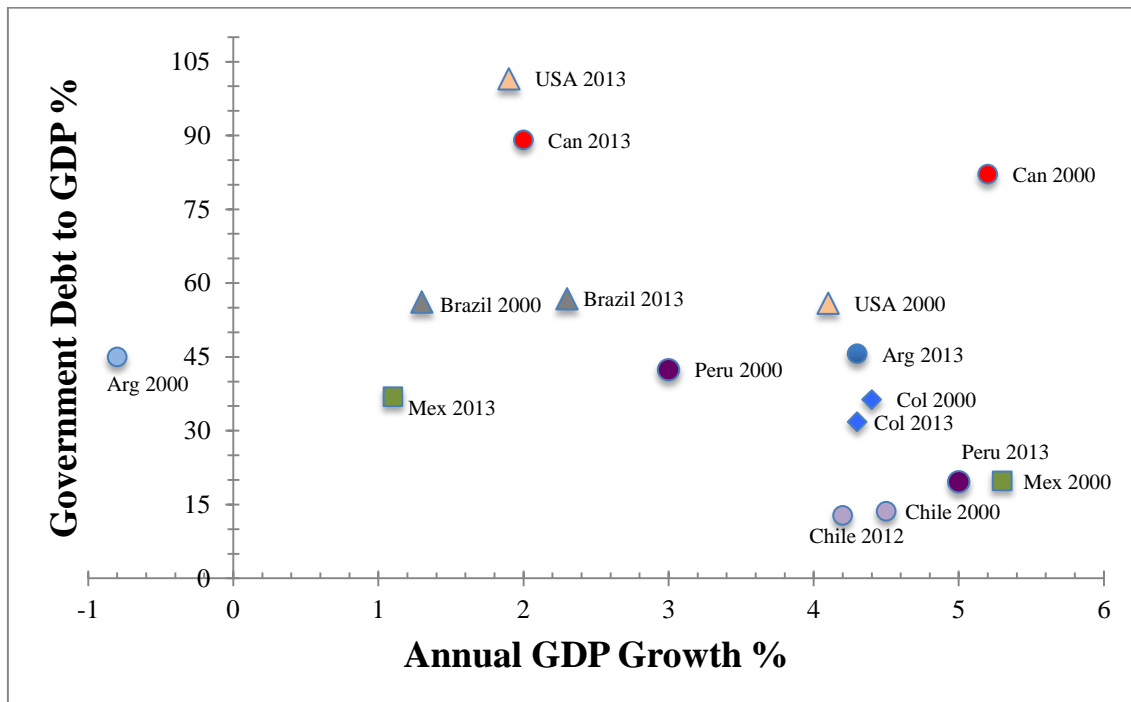


Figure 3. Debt to GDP growth %, 2000 and 2013 compared.

In Figure 3 countries' 2000 and 2013 values of government debt to GDP and GDP growth rate are compared, to better understand the change that has happened. Sources of information are Trading Economics for Government Debt to GDP, and The World Bank for GDP Annual Growth Rate. This provides a slightly different image of how these countries have changed during this time frame. Of course GDP growth rate can have quick changes but as GDP Annual Growth Rate (%) graph above shows, 2000 to 2013 are relatively stable years.

What makes Argentina special is that 2001 it defaulted on its debt and since then it has not been able to be part of international capital markets. Currently Argentina's politicians are attempting to fix this situation as on 29th of May 2014 Axel Kicillof, the

minister of economy, reached an agreement with a creditor group and Argentina agreed to start paying back its loans to be able to continue borrowing (The Economist 2014b). This situation again had a turn for worse at the end of July 2014, when other group of bondholders refused to accept any negotiations on the amount of debt and thus forced Argentina to default (BBC 2014a). Therefore Argentina's situation can be expected to continue being difficult for some years. This situation is easily one of the main reasons, which are blocking Argentina's growth.

3.2. Population Growth and Education

What is important is that emerging countries have a growing population or at least growing productivity levels to rise up the ladder. Signs are more positive if there are plenty of young and they are well educated so they are able to be more productive than past generations. To better understand this I looked at the World Bank Data (from 2012 or latest possible, Brazil had no educational data) to see how much of the population is between 0 and 14 years old and between 15 and 65 years old, as well as gross school enrollment percentages to secondary and tertiary level.

Firstly, amount of 0-14 year olds: By percentages, Peru and Mexico have largest young populations at 29% (remember that Mexico is one of the largest countries in the Americas). All Latin American countries are above USA and Canada that have 20% and 16%, respectively. There are only minor differences in the next age group as all countries are between 65% and 69%. What jumps out is that Chile is the bottom country of Latin American countries having only 21% of its population under 15 years.

Gross enrollment percentage to secondary school shows all countries being quite even. Real differences rise up when looking at gross enrollment percentage to tertiary level after secondary school. Here developed countries place far above the emerging, but out of the emerging Argentina scores the highest with 79%. Next one is Chile with 74%, but then the gap grows wide as the rest places below 50%, with Mexico only having 28% percent of its secondary school finishers also completing tertiary education level. This partly helps to explain why Mexico is placed so low when comparing GDP growth levels and as mentioned later, productivity levels. Any country could have huge gains in productivity by providing strong education to their youth, but perhaps Mexico and Argentina are the ones that have the biggest hidden potential in their people.

3.3. Productivity

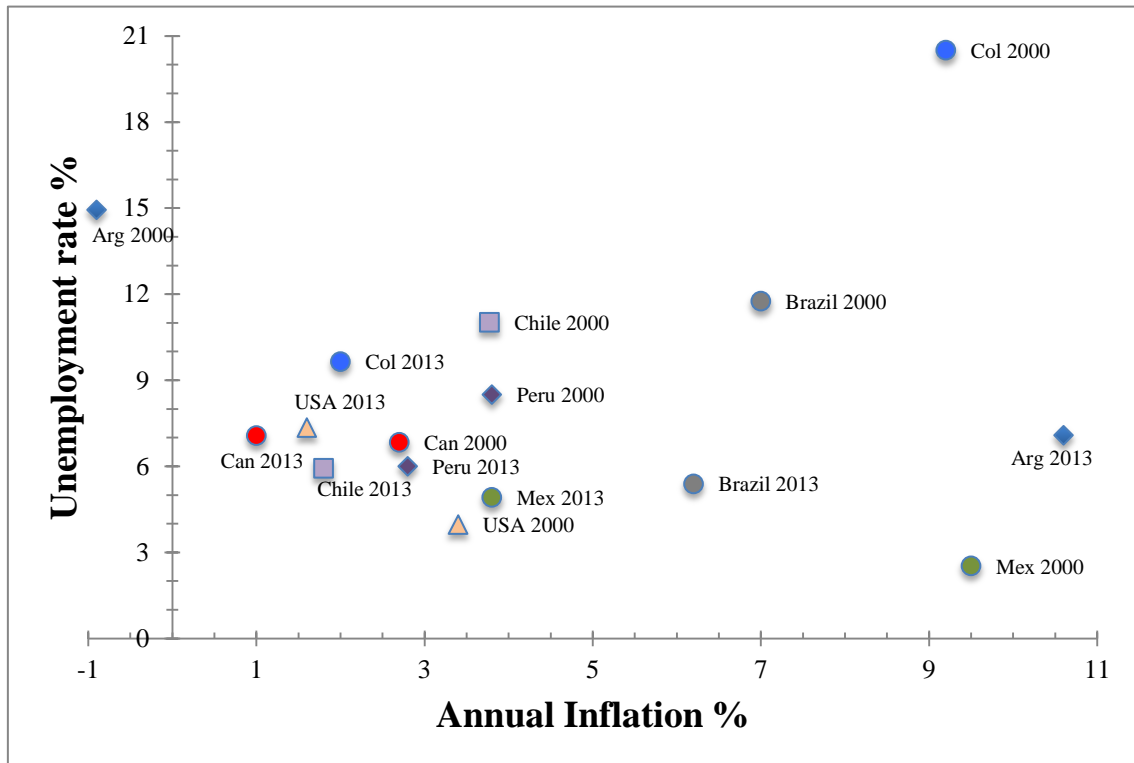


Figure 4. Inflation and unemployment, 2000 and 2013 compared.

In figure above can be seen how annual unemployment percentage and annual inflation percentage have changed from 2000 to 2013. Datastream provided the unemployment rates, annual inflation was by the World Bank, but for Chile (year 2000) Trading Economics had to be used. They are presented together because as unemployment decreases it can be expected to result to larger wages, and as spending increases also inflation rises (Individual graphs are Appendices 1 and 2, respectively). Especially inflation numbers are interesting because if companies and individuals cannot trust prices, then they will have less reason, less motivation to invest or do anything that would even improve their own future. Therefore controlled inflation is important for any economy to grow on a sustainable basis.

It can be seen that 2013 values for all countries except for Argentina are very close together. Countries have moved considerably closer together towards low inflation and also, low unemployment percentages. Clear change can be seen when comparing values from 2000 to 2013. Negative effect of this positive situation is that low unemployment

is expected to lead to growing wages and higher inflation if neither the population or immigration manage to provide enough workers for the growing industries.

This again might lead to unemployment and lower inflation as outsourced jobs move to cheaper areas (and jobs that can be outsourced from their home country in question). This isn't something that would happen quickly as emerging markets are generally far from the price level of developed economies, but for long-term planning it must be remembered what special skillsets of certain areas are, so that rising prices wouldn't make companies close their local offices, such as mining companies closing mines when miners' wages are above revenues from the ore they are hired to mine.

With Argentina it must be noted that some sources, at least some individual economists, expect Argentina's inflation to be well over thirty percent in 2014 (BBC 2014b). It is also stated that government of Argentina has been manipulating inflation statistics for years (The Economist 2014c). Castellano, Aracena and Smearman published a report in January 2014 concerning Argentina, where they state that since 2010 inflation has been over twenty percent, it was more than twenty five percent in 2013 and is forecasted to be over thirty percent in 2014 and 2015 (Castellano, Aracena and Smearman 2014: 1).

Table 1. GDP per person employed.

	2000	2002	2004	2006	2008	2010	2012
Argentina	24,303	22,885	23,340	24,428	26,595	27,871	28,551
Brazil	12,100	12,044	12,053	12,298	13,103	13,495	13,557
Canada	47,199	47,723	48,176	49,501	48,921	49,226	50,125
Chile	28,753	28,481	30,166	30,107	31,565	30,870	33,758
Colombia	14,781	14,803	14,995	16,576	17,564	16,840	17,990
Mexico	19,108	18,807	19,051	19,869	19,996	19,797	20,275
Peru	11,597	12,181	13,001	13,170	14,271	15,347	16,868
United States	58,601	60,424	62,911	64,227	64,812	67,190	68,374

Now, lets move on to productivity and compare how low unemployment is related to it. Low unemployment can lead to rising wages as competition for employees is tougher. Rising wages then lead to lower productivity (plus to missed growth as there are not enough workers available). Also, low unemployment doesn't guarantee that workers are effectively employed. To look into this, table 1 below shows annual GDP numbers per person employed based on the numbers by the World Bank. What can first be seen is

that top three countries with lowest unemployment (Canada, USA and Chile) are also top three countries in terms of productivity per person employed in 2012. If we look at Colombia and Peru, we see that from 2000 till 2012 productivity in Peru has grown 45.4%, and in Colombia 21.7%. Of course these two started from a very low GDP. Brazil on the other hand has had only very minor growth, but having large population means a lot in this case.

What can also be seen, somewhat surprisingly, is that in Argentina's productivity has grown a similar amount as that of other countries. Canada with Mexico had the slowest growth, percentage-wise. With Canada this is understandable, as developed countries can find it more difficult to grow fast, but when compared to USA, Canada is far behind. Mexico's slow growth is surprising. Perhaps this is because developed countries merely use Mexico as a cheap labour provider and this doesn't improve the status of Mexico's population, since free trade among non-equal countries is a perpetual exchange of technological products and commodities / natural resources / cheap labour. Therefore there is no real development of Mexico due to their trade with the developed countries, as there is no stimulus.

Of course it must be remembered that Mexico, due its large population has fourth largest GDP among these eight countries and thanks to its large young population, it also has plenty of future workforce that is still being educated. More people will equal more output, even if GDP per person stays the same. Of course best results are achieved by having growing population and also rapid improvements in productivity. Those countries that are not as fortunate as Mexico to have a growing population with plenty of young, their mission is to increase workers productivity. Simple means for this are improved infrastructure and health care.

3.4. How these Countries are appreciated by Investors

3.4.1. Credit Rating

To give an idea of credit ratings of these countries I am using a model created by Trading Economics. It takes into account the average credit rating given to the country by different rating agencies. It also takes note of multiple economic indicators such as exchange rates, government bond yields and commodity prices. Averaging these ratings

guarantees that one credit rating agency is not able to have a great influence and manipulation to the final number. Maximum number a country can get is 100 and the higher the number the better country's credit creditability is.

Ratings from largest to smallest: Canada 98.06; USA 96.86; Chile 76.83; Mexico 55.85; Peru 53.24; Brazil 50.73; Colombia 49.65; Argentina 25 (Trading Economics, Rating). There are no real surprises to be seen. The most developed countries USA and Canada are at the top, Argentina is at the bottom and other five Latin American countries are in the middle being quite close to each other. Based on the evidence already presented I believe Chile could be rated better than it currently is, due to its long stability and strong growth it has presented. Peru can be expected to be the next country that manages to separate itself from the group if its growth continues and therefore it manages to gain more trust from the international community. Brazil and Argentina might be experiencing lower ratings in the future due to Brazil's small GDP growth rate and Argentina's default situation.

3.4.2. Stock Market Development and Correlation

Here I look at the development of stock markets to understand how these markets have changed during this time period. With emerging markets it is especially interesting. We also see if these markets behave in similar fashion. Comparison of development of countries' stock markets is done by using quarterly index values. Values are adjusted so that all indexes start from one to make comparison of growth easier. This does not affect how the indexes have behaved later. Numbers on the left side then show how many times market index has multiplied from 2000 till the first quarter of 2014. Colombia's data starts from third quarter of 2001 as there was no earlier index data available.

This information is presented in two graphs because large growth of few markets would make more stable markets like USA and Canada seem absolutely flat (though one reason for this is the IT bubble at the start of the century that could affect how later growth looks like). Mexico (currently 5.7) is a good example. Mexico has grown much more than USA and Canada have, but when compared to Colombia (14.1 currently) and Peru (13.3 at best during 2012 Q1) and to current situation of Argentina (11.6) then Mexico's growth looks weak in comparison.

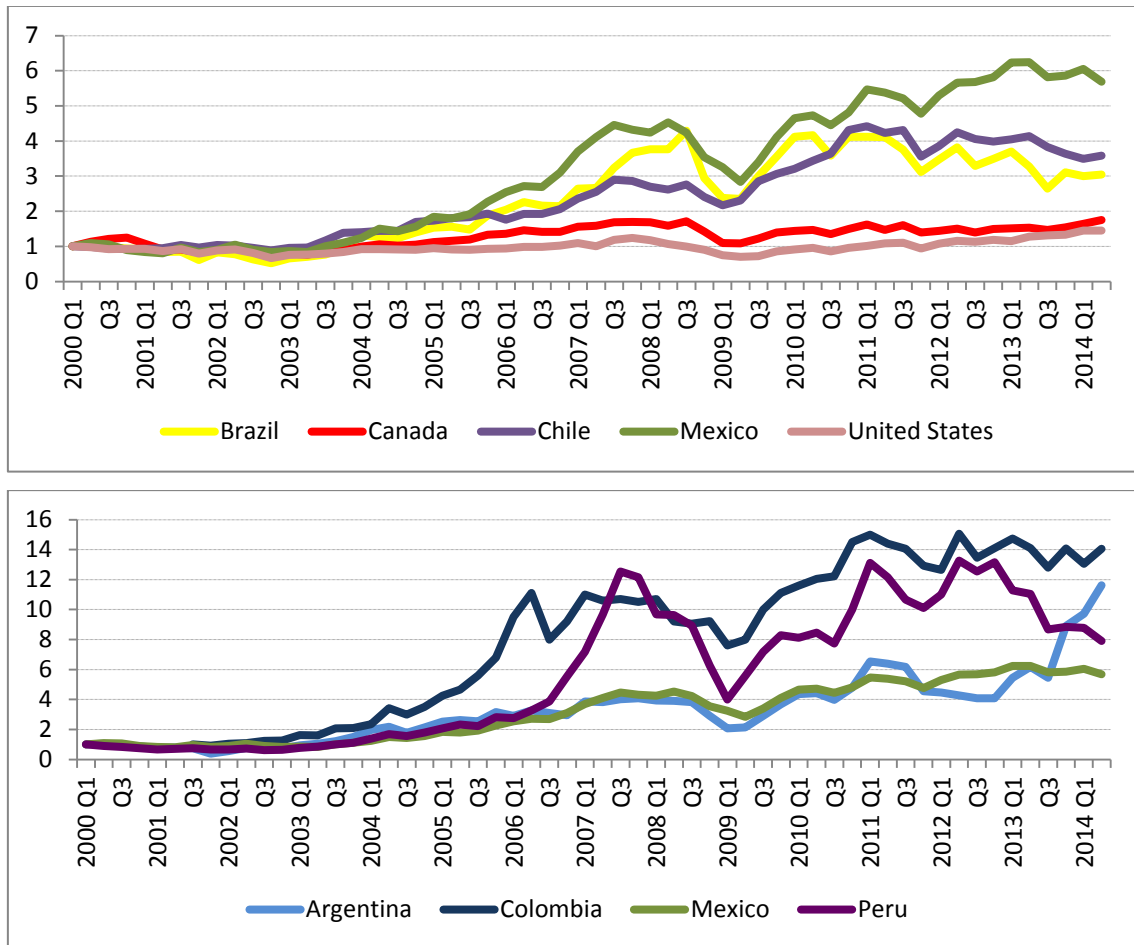


Figure 5. Stock markets.

It can be seen that certain markets have experienced much faster growth. One likely reason for this is that emerging markets have been undervalued and growth is strong as more international investors join. Seems that some markets have cooled down lately, while some have continued upwards. Since international demand is the main fuel for emerging economies it is impossible to say for sure how their future will be.

Figures, show that there is clear correlation between all these markets at least during the financial crisis period. Financial crises period 2007–2009 shows all countries' stock markets topping around the same time, then they all reach their bottom during first quarter of 2009 and from then their direction is upwards. Argentina, Mexico, Canada and USA are the ones to fall closest to their starting value. Peru seemingly had the largest drop but it also recovered quickly.

As stated, it can be seen that all markets take a dive at the same time which tells us that

there is some level of correlation between these markets. Outside that time frame correlation seems to be weaker. Studies by Diamandis (2009), Lahrech and Sylwester (2011), and Galvão de Barba and Ceretta (2011) all find some level of integration between the US and four Latin American nations (Argentina, Brazil, Chile and Mexico). Panayioitis states by studying 1988-2006 period that these markets are partially intergrated (Panayioitis 2009: 28). Lahrech and Sylwester look into 1998-2004 time frame but go longer in their statements by saying that co-movement has increased among these countries (except for Chile), therefore equity market instabilities in the US are more likely to be seen in those countries as well (Lahrech & Sylvester 2011: 1356).

Galvão de Barba and Ceretta look a more recent period, 2003-2010. They find that relationship between Argentina, Brazil and the US has over time become more integrated but Chile's and Mexico's relationship with the US did not change. Responds found are clear during the financial crisis period, but more vague during rest of the sample. They find no evidence of integration among the Latin American markets themselves. They show responses to the US stock market, but these responses are not homogenous. Therefore an international investor, from the point of view of international diversification, should not expect these countries to behave in the same way. For example Chile's stock market does not seem to respond to Latin American or North American shocks. Brazil and Argentina are the ones that seem to be more vulnerable to international equity market shocks and that could be due to growth of foreign investments in their countries. (Galvão de Barba & Ceretta 2011: 142.)

3.4.3. Foreign Direct Investments

Foreign direct investments display clear differences between countries. Graph below, based on numbers by the World Bank, shows yearly values compared to first value of the series. Table 2, below, shows those actual numbers. Numbers are reported by the World Bank and table below shows actual numbers from even years. Interesting detail is that in 2004 Canada actually experienced an outflow of investments, but this was only during one year and recovery was quick. This might indicate that Canada is not trusted to be very strong economically, which creates its own set of difficulties and possibilities for international investors. Peru has experienced largest growth but it also had the lowest starting amount. What is one key point behind these numbers is that growth in foreign direct investments indicates that foreign investors find that country's growth to be credible and possessing room for new businesses.

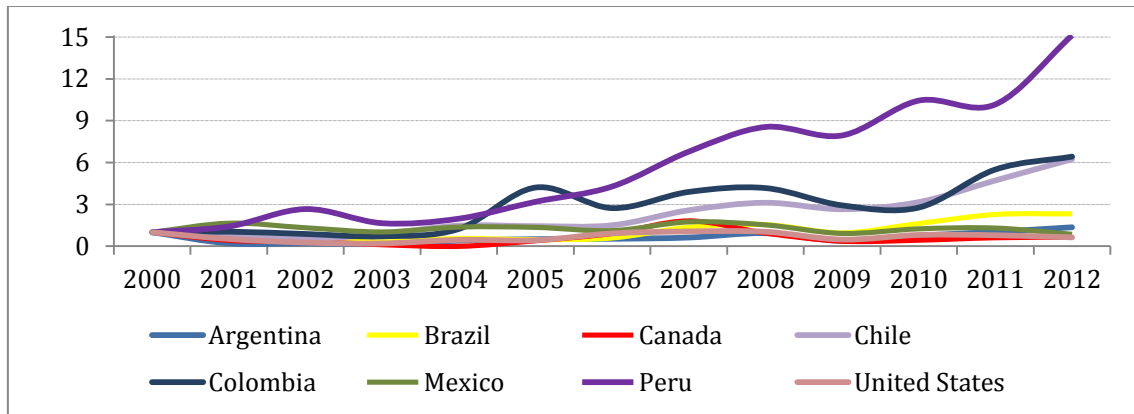


Figure 6. Growth of foreign direct investments.

Chile, Colombia and Peru show the largest gains from their starting values and all Latin American countries show at least some level of growth. With Argentina, situation is confusing, but lately it has been looking better than before. North America is the opposite, as Latin American countries are pulling in more investments, North American countries Canada, USA and Mexico have all slowly gone downwards. With USA, investors are probably expecting stronger signs of recovery before they return to the market again as they find new opportunities from many other countries, such as Peru. With Mexico, negative growth is surprising, as Mexico has supposedly been pulling investments from companies that want to offer their products to USA and Canada, but want Mexican workforce and low custom tariffs, or simply to offer their products to population that is slowly getting wealthier. Reported investments to Mexico should be growing in a few years. Brazil and Argentina could possible face an outflow of investments if their situations continue to seem darker. If this could then affect rest of the Latin American countries is a difficult question to answer; on some scale, the answer is yes.

Table 2. Foreign direct investments in billions of USD.

	2000	2002	2004	2006	2008	2010	2012
Argentina	10.42	2.15	4.12	5.54	9.73	7.85	14.15
Brazil	32.78	16.59	18.17	19.38	50.72	53.34	76.11
Canada	66.14	22.05	-0.74	60.29	62.16	28.60	43.09
Chile	4.86	2.55	7.17	7.30	15.15	15.37	30.32
Colombia	2.44	2.13	3.02	6.66	10.16	6.75	15.65
Mexico	18.11	23.93	24.82	20.25	27.73	22.56	15.45
Peru	0.81	2.16	1.60	3.47	6.92	8.45	12.24
United States	321.27	84.37	145.97	294.29	332.73	259.34	203.79

An example is recent news about Volkswagen's North American investments that are mainly focused to Mexico (Reuters 2014; Wall Street Journal 2014). 2012 was a quiet year for Mexico and this can be expected to change as Mexico is updating its laws to be more open for foreign and private investments. Current examples are oil and gas field rights to boost economy (Bloomberg 2014; BBC 2014c). As Economist explains (Economist 2014d) emerging countries continue to be the target of many multinational companies, but not all have gotten their share of the success and even some previously successful companies are lately starting to experience slowing growth.

3.5. Human Touch on Business Success

Following paragraphs look at indicators corruption and easiness of starting a business to especially see some human made obstacles that these countries need to handle in order to get closer to their maximum potential. In a study of 189 economies (World Bank Group), they state that these eight countries are in following order: Canada (rank 19 of all 189 for doing business; rank 2 for starting a business), USA (4; 20), Chile (34; 22), Mexico (53; 48), Peru (42; 63), Colombia (43; 79), Brazil (116; 123), and Argentina (126; 164).

The average for a high-income OECD country is 11.1 days. Average for Latin America and the Caribbean is 36.1 days, so there we can see a clear obstacle hindering birth of new businesses in Latin America. Canada, USA, Mexico and Chile are already relatively friendly for businesses, but last four are surely missing out on a large number of foreign direct investments until they lessen their bureaucracy.

3.5.1. Corruption

Corruption data is included because corruption can set varying obstacles for a company to set up and run its business. Corruption perceptions index done by Transparency International (TI 2013) lists 177 countries according to their level of corruption. On this list countries followed by this thesis are given following ranks among all the countries (country with the smallest rank is the least corrupted and vice versa): Canada 9, USA 19, Chile 22, Brazil 72, Peru 83, Colombia 94, and lastly Argentina and Mexico share position 106. Again we see USA and Canada at the top and Chile being close behind

USA. This tells us that if an investor wants to avoid corrupted governments in the emerging markets then Chile is a top candidate as only a few underdeveloped countries manage to place better in the whole list. According to Economist (2014f) Latin Americans also have very low public confidence level in their justice systems with high corruption, low conviction rates and in many cases growing murder rates.

3.6. Conclusion

Large part of the future of the Latin American countries is the international demand for their resources and know-how. This is something that is impossible to predict in the long-term. For USA and Canada their main problem is growing government debt that should be turned around. Behind this, however, many complicated problems are found (which can be military spending, nonworking parliament, education system etc.). At the moment international investors don't see that there is a real problem (indicated by good credit ratings) but rising debt is something that eventually would be a problem if not properly handled before. Problems behind it have to be improved, and effort has to be put to improve positive factors as well.

Latin America's problems are more wide spread. Chile is by many terms the best of the six. It is certainly closest to a developed country and can be expected to be the first to be called such of all Latin American nations. Peru and Colombia are growing well but do have many problems they need to be able to handle. Those problems are many and it will take time, but I wouldn't be surprised to see these countries continuing to provide best growth rates in the near future. Mexico has plenty of potential, such as young workforce that is still unleashed and the country should at least grow faster with the economic demand and help they get from their northern neighbors.

Argentina is a case of its own, being haunted by its past. If a sudden improvement happens concerning the debt situation, we might see big changes in a short period. Brazil's short-term future is also a question mark now due to latest reports telling it is officially in a recession (BBC 2014d). A recession might hold Brazil's growth down for a few years, giving other countries time to catch up with its development and possibly overpass it in some sectors. Overall, Latin America presents a great potential. Though, there are still many obstacles to be improved upon, but eventually those would be resolved and these countries would achieve a new level of prosperity. This leads to great investment opportunities for individual investors and western companies.

4. THEORETICAL BACKGROUND

Theoretical background is formed by going through two major sides of financial schools, behavioural finance and traditional finance theory. According to Behavioural Finance, heuristic-driven bias and framing effects cause market prices to deviate from their fundamental values. Traditional finance on the other hand expects markets to be efficient. Efficiency means that the price of each security matches with its fundamental value, even if some practitioners suffer from heuristic driven bias or frame dependence.

Existence of a value premium is agreed between researchers, but reasons behind its existence are under debate. Behavioural finance and traditional finance both have different explanations. By Efficient-market hypothesis (EMH), traditional finance states that most investors are rational and operate in efficient markets. Markets follow a random walk and returns are solely based on the level of risk in the investment. Expected utility theory explains how individual's actions are all based on the goal of maximizing the expected return. The capital asset pricing model (CAPM) attempts to explain asset's return and risk by especially including asset's beta in the process.

Behavioural finance includes human psychology in the process of decision making. It does not believe EMH's assumption that human beings are purely rational and markets are efficient. Rather it looks for ways to fix shortcomings of the EMH and create an explanation more suited for investors' behaviour in reality. These main theories are explained next, because to have a strong understanding on how stock prices behave it is important to have a solid knowledge of the main theories trying to explain those changes.

According to efficient market school, stocks with low fundamentals (value stocks) contain more systematic risk and therefore must have higher returns to compensate for it. As previously proven, value stocks do perform better than growth stocks and small firms especially are found to be riskier than large firms. So it does also support the efficient market theory, but following texts will show that nothing is that simple with theories related traditional finance.

4.1. Traditional Finance

4.1.1. Efficient-market hypothesis

Fama (1970) describes the efficient market as a market where stocks entirely reflect all available information. Meaning that any and all information able to influence the price of an asset, will lead to an immediate change in the price to its new appropriate level. EMH has three main arguments as its foundation: (I) most investors are rational and value the assets correctly; (II) some irrational investors exist, but in the long run their random actions will cancel each other out; (III) if actions of these irrational investors lead to mispricing, then rational investors would use this arbitrage opportunity and return prices back to the level that represents the true value of the company. Therefore it is not possible to make returns that exceed the average market return. Investors should just invest into the market portfolio since even at best active portfolio management only brings the same return. Evidence against EMH was found by Womack (1996), who proves that when analysts change their recommendation on a stock its price not only has an immediate response, but the adjustment continues for a long time.

EMH has three forms: weak, semi-strong and strong form. It has been shown that the strong and semi-strong forms do not hold in reality. And even the weak form is showing faults. In most situations the weak form is the one to hold, if even it. The idea of stocks prices reflecting all information perfectly does not truly hold in reality. Sometimes important information is never made public. Investors are also likely to subject to group behaviour, selling when prices are going low and buying when they are going up. In reality investors rarely follow the assumptions of EMH. (Shleifer 2000)

4.1.2. Random Walk

Random walk is a simple theory which states that stocks' price movements are independent of each other. It can be explained by throwing a dice and marking the score you get on a graph (for example let's say that scores from one to three are worth +1 point and four, five and six are worth -1 point). Each throw is an individual event and one event does not affect another one. After multiple throws your graph would look like a stock chart. Since every throw of your dice is an individual event, your graph is perfectly random and most likely your attempt to recreate it would result with a completely different looking graph. (Bodie et al. 2009: 345-346)

4.1.3. Investor rationality

As previously explained EMH assumes about human behaviour that most investors are rational and do their best possible decisions to gain the maximum value on their original investment. By doing this they keep the markets efficient. If some investors are irrational their actions cancel each others out. When investors are irrational as a group, rational investor will cancel this by arbitrage investing. Although rationality of investors can be put under question due to their obvious mistakes, such as of trading too much, not diversifying against risk, selling winners too soon and holding onto losing stocks for too long (Shleifer 2000).

A strong argument against investor rationality is that a world where rational investors exist should experience financial bubbles extremely rarely. Yet we have seen 30 financial bubbles since 1925 averaging one bubble in less than every three years. All of those bubbles burst and took the market down by at least two standard deviations. Also there have been bubbles in the markets for hundreds of years, not only during the past century. From history we can remember events such as the South Sea Bubble and the Tulip mania of 1637. (Montier 2010: 130)

4.1.4. Expected Utility Theory

According to the Expected Utility Theory (EUT), in a situation when an investor is faced with a risky choice they will choose a decision that maximizes their payoff (expected utility). Most individuals are risk averse and therefore they have a concave utility function. Meaning that the more risk and money is at stake, the less willing they are to risk it.

EUT has four steps that will be explained here. First, utilities receive a weight according to their probabilities. In the real world people overweight possibilities that are certain to happen, as opposed to those that are only possible. That is called as the certainty effect. Second one is about what happens when the choices include possible losses. Now because risks can't be avoided as in step one, that previously risk averse person now becomes risk seeking as negative outcomes are possible. This is called as the reflection effect. As an example, most respondents prefer the risk of losing 4000 euros with 80 per cent certainty when their other option is to lose 3000 euros for sure. This is against the EUT as people prefer the option with lower expected value.

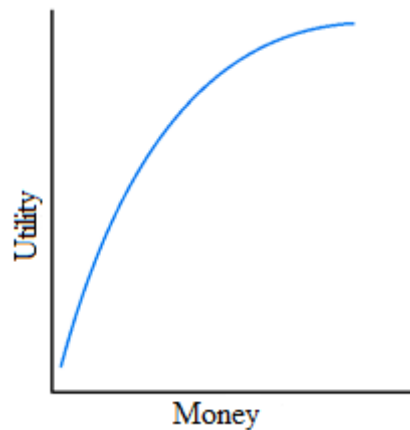


Figure 7. Concave utility function.

Third step is called the isolation effect. In a situation that involves two isolated events, subject's choice is not only determined by probabilities of the final states. Instead, respondents often focus on the differences between the choices. Fourth step is probabilistic insurance. This means purchasing an insurance against losses. According to EUT, probabilistic insurance is superior to regular insurance. However what Tversky & Kahneman (1981) find is that probabilistic insurance (which refers to an act such as installing a burglar alarm or changing the old tires of a car) usually isn't very attractive.

4.1.5. Capital Asset Pricing Model

Capital Asset Pricing Model (CAPM):

$$(1) \text{ Expected return} = \text{Risk free rate} + \text{Beta} * (\text{Market return} - \text{Risk free return}),$$

is used to explain returns of an asset by using free rate of return, market return and unsystematic risk (beta). Basic of CAMP is that all variation of the risk measure beta goes together with returns. According to CAPM if any stock has a return that is higher than return given by some other stock, this is due to higher risk. So it states that value premium cannot exist without value stocks having higher risk over other, less return giving stocks.

CAPM is often used in theory, but in practice it fails to explain all the risk within an investment. Fama and French (2006) look at how well CAPM can explain value premiums. They state that CAPM works well enough from 1926 to 1963, but it fails

from 1963 to 2004. They explain that this fail is due to growth stocks having larger market betas than value stocks, as during the earlier period value stocks are the ones with higher betas and CAPM needs this to work (Fama and French 2006: 2183-2184). Even though during the later period growth stocks have larger betas than value stocks yet value stock have higher during the period.

Fama and French (1992) find that market capitalization and market-to-book value work better at explaining the risk. This is because market capitalization and M/B are strongly connected between themselves and returns. Later Fama and French (1993) constructed two factors based on their earlier research: SMB (small stock portfolio's return minus return of big stocks) and HML (return of high-value stocks minus the return of low-value stocks). They prove that these factors can quite well explain return variance of the U.S. stocks' in a three-factor model. Griffin (2002) states that country-specific version of Fama and French three-factor is better at explaining the risk than their global version of the model. According to Griffin, such analysis should be performed within a country. Countries are required to be very similar for one model to work efficiently over borders. Different accounting practices between countries are one major factor affecting these results, especially before they started to globally standardize the industry.

4.2. Behavioural finance

Behavioural financialists basically do not have much faith in the rationality of investors and therefore are against the idea that markets are efficient. If it was, then value premium would be easily explained by the relationship between risk and return. Lakonishok et al. (1994) writes that due to irrational behaviour the market prices value stocks lower and growth stocks higher. Naive investors typically overreact to stock market related news and forecast the same growth far into the future. Because of this type of actions they enhance the effect that might have already been taking place. In simple cases purchase happens because stock price has gone up, and selling happens because price had gone down. But as a simple example this can be due to one large investor selling or buying a large amount at the same time, resulting to a price change. Some investors might take this as a sign of change and hop on or off the train.

This type of investor behaviour can also be explained, at least partly, by agency issues. Many professional investors might be under pressure from their bosses, clients, or due to peer competition they are forced to deliver quick results. Therefore they are being

forced to favor short-term profits over better quality investments that require longer holding periods. This type of investment pattern is often seen among institutional investors. Also for any professional investor it is greatly easier to recommend the purchase of well doing growth stocks that have a good track-record, than value stocks with a long period of negative returns. (Lakonishok et al. 1994; Chan et al. 2004)

4.2.1. Representativeness

A financial example to explain representativeness is the winner-loser effect that was proven by De Bondt and Thaler (1985, 1989). They find that stock that have been biggest winners during the past three years do much worse than the stocks that were the biggest losers during that same time-frame. De Bondt (1992) proves that as analysts make long-term earnings forecasts their views tend to be biased to the direction of recent success of the firm. Meaning that analysts are overly optimistic about recent winners and feel pessimistic about recent losers. Also, De Bondt (1991) finds that market predictions are overly optimistic (pessimistic) after three-year bull market (bear market). Therefore it becomes quite clear that analysts' recommendations are not particularly useful when they can be linked to representativeness. One reason for this behaviour is that people underweight evidence that disconfirms their prior views and overweight confirming evidence (Shefrin 2007: 64).

4.2.2. Overconfidence

In simple terms overconfident people overestimate their skills to complete difficult task and therefore are surprised more often than they anticipated. People are overconfident was proven by Clarke and Statman (1999). They showed this by simple questions such as: How long is the Nile? Give your answer with minimum and maximum so that you are 90 percent confident that the actual length is inside your low and high guess. They asked this type of questions in survey form and found that most people are not well aware of such things but are overconfident as their high guesses were often very low compared to the actual numbers. So when people are overly confident they set too narrow confidence bands in such questions and just like financial analysts, are surprised by the results.

4.2.3. Anchoring and Failure to Adjust

Mendenhall (1991) and Abarbanell and Bernard (1992) find evidence that analysts underreact to earnings information. Even when they get to adjust their forecasts based on new information (such as a profit warning), they are still underreacting to actual results. Their work shows that analysts fail to appropriately tweak their forecasts. What happens is, that as analyst anchors their expectation to previous information then surprises that happen are even larger in the end. This failure to adjust expectations can then lead to value stocks and large price jumps.

4.2.4. Psychology and limits to arbitrage

Arbitrage refers to a situation where investors are able to gain a riskless profit due to the market mispricing an asset. By buying an undervalued asset or vice versa cashing the profit when prices have returned to normal. In reality the risk is that the market can continue to misprice the asset even further. This is called as the "Noise trader risk", introduced by Long, Shleifer, Summer and Waldman (1990). Noise trader risk happens when irrational investors keep moving the price of an already mispriced asset to the same direction, despite the actions of one or more rational investors. Also transaction costs add more risk to the equation therefor limiting arbitrage behaviour.

4.2.5. Mental accounting

A typical investor does not see every euro that he possesses as being identical. Mental accounting theory helps to explain why it is quite typical for investors to divide their money to "safe" money invested in low-risk assets, while investing their "risk capital" very differently. Once money has been placed in one mental account, it no longer is a direct substitute for money in another mental account. Mental accounting theory tries to understand this psychology of decision making.

Mental accounting has three components according to Thaler (1999). First, outcomes are apprehended and experienced. Based on this, decisions are made and later evaluated. Second, activities and sources are categorized. For example to invest or to save and also the use of these funds for such as housing and food. Lastly, these accounting activities are rebalanced daily, weekly, monthly or so depending of that person's personal preferences.

Gross (1982: 150) claims that in cases where client's investment is at a loss a stockbroker can keep their customer by using words "Transfer your assets", instead of referring to selling and buying. Selling would lead the investor to acknowledge their loss, but now they merely transfer their money from one mental account to another.

4.2.6. Myopic loss aversion

People have stronger reaction to losses in their wealth, than they do to increases even if gains are bigger than losses. Psychologically losses are taken approximately twice as heavily compared to gains. A myopic investor is defined as a person who tends to make short-term decisions over long-term ones, and often evaluates their losses and gains. An example of this would be to follow a myopic and a non-myopic investor. Myopic investor would likely avoid stocks and invest into assets such as safe and stable government bonds. If he had stocks he would constantly check the market and in the case of a loss, feel it emotionally as very painful. Therefore myopic loss aversion leads investors to choose portfolios that are overly conservative. While a non-myopic investor would not check the market as often and would be comfortably unaware if his wealth happens to take an occasional downhill. Therefore he prefers long-term investments with better returns over safer government bonds. (Thaler, Kahneman, Tversky and Schwarz 1997)

4.2.7. Framing

As defined by Tversky and Kahneman (1981) the term "decision frame" means the acts, outcomes and contingencies that a decision maker associates with a certain choice. This one frame depends of their personal characteristics, norms, habits and also how the problem is presented. As problems can be presented in many different ways, that can also change the outcome of framing. According to Tversky and Kahneman (1981: 457), "Individuals who face a decision problem and have a definite preference might have a different preference in a different framing of the same problem, are normally unaware of alternative frames and of their potential effects on the relative attractiveness of options".

4.2.8. Prospect Theory

Developed by Tversky and Kahneman in 1979, it is an alternative theory to analyze decision making in situations that contain risk. Expected Utility Theory, as explained earlier, is used by traditional finance but it is in problems in situations that contain risk. Prospect Theory (PT) focuses on gains and losses instead of wealth. Also, instead of using probabilities and risk aversion PT uses decision weights and loss aversion. An outcome is called a prospect, and a prospect includes a decision with some level of risk.

Decisions are made in two levels: The editing and evaluation levels. In the editing level possible outcomes are put in order, according to some heuristic. This can be explained by people looking at the outcomes and they make a mental note of an approximate and possible average outcome. By using that average as their reference point they'll then categorize lower outcomes as losses and higher ones as gains. So Tversky and Kahneman state that humans prefer focusing on gains and losses instead of their final wealth. Therefore opposing the Expected Utility Theory. (Tversky and Kahneman 1981)

4.2.9. The Band Wagon Effect

Is a form of group thinking. With stocks it refers to a situation when more and more people start to buy a certain stock the more will follow, therefore increasing the demand more and more. They might do this despite their individual beliefs and opinions, simply because other people are doing it. As more and more people join, those that are still out are under group pressure to "join the fun". The expression, "hop on the band wagon" is typically used when this kind of a group effect is happening. Bandwagon effect has two sides to it according to Shefrin (2007: 248). First, it is believed that crowd must know something. Second, losers don't want to be alone. In the case of negative returns, the pain of regret is eased by the knowledge that many others made the same mistake.

This theory helps us to understand why growth and value stocks perform as they do. As more and more people abandon the stock, it becomes a value stock when enough people have "left the band wagon". Growth stocks are the opposite until they reach their peak when the first people start jumping off. The most rational investors should be the first ones to jump on and off the stock.

5. METHODOLOGY AND DATA

5.1. Data

Data is gathered from Datastream. In the case of Argentina, Brazil, Chile, Colombia, Mexico and Peru all companies contained in the Datastream were taken. With USA and Canada data is from companies in the main indices. From USA I am using S&P 1500 and then Canada's largest index. Especially in the case of Latin American data many companies were entirely missing some of their ratios and those companies were deleted from the data to ensure all companies are comparable in all tests. North American data was of great quality and needed only deletion of a few companies.

Data is yearly data, from the end of 1999 to the end of 2013. All stocks have their price (prices are in USD), price-to-earnings (P/E), price-to-book (P/B), price-to-sales (P/S), cash-flow-to-price (CF/P), dividend ratio, and also market capitalization information included. Values of the last trading day of the year are used to create new portfolios for the following year and calculate returns that have been received so far. Value investing returns will then be looked at on a yearly basis, counted from portfolio creation. Meaning, that stock's return is counted by using its value during portfolio creation and comparing to happened change.

5.2. Methodology and hypotheses

Actual research part involves sorting the data according to their ratios and seeing which method (e.g. P/E or CF/P) provides the best results, and which portfolio (North America or Latin America) provides the best returns. All strategies are applied without a delay between the ranking period and the moment of portfolio formation. Ten portfolios are formed to separate value and growth stocks. These portfolios are then followed for the maximum time to see how their returns change in the long-term. North American and Latin American data sets are tested separately. This is done (I) to provide two independent tests for the same investing method and (II) to compare how returns differentiate between North and Latin America. It provides added evidence supporting the strategy if it performs in similar way with both data sets.

Maximum holding period is used because Lakonishok et. al. (1994) showed that 5 year portfolios clearly beat returns from portfolios with one or three year investment horizon. To test this I am also reporting longer holding period returns. All returns are presented as yearly averages or in cumulative form. Reasons for looking at such long investment periods is that I am interested to see if long-term investors would have an edge over investors who would only hold their stocks for a few years.

Used strategies are one-ratio strategies (P/E, P/B, P/S, size, DPS and CF/P) that are simple and available to be used by any investor. Those ratios represent the most studied ratios in academia and they are used in many different ways, such as alone or in different combinations. All of them are actively used, and even size (see chapter 2) has been shown to contain value premiums that grow as firm size gets smaller.

Chosen hypotheses:

I Value groups beat growth groups.

This is to be expected based on previous research. More interesting detail is how well different strategies perform against each other. This will be looked in chapter 6.

II Emerging markets provide higher returns.

Again this is to be expected. Though I believe it should be down in writing so it is remembered and thought about if results show any indication against it.

III Longer investment period is more profitable than a shorter one.

This hypothesis is added due to research performed by Lakonishok et. al. (1994), where they show that their longest holding period of five years outperforms shorter holding periods. Under limitations of this study I will see which holding period provides highest returns.

IV When grouping of a single ratio strategy is analyzed, it will reveal supporting behaviour from other ratios as well.

In chapter 7 I will choose the best performing single ratio strategies from chapter 6. Then I will study behaviour of other ratios inside them. An example for clarification: I

attempt to see if stocks organized by their S/P ratio appear to be in similar order as if they had been grouped according to their P/B ratio. I then attempt to conclude if this information could be used to more efficiently pick out stocks that will be performing weakly in the future.

These hypotheses are chosen, because in their simplicity they provide strong enough base to perform value investing research by using simple financial ratios in North and Latin American markets. More complex hypotheses could have been used, but as there does not exist much research about Latin America, it is better to start with simple basics and leave more complex tests for future researchers. Data that I received and my preliminary results made me most interested of the chosen direction that you can see in the following pages.

6. EMPIRICAL FINDINGS

This chapter goes through the actual results gotten while testing different value investing strategies with North and Latin American data. Results and comparison is interesting because data samples are very different from each other. First, North American data (USA and Canada) is the developed market and is formed from S&P 1500 and main Canadian index. This sample contains stocks that are currently in the index, which means that downward deletions and bankrupt companies are not included in the data. This will certainly affect the results. It also makes results more interesting, because a working investing strategy has to show superior returns over a group of stocks that contains no actual failures.

Latin American data (Argentina, Brazil, Chile, Colombia, Mexico and Peru) is completely emerging market sample. Unlike North American data, Latin American data contains all companies (failures as well). But due to weak quality of data large part of the data had to be deleted due to missing ratios needed for testing. Final data consists of about half of the amount of companies as North American data. Due to this data containing also failed stocks, it is interesting to compare results from there two data samples. I believe that strategies that show clear results with both data sets then indicate strong proof for the real life usage of that strategy, despite the market where it is used.

6.1. Changes in the Market

First I will look at how the market has evolved during this study period of 2000-2013. In table 3 can be seen yearly market returns. These returns are based on all the North American and Latin American stocks in the final sample. Also number of companies per year in the study, mean and median size with smallest company size also listed for reference, and finally mean and median P/B ratios to show if the market is generally under or overvalued. This is interesting especially because strongly overvalued market will have less value opportunities to invest in. This can, and likely in some extent will then lead to weaker value returns. From this point of view it will be interesting to see if size strategy is able to overperform, because it measures nothing but the market cap of the company and therefore is not dependent of how big company's sales were or how sales compare to stock price.

Table 3. Market returns based on the sample.

Data sets' average ratios to show evolvement of the market and its situation. Yearly return is counted by comparing it to the previous year. Number of companies, size, and P/B ratio are based on the last trading day values of that year. NA is North America and LA is Latin America.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Market's yearly return based on the data sample														
NA	0.21	0.22	0.10	0.66	0.29	0.24	0.21	0.10	(0.34)	0.55	0.27	(0.02)	0.16	0.34
LA	(0.08)	0.01	(0.09)	0.72	0.59	0.45	0.38	0.63	(0.36)	0.83	0.47	(0.15)	0.16	(0.01)
Number of companies														
NA	1365	1398	1428	1458	1501	1538	1578	1618	1635	1655	1674	1694	1705	1706
LA	574	588	590	595	606	623	641	697	694	696	712	717	713	699
Size (mil.)														
NA														
Mean	7510	6916	5503	7054	7796	8201	9183	9633	5937	7730	8902	8638	9742	12298
Median	983	1073	957	1333	1613	1747	2056	2047	1235	1765	2188	2154	2413	3050
Smallest	0.1	0.02	0.1	0.1	0.3	3.0	3.0	0.8	0.8	0.8	51	50	107	150
LA														
Mean	396	387	291	475	661	899	1225	1759	955	1804	2394	1927	2240	1993
Median	55	49	39	69	109	149	205	382	173	319	475	384	413	358
Smallest	0.04	0.1	0.02	0.02	0.02	0.03	0.02	0.04	0.1	0.05	0.2	0.13	0.2	0.1
P/B														
NA														
Mean	4.8	3.7	2.4	2.8	3.4	3.0	6.6	2.9	0.9	2.7	2.4	2.3	2.9	2.6
Median	1.92	2.0	1.7	2.2	2.4	2.3	2.4	2.1	1.4	1.7	1.9	1.7	1.7	2.1
LA														
Mean	1.3	1.0	1.1	1.5	1.8	2.2	3.2	3.2	3.1	1.2	2.6	1.9	2.6	5.0
Median	0.8	0.7	0.7	1.0	1.3	1.3	1.5	1.8	1.1	1.5	1.7	1.4	1.5	1.7

First of all, table 3 shows the annual index returns (based on the data), which are one way to compare if value investing strategies work efficiently enough. To work efficiently, first of all they have to beat the index that it is compared to, in this thesis second comparison is against the growth groups. As later is to be shown, value groups do beat their index returns. For comparison, one dollar invested in this North American index at the end of 1999, would have returned \$10.36, versus \$11.68 by the Latin American index. These give a yearly return of 18.95 and 19.89 per cent, respectively.

Next, the number of companies can be seen growing from beginning of the sample period till the end. For North America this is mainly because it is index data and it only contains stocks that were in the index when this data was taken. In the case of Latin America it indicates that the market has grown, as is to be expected when looking economic indicators of these countries. Latin America's final years show a deduction in the number of companies, this can just be due to data quality (Figure 5 shows how some markets have not experienced real growth during recent years).

Most interesting reason to include size in this table is to compare how big an average company is. Can be seen that both North and Latin American companies have grown much larger during this period. Though difference between their means and medians has only grown larger, Latin American companies have grown faster (As indicated by figure 5). If looking at the smallest companies reported, we see sudden and quick growth in North American data. That is again likely due to the index data not containing other than companies, that are currently included in the index. For some reason these companies have experienced a strong growth period after the market calmed down from the global credit crisis. Similar effect is not in Latin American data, which helps to confirm that this data is not index data, but is what has already been stated. If leaving last North American years out, smallest companies seem to be of very close size, under one million. This is interesting for investors, such as those who look for micro companies that, due to their size contain large growth potential and are too small for major investors.

Price-to-book shows the average valuation of all companies. This information is also interesting later, when I go through group details and their ratios. Market price would be equal to the book value of a company, if the P/B ratio was one. Below this shows undervaluation, meaning that market price is under the actual book value of the company. Over P/B of one again means overvaluation and that market price is higher than the value of the company.

North and Latin American data sets have clear difference in their P/B ratios, and again support what can be seen in figure 5, and later in figure 8. Latin America starts being much cheaper, even undervalued by its median, and although market prices clearly rise as years go by Latin America, by its median, is always cheaper. Mean has a bit more fluctuation, but this is more likely due to the extreme cases of overvalued stocks. Therefore I prefer referring to median. Interesting point is how valuations changed during 2008-2009, as that time frame shows a clear fall in average valuations. Perhaps the most interesting notation is that North American mean fell to 0.9 in 2008, which indicates that big companies actually lost a large part of their market price during this time for the whole average be able to fall this low.

6.2. Comparing Investing Strategies' Results

I will begin with comparative results of all single ratio strategies used in this thesis. In table 4 (see appendix 3. for cumulative returns) you can see averaged yearly returns for each strategy and data set (NA = North America and LA = Latin America). Growth

contains groups six to ten, that are supposedly the overvalued groups. Value contains groups one to five, which are expected to be undervalued compared to the growth groups and overperform them. Dividend group (DPS) is divided to low and high dividend groups.

Interesting with appendix 3. is that it is heavily influenced by largest cumulated returns. Therefore revealing which ratio had the strongest growth of all during the possible time period. Results are to the same direction as with table 4, but differences are larger. According to the table difference between LA and NA is very wide, but that also many LA growth groups were able to beat NA value returns. This, I believe, again shows how strong the market growth in Latin America has been during this time frame. As all stock groups have a chance of overperforming their competitive index (In this case North America), it should be likely that market has experienced an exceptional growth period.

Table 4. Averages of yearly returns.

	NA		LA	
	Growth	Value	Growth	Value
P/S	0.105	0.187	0.161	0.277
Size	0.082	0.217	0.175	0.288
P/E	0.107	0.149	0.173	0.266
P/B	0.135	0.173	0.178	0.270
CF/P	0.149	0.167	0.177	0.274
	L DPS	H DPS	L DPS	H DPS
DPS	0.221	0.103	0.239	0.216

What becomes clear, based on this table, is that in all cases value groups beat growth and LA beats NA. Dividend groups raise an interesting notion that low dividend paying groups (most companies in this part of the sample paid zero or close to zero dividends) gave a better average return than high dividend companies. This was also shown by both data sets. I'll come back to dividend groups later. First more detailed look on the group comparison.

Table 5. Average yearly returns per group.

		Value									Growth
P/S	NA	0.297	0.189	0.155	0.150	0.145	0.130	0.124	0.096	0.095	0.081
	LA	0.426	0.265	0.264	0.238	0.192	0.197	0.177	0.143	0.136	0.152
Size	NA	0.519	0.192	0.148	0.123	0.105	0.108	0.097	0.091	0.081	0.035
	LA	0.406	0.278	0.301	0.243	0.211	0.217	0.191	0.173	0.154	0.139
P/E	NA	0.228	0.145	0.130	0.123	0.118	0.110	0.110	0.108	0.101	0.105
	LA	0.399	0.253	0.266	0.219	0.191	0.188	0.160	0.161	0.166	0.190
P/B	NA	0.138	0.280	0.164	0.148	0.136	0.128	0.131	0.132	0.105	0.177
	LA	0.400	0.283	0.241	0.227	0.198	0.184	0.159	0.172	0.163	0.212
CF/P	NA	0.146	0.241	0.166	0.155	0.128	0.129	0.128	0.113	0.100	0.273
	LA	0.417	0.300	0.242	0.231	0.178	0.160	0.155	0.119	0.170	0.280
		H DPS									L DPS
DPS	NA	0.104	0.091	0.096	0.114	0.110	0.126	0.157	0.178	0.232	0.415
	LA	0.280	0.248	0.208	0.180	0.164	0.134	0.161	0.222	0.265	0.410

Table 5 above shows each groups yearly average for the whole study period. Also, all returns were tested to be meaningful as t-ratios were significantly over 1.96. Now the information by table 4 looks a bit different. For example, when testing size strategy, smallest NA group 1 outperformed LA group 1 by a clear margin of 11.3 %. But NA groups two to five clearly underperformed their LA counterparts.

In fact, only one other LA group was outperformed by an NA group. This was lowest dividend group, by a small margin of 0.5 %. I remind the reader about figure 5 which compares how stock markets of these countries have evolved during this study period, and of table 3 which shows how undervalued these markets were. Considering that information, it isn't a surprise to see such strong growth and overperformance by the Latin American stocks in all groups.

Of these six ratios used I can see clear and most constant outperformance by two ratios, size and price-to-sales. These two gave the steadiest results. Especially period around 2004 to 2008 was very chaotic for some of the strategies, making returns unpredictable and it was impossible to know which group was to be a top performer. With size and S/P this problem was less existant. Typically when S/P and size strategies didn't work perfectly, top performers were still in the value half of all groups and groups one was not far behind the top performer.

The performance of P/B and CF/P strategies is interesting for group one in North America. As these groups clearly lost to their Latin American counterpart and were bottom of the value groups in terms of return. This is difficult to explain in any way. With P/B it could be that lowest valued companies are more often on the verge of an actual bankruptcy. Plus, Datastream might calculate P/B in a different way, as goodwill and intangibles can greatly affect the result without perhaps adding any actual value. But I cannot explain why the same effect is not then seen in Latin American groups. For CF/P it is even more peculiar as cashflow does not behave like book value.

Also Lakonishok (1994: 1547) writes what might and might not be included in a P/B ratio. He notes how it reflects many different factors and intangibles may contain research and development expenses, which are also very valuable for a company. His point is simple: “M/B is not a “clean” variable uniquely associated with economically interpretable characteristics of the firms”. So even though P/B does deliver great results in some cases, it alone is not a great valuing tool to find underpriced companies due to what it might and might not contain.

Next I will do a closer look at the results of size and S/P strategies in different ways. First I will focus on the returns of first groups and check how period length has affected the returns. Between size and S/P it seems that S/P is the one that should be favored. This conclusion would support views of Bird and Casavecchie (2007b: 6), who write that they have found S/P to be the best ratio to separate value and growth stocks. This could be because market might consider strong sales growth could be more important than anything else. Later I will look at the details behind size and S/P strategies and I will show that size is still an important factor to keep in mind, as are the others.

6.3. Size and Sales-to-Price: Group One Returns and Period Length

6.3.1. Size

Importance of company's market value from an investing perspective has been previously proven by researchers such as, Basu (1983) and Piotroski (2000). Main idea to explain small firms' outperformance is simple: They have space to grow and have room for surprise. I mean that small firms can grow more than big ones, the bigger a firm already is the more difficult it will experience its search for new investments with

strong return expectations. By room for surprise I refer to that small firms are less often followed by analysts. This can be for example due to behavioural reasons as previously explained, as it is safer to focus on the big firms like most other analysts. Following all the young firms that try to get a foot in the industry is also more difficult. Leading to surprises as some firms fail and some succeed in different speeds.

Again, as I'm writing about table 6 that contains returns for group one, I must point out that North American data does not contain companies that were deleted from the index. This could be the reason why NA is able to provide clearly stronger size returns than LA portfolio. Based on the one year holding period returns, one dollar invested in North American's group one of size strategy would have been 1412 dollars at the end. Versus 76 by Latin America. Because size and liquidity of a stock are what keep the stock in an index, size strategy could strongly show the effect of deleted stocks to a study such as this one. Nevertheless these results are interesting, as long as they are not taken as final truth.

Now perhaps the most interesting part is to compare final returns if an investor had been reinvesting at the end of every year, versus longer holding periods. I will focus on Latin American returns due to previously explained issues with North American results. Firstly, if an investor simply had been rolling her investment to a new one at the end of each year, her geometric mean return would have been 36.3 percent. This leads original investment to double up in value during early part of every third year. 0.363 is also the number that can be compared with other returns in table 6.

When looking at the averages at the bottom of the table, can clearly be seen that there is slight growth till seventh holding year (also it is very interesting to note, that NA average returns are at their top at year one). It is also clear, that LA returns get partly weaker as study advances towards its last years. Looking at figure 5 helps to understand why. Market has calmed down in almost all studied emerging economies, which obviously can results to smaller returns. Should also be noted, that the whole table contains only two reported return that are negative.

Now, if looking at the returns inside the average, it can be seen that even during ninth holding year half of the reported returns were clearly over 0.363. After that returns start to go down. Differences between groups can of course be large, as in the end success of a group depends of the companies in it. When looking at all strategies and badly

performing individual years I noticed, that it seems obvious that if during first years after investing value group underperforms the growth groups, then better returns should be achieved by redoing the portfolio. This was not tested, but seems a valid strategy, as quite often (not always) underperformance of the value group was permanent when it was clear in the beginning.

Table 6. Size strategy's returns for group one.

Reported returns are geometric mean returns per year for group 1 from portfolio creation till the end of the holding period. NA refers to North America and LA to Latin America.

		Holding period in years													
		1		3		5		7		9		11		13	
		NA	LA	NA	LA	NA	LA	NA	LA	NA	LA	NA	LA	NA	LA
Portfolio starting year	2000	0.348	0.005	0.540	(0.006)	0.546	0.178	0.477	0.246	0.293	0.208	0.345	0.225	0.284	0.172
	2001	0.786	0.065	1.022	0.181	0.728	0.437	0.564	0.548	0.424	0.445	0.364	0.279	0.321	0.203
	2002	1.818	0.170	1.083	0.511	0.848	0.551	0.424	0.498	0.512	0.488	0.380	0.287		
	2003	2.195	0.961	1.131	1.170	0.828	1.056	0.542	0.723	0.447	0.437	0.356	0.301		
	2004	0.866	1.001	0.798	0.693	0.301	0.740	0.425	0.651	0.309	0.306				
	2005	1.112	1.013	0.781	0.750	0.389	0.440	0.304	0.359	0.273	0.272				
	2006	0.623	0.423	0.090	0.410	0.286	0.480	0.199	0.322						
	2007	0.402	1.215	0.164	0.446	0.186	0.409	0.202	0.272						
	2008	(0.221)	0.206	0.209	0.421	0.165	0.304								
	2009	1.710	0.334	0.621	0.278	0.478	0.143								
	2010	0.508	0.285	0.274	0.153										
	2011	0.045	0.034	0.287	0.054										
	2012	0.352	0.133												
	2013	0.615	0.009												
Averages:		0.744	0.390	0.538	0.389	0.432	0.431	0.349	0.402	0.323	0.308	0.289	0.218	0.202	0.125

According to the evidence it seems that investing into smallest companies is a very profitable strategy. Most investors in this case would probably prefer North American micro stocks. This is understandable as emerging markets unpredictability, for an investors that is concerned about such matters, is a big fear and therefore large companies seem like a much safer investment target. Still, as later will be shown, size remains to be an important part even in the success of other ratios.

6.3.2. Sales-to-Price

Sales-to-price, as name states, compares company's sales to its price. Companies with large S/P ratio have higher sales compared to price, and if we compare two companies with some certain similarities (such as same industry and similar size of sales) it is easy to see if the other firm is cheaper than the other. Success of S/P depends on surprising or sudden sales growth, that the market had not been able to anticipate and add this to its stock price. Therefore, S/P is also a great ratio to see if markets are really efficient and how much knowledge there was available before company published its annual or quarterly report.

Sales-to-price was the only strategy with size to provide constantly outperforming results. With North America only the global credit crisis period mixed the results. For Latin America results went to haywire for a longer period until they normalized to show outperformance on the part of group one again later during last year of this following period. Problems were obvious with portfolios that were formed during the financial crises period or close to it. Effects could be seen in the data a few years before stock markets crashed. Strength of the effect varied among different ratios. Of those ratios size and S/P seemed to hold their own the best.

In table 7 below, I see a difference compared to previous table 6. Table shows returns for group 1. This time North American holding year one does not show such performance over Latin American returns. Also, this time I expect North American returns to be decently comparable due to size being a critical ratio to use with index data. One dollar invested and reinvested after every one year holding period, would have at the end of this study period grown to 70 and 204 dollars for North And Latin America respectively. Geometric returns would be 0.3564 and 0.4627, respectively.

With S/P, if comparing the averages at the bottom of the table it can clearly be seen that Latin American returns are constantly larger. Comparing individual groups at different holding periods shows that it is not often when Latin American results underperform in a clear way, and overperform more often. Also, based purely on the averages can be seen that Latin American returns are high till ninth year, whereas North American returns are constantly getting clearly lower in a much faster manner.

Table 7. Sales-to-price strategy's returns for group one.

Reported returns are geometric mean returns per year for group 1 from portfolio creation till the end of the holding period. NA refers to North America and LA to Latin America.

Portfolio starting year	Holding period in years													
	1		3		5		7		9		11		13	
	NA	LA	NA	LA	NA	LA	NA	LA	NA	LA	NA	LA	NA	LA
2000	0.352	0.030	0.371	(0.023)	0.376	0.209	0.329	0.210	0.206	0.180	0.231	0.230	0.205	0.208
2001	0.822	0.155	0.671	0.193	0.446	0.498	0.352	0.619	0.286	0.488	0.249	0.329	0.263	0.293
2002	0.259	0.179	0.536	0.602	0.408	0.484	0.194	0.512	0.295	0.528	0.241	0.333		
2003	1.124	1.169	0.688	1.333	0.499	1.161	0.329	0.767	0.255	0.486	0.261	0.374		
2004	0.432	1.249	0.441	0.671	0.141	0.404	0.191	0.436	0.165	0.332				
2005	0.320	0.978	0.423	0.838	0.186	0.555	0.130	0.386	0.203	0.281				
2006	0.305	0.468	(0.039)	0.454	0.087	0.462	0.086	0.292						
2007	0.053	1.559	(0.021)	0.451	0.013	0.267	0.082	0.156						
2008	(0.337)	(0.255)	0.079	0.080	0.087	0.055								
2009	1.564	0.966	0.525	0.320	0.444	0.260								
2010	0.306	0.539	0.179	0.157										
2011	(0.031)	(0.089)	0.190	0.032										
2012	0.296	0.189												
2013	0.496	0.653												
Averages:	0.397	0.519	0.311	0.399	0.244	0.396	0.188	0.375	0.202	0.328	0.196	0.253	0.156	0.167

This Latin American overperformance could be due to markets being emerging. A company that is able to show a strong growth in sales is also target of strong interest from investors in developed nations, due to their desire to benefit from emerging market growth. Table 7 and 6 show similar results in term of where their best returns are. As you look at later years when portfolios were started you also start to see smaller returns. Now, this could be due to the global credit crises mixing the market partly in favor of the overvalued groups. Market has been recovering from that, but latest portfolios that should again be correctly balanced do not have enough years to prove their value. It is interesting that, for example, 2013 returns are strong and could be the first year of a very profitable portfolio. Therefore, repeating this study later in the future will show interesting results from these markets.

6.3.3. Importance of Long Holding Periods

Of course a study period starting at the year 2000 and ending at the end of 2013 is not long enough to make any final conclusions on the length of proper holding periods. In the end every holding period depends on the market situation and an investor can only act according to her best knowledge. In any case, if looking at cumulative returns (see appendices 4 and 5 for all uneven holding years, and note ten best performed cumulative returns that are marked) it can be seen that earlier part of created portfolios, from later parts shows the best cumulative returns. With size strategy, for North America twenty best cumulative returns were between years 6 to 14. Ten best place between years 7 to 14. With Latin America results are a bit different, as twenty best are from 4 till 11, but ten best go from 5 till 10.

Looking at sales-to-price and cumulative return tables shows similar results. Best returns are again provided by groups that had been started in the early years, and longer periods shows the best cumulative returns. As done in previous paragraph with size, twenty best North American returns are between years 6 and 14. Latin America again places a bit earlier taking years 5 to 13. Ten best returns behave similarly, North America between 6 and 14, Latin America being from 5 till 11. Earlier results with P/S (table 7), that show larger results that geometric mean for rolling one year investments, show that for Latin America it is the ninth year that still shows comparable return results. Whereas seventh year for North America is already the maximum length. Though, as stated previously I advocate careful consideration with North American size returns due to structure of the data that creates survival bias. Latin American results show similar results with size based returns.

So in the end results cannot be said to be conclusive on the length of an investing period. This is to be expected, as every early return depends on the overall market behaviour and how portfolio companies happen to react to those market events. Results do show that with an investment style as this, where large portfolios are formed to get a strong average return, just one year rolling strategy seems to be able to give a good return when used strategy is efficient enough. In this case, indexes were clearly beaten. Some long-term portfolios were able to beat this one year strategy and some weren't. In this study the global credit crises came to affect returns in different ways. It is something that would have been difficult to predict.

So my results are not against published research papers, such as Lakonishok et al. (1994), who showed that longer period is more profitable. I purely state that something like a one year rolling strategy is at least able to provide a comparable return that can clearly beat the index. Success of long-term holding period depends on many factors and those factors in the end determine if the portfolio is to grow through time. By my results it seems that holding periods longer than five years are generally better. Even around ten years, but certainly that will test investor's patience and is more suited for institutional investors than to an average private person.

6.4. Dividend versus Non-Dividend

This part is added to clear the some of the confusion caused by dividend strategy's results reported earlier. Of course, especially with Latin America yearly returns were not always as clear for DPS. North American results tended to show constant overperformance from non-dividend side (I write non-dividend because majority of the stocks in five groups on low dividend side paid no dividend at all.). Latin American results were less clear, as top three groups from every year of every portfolio tended to jump randomly between groups.

DPS results are somewhat against what was to be expected based on earlier studies. Levis (1989) and Keppler (1991) both found evidence to support high yield stocks. This difference could be due to size effect affecting DPS results. As data contains stocks from S&P 1500 and Latin America's all possible stocks, there are plenty of small firms that are unlikely to pay any dividends. Quality of the North American data certainly has some affect on the results as firms that were deleted (especially IT-bubble companies) would downgrade returns for zero dividend stocks. But this does not explain why Latin American sample (that is supposed to contain all possible data) is showing similar support for low dividend stocks. This is surprising considering previous research, but there is also some evidence for non-dividend groups as Shefrin (2007: 78) writes of a comparing test among mutual funds with different investing methods. Shefrin writes that the winner of the group preferred stocks with low dividend yields.

This result could be due to value effect. Small, badly performing and/or financial not strong enough firms are less likely to be paying a dividend than well established large firms. Also undervalued firms might suffer from financial difficulties and prefer not to pay any dividend. Dividends then might improve after company is again performing

better. Improved dividend simply happens to happen after improved financial situation, for example P/B and S/P ratios indicate undervaluation and strong sales. After this dividend is improved, attracting more investors to invest.

I will not be performing any deep look into possible details between well and badly performing dividend stocks. I tested dividend paying stocks and non-dividend paying stocks against each other. When testing North American data, if deleted stocks are the major reason for these results then later sample years should turn around. Two portfolios were formed for each year, portfolio of stocks that pay dividend and portfolio of stocks that pay zero dividend. Then difference was calculated by reducing return of dividend paying stocks from the return of non-dividend paying stocks (positive return indicates that non-dividend stocks outperformed). Results between North and Latin America are quite different in terms of stability.

Now in table 8 real differences can be seen. North America favours non-dividend paying stocks through the whole sample and Latin America mainly has the same direction. Whereas results from North America are constant, results from Latin America start to favor dividend paying stocks as we get closer to last years of the study. North American results show similar direction as difference among groups gets smaller, so perhaps future comparisons will reveal what has already happened in Latin America.

Table 8. Return difference between non-dividend and dividend portfolios.

		North America							Latin America						
		Holding period in years							Holding period in years						
		1	3	5	7	9	11	13	1	3	5	7	9	11	13
Portfolio starting year	2000	0.025	0.459	1.404	2.883	1.749	5.460	5.213	(0.112)	(0.282)	(0.271)	(0.142)	0.287	(0.390)	(0.197)
	2001	0.209	1.565	3.113	4.763	5.241	6.686	8.617	0.036	(0.178)	0.793	3.413	4.170	1.568	1.2145
	2002	0.284	1.534	4.195	2.128	8.590	7.153		0.076	0.288	1.523	3.520	7.916	4.405	
	2003	0.596	2.062	4.462	4.692	6.356	6.962		0.145	1.699	7.440	8.723	5.100	2.812	
	2004	0.1463	1.051	0.6186	2.704	2.538			0.108	0.629	3.214	6.244	1.174		
	2005	0.312	1.212	1.178	1.525	2.307			0.173	1.116	1.036	0.744	0.150		
	2006	0.157	0.115	0.801	0.770				0.073	0.370	0.137	(0.158)			
	2007	0.155	0.238	0.398	0.732				0.357	0.311	0.262	(0.249)			
	2008	(0.345)	0.287	0.313					(0.109)	(0.413)	(0.382)				
	2009	0.505	0.881	1.522					(0.167)	0.141	(0.180)				
	2010	0.141	0.195						0.217	0.159					
	2011	(0.014)	0.215						(0.043)	(0.965)					
	2012	0.070							(0.038)						
	2013	0.151							(0.003)						

Table itself shows quite clear results, on average a non-dividend paying stock has outperformed a dividend paying stock. Though, difference between these two stocks seems to have gotten smaller through the years, even favoring the other group in the end. Now one difference here is that there are different ways to do dividend investing. Someone might prefer investing into 10 highest dividend paying stocks as is the idea of “Dogs of the Dow” strategy, a strategy that I am not testing here. I am merely looking at a very large group average to better understand results shows in tables four and five.

I suggest more research to be performed on the performance of non-dividend paying stocks, as my own work is too simple to know if results are purely due to quality of the data or how it has been organized. If undervaluation is part of the cause of the success of non-dividend paying stocks, then I might see that unravel later as I give a more detailed look to size and P/S strategies. If it can be expected that a zero dividend stock is likely to perform better than another stock, that pays some level of a dividend, then it would seem that it is better to use other ways to find the good stocks and merely take dividend ratio as extra information.

I conclude, that dividend ratio does not work as an investment method with large groups. Smaller groups could provide better results, but those have to be constructed by the help of other ratios or focus on the extreme cases end of best dividend paying stocks. As an example of a smaller portfolio strategy of dividend paying stocks: Dogs of the Dow strategy is shown to work for example by Rinne and Vähämaa (2011), and by Da Silva (2001), but its effectiveness also faces criticism by the likes of Domian, Louton and Mossman (1998), and Hirschey (2000).

7. BEHAVIOUR OF RATIOS

Next I will focus more carefully to analyze the results by size and price-to-sales strategies. It is done to understand the behaviour of sorting ratios, and behaviour of those ratios that are not used to sort the data. By this I hope to better understand if investing results could be improved by performing a more careful stock selection process, that is still simple and quick to perform. Now I am not stating that all stock selection could be performed simply by basin decisions on valuation ratios, but when creating large portfolios that in the end will contain winners and losers. It was found by Rousseau and Rensburg (2003), that major part of groups return is due to a few overperforming stocks. If with that in mind it would be possible to separate future losing stocks from the group during stock selection process, then overall return average would be improved.

Table 9. Breakdown of groups' ratios based on S/P.

Average ratios of groups 1, 4, 7 and 10 from the moment of portfolio formation.													
North America							Latin America						
		P/S	Size (mil.)	P/B	P/E	CF/P	DPS	P/S	Size (mil.)	P/B	P/E	CF/P	DPS
G1	Mean	0.27	2 674	1.64	24.56	0.57	0.013	0.14	160	0.76	18.93	0.67	0.025
	Median		833	1.21	13.60	0.19	0.038		28.6	0.54	5.64	0.32	0.030
	Min		37.9	(18.96)	2.72	(0.72)	0.000		0.21	(4.89)	0.29	(5.99)	0.000
	Max		63 303	55.92	499	10.47	0.162		2 907	13.23	272.76	16.05	0.275
G4	Mean	1.02	7 072	2.22	24.49	0.59	0.017	0.66	714	1.46	32.88	0.38	0.037
	Median		1 713	1.81	16.99	0.13	0.012		188	1.14	10.38	0.19	0.015
	Min		61.2	(16.88)	4.35	(0.20)	0.00		2.8	(0.69)	2.11	(0.31)	0.000
	Max		231 151	38.0	409	14.63	0.136		10 414	11.56	535	8.35	0.488
G7	Mean	2.23	9 870	2.56	29.85	0.57	0.016	1.55	2 191	2.14	26.78	0.19	0.034
	Median		1 955	2.21	19.89	0.10	0.007		606	1.65	13.95	0.13	0.019
	Min		80.3	(50.68)	5.33	(1.03)	0.000		4.3	(0.72)	3.22	(0.45)	0.000
	Max		264 659	49.65	536	22.84	0.166		39 601	25.83	320	3.22	0.208
G10	Mean	45.2	1 156	5.42	81.88	0.22	0.016	3 523	1 149	6.31	231	0.07	0.052
	Median		2 288	3.85	38.64	0.05	0.004		413	1.61	16.79	0.04	0.015
	Min		76.3	(33.17)	7.50	(2.0)	0.000		2.9	(1.02)	1.47	(0.28)	0.000
	Max		273 050	86.96	2 349	5.18	0.137		12 371	150.89	6 236	1.39	1.121

In table 9 above, can be seen details behind the S/P strategy. By details I mean all the other ratios used in this study, their averages for each group from the whole period. Later I will go into more detail with group one and separate the period into three smaller sections to better understand how results vary between years. I start with tables 9 and 10

which help me to understand how ratios have behaved between groups one, four, seven and ten. In all tables it can be seen that minimum values are negative (negative values are in brackets) due to the original data containing negative values, though typically such ratios would not even be shown. From now on I only focus on P/S and size strategies due to their better and steadier performance. Perhaps in different scenarios different strategies would appear the best, but now I will focus on those that have shown best results with the data I have in my disposal.

Table 10. Breakdown of groups' ratios based on size.

Average ratios of groups 1, 4, 7 and 10 from the moment of portfolio formation.													
		North America						Latin America					
		Size (mil)	P/S	P/B	P/E	CF/P	DPS	Size (mil)	P/S	P/B	P/E	CF/P	DPS
G1	Mean	178	5.21	3.52	35.6	0.31	0.011	3.15	59.2	1.09	125	0.39	0.046
	Median		1.04	1.36	17.78	0.11	0.000		0.35	0.57	2.68	0.22	0.001
	Min		0.05	(23.89)	2.61	(0.75)	0.000		0.03	(0.52)	0.12	(3.42)	0.000
	Max		374	252	574	8.89	0.192		2515	16.9	4 206	7.45	0.945
G4	Mean	921	3.27	3.74	36.27	0.47	0.016	81	13.2	2.71	63.5	0.28	0.043
	Median		1.41	1.82	19.06	0.11	0.004		0.80	0.96	10.7	0.17	0.010
	Min		0.10	(40.04)	3.81	(0.78)	0.00		0.03	(20.7)	1.48	(2.58)	0.000
	Max		170	239	733	9.09	0.151		455	106	2 368	6.80	0.638
G7	Mean	3021	5.71	2.92	36.60	0.52	0.018	491	46.5	2.38	72.4	0.18	0.031
	Median		1.55	2.12	18.93	0.11	0.011		1.21	1.49	13.0	0.13	0.018
	Min		0.10	(15.90)	4.75	(0.77)	0.000		0.17	(4.31)	3.18	(0.42)	0.000
	Max		461.6	47.30	993	14.4	0.123		2573	32.0	2 296	1.59	0.247
G10	Mean	54 876	5.38	4.18	49.07	1.12	0.018	7 812	2.76	2.97	37.2	0.27	0.025
	Median		2.00	2.96	20.71	0.10	0.016		1.79	2.20	15.7	0.12	0.017
	Min		0.26	(37.61)	5.36	(1.01)	0.000		0.31	0.61	2.12	(0.22)	0.000
	Max		197	93.4	2 346	89.2	0.066		28.5	20.0	769	8.93	0.171

First of all, mean is not totally trustworthy due to it being overly affected by extremes. Therefore, I mostly advice you to look at the median, min and max results. Quickly can be seen, that all ratios are organized in value supporting fashion, even though they were not used to sort the stocks. This is clear in both S/P and size tables. Surprisingly all ratios follow the same rules in size strategy. Only CF/P offers no difference in North America (in this case the average is the ratio with a precise direction). What jumps out as a difference, is the behaviour of dividends. In S/P results the median dividend (note the behaviour of minimum and maximum numbers before making any conclusions) is bigger for group one and gets smaller from there. With size strategy the results are opposite, group one has the smallest median dividend.

This is not surprising with size, as small companies can be expected to not be able to pay good dividends until they have experienced a phase of strong growth with steady and strong enough cash streams. For a dividend investor it might be interesting to know, that S/P strategy automatically picks stocks that pay somewhat better dividends. Again, this is not a surprise when you think about it. Because sales growth makes it possible for company to have more cash and therefore pay better dividend than a company with an overvalued S/P ratio.

Median results also show differences in ratios between North and Latin American markets. To summarize, it can just be said that Latin American market is much cheaper by value terms. For example group one's P/E difference is large in both tables. Also, Latin American group ten has a median P/E ratio that in the North American data would place it in the value groups. Size strategy's group ten has a P/E ratio that is smaller than that of North America's group one! So by as a period average a huge undervaluation can be seen. This could heavily be affected by earlier years of the 21st century, and might have totally changed as emerging stock markets started to grow. I will share more details of this a bit later.

Not all years were as clear and supportive with their results as the tables indicate. Some individual years were totally the opposite, later table 11 will clarify this. Take a look at minimum and maximum averages in tables 9 and 10 which are the reason these results are not as easy to take into practise as everyone always hopes. Even though median results are as expected and follow value expectations, it is comprised of numbers that go up and beyond all expected boundaries. That is my motivation to go deeper into these numbers and try to understand what separates best and worst stocks in a group that generally outperforms all others.

In table 11 I have organized stocks in the group according to how well they had performed by the end of their third holding year. Third year was chosen to better separate those that actually experienced strong growth, as market could be slow to notice undervalued stocks. I also divided the time period into three sections to better understand the change that has happened. Especially the financial turmoil era in the middle, due to the global credit crisis shows some totally different behaviour from these numbers. I took the top and low performing 20 of North American group one, and top and low performing 10 of Latin American group one and averaged results from those years to portray their periods. This was because Latin American portfolios are much smaller than North American, and 20+20 stocks can even cause overlapping.

As I look price-to-sales and size results in table 11 my interest is most captivated by the median and maximum results. Maximum results show how far the limits have gone. To clarify, according to price-to-book an undervalued company has its P/B ratio under 1.0 and over that means market price is higher than the actual value of assets. If you look at P/B results of P/S strategy for top and low from North American data you see, that for top 20 first and last periods are undervalued and the low groups are overvalued. In the middle group top performers actually have a higher median. This is one example to illustrate how the period around the global credit crisis affected and mixed the market, leading to weaker returns as return part of this table displays.

Similar effect of mixed middle term results can be seen with S/P results' North American P/E. Latin American ratios tend to behave in a totally different way, as for example first period's top groups P/E is double that of low group's, but in reality these numbers are far below their North American counterpart. In any case, it is typical to see middle term being different from first and last periods results, and also some growth from the first period. This growth can be seen to be most noticeable when looking at median and maximum results in size columns of both strategies and of both North and Latin American data sets. Even in Latin America, even though smallest median results are extremely small micro-cap companies we see clear change happening. At least this tells us that the market has grown during the study period. Reasons for growth can be varied, from steady long-term growth to a market bubble.

Figure 8 clarifies the behaviour of P/B ratios in top (T) and low (L) performers by showing their yearly median development. It also shows the difference in situation and development between North and Latin American markets. Clearly Latin American market, from the view point of top performers in these strategies, started from a much cheaper situation and has through the years been approaching P/B of 1, whereas North American comparison group is constantly having a larger P/B ratio. This is an expected difference between a developed (where market and its investors are better informed and function more effectively) and emerging market. That is because a well functioning developed market does not present strong value opportunities as easily as an emerging market does (even if the market is well functional, it is still young and changing). Comparing last values of figure 8 with table 3 reveals that these stocks are cheaper than their markets, based on mean and median market P/B ratios. This gives us more support that looking for undervalued companies is more profitable for investors.

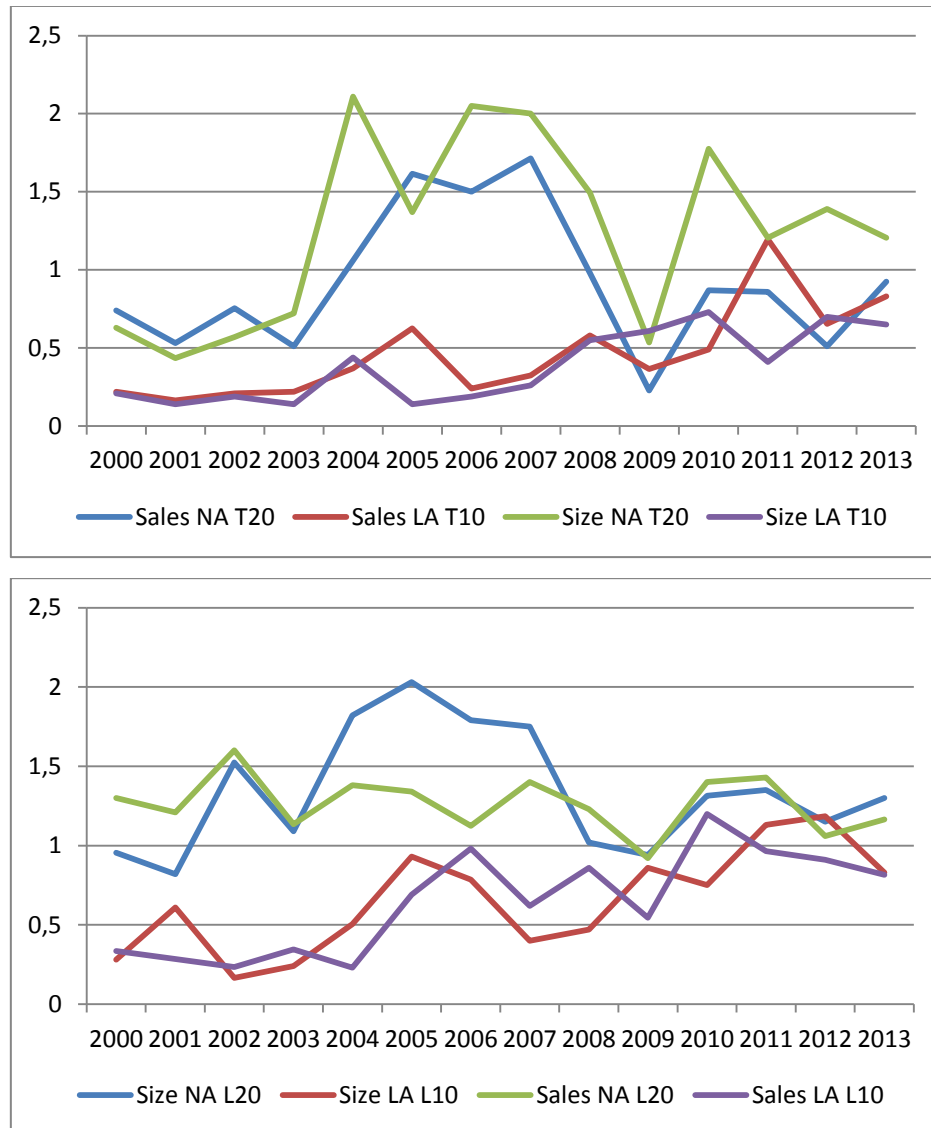


Figure 8. Evolution of price-to-book ratios.

Dividend ratios are also captivating yet mysterious in their behaviour. I have to focus on max results because even most medians are zero. North and Latin American dividend ratios in P/S strategy show opposite behaviour. As in the case of North America it is the low group, except during the middle period, that has the higher dividend average but Latin American results show top performers with a higher dividend ratio. If you look at dividend ratios in size strategy, you see that both data sets have best performing stocks giving a smaller average dividend. I wouldn't say that this provides any truly useful information itself. More interesting would be to know if a specific company has a high dividend ratio due to growing profits that the market has not noticed to add to its stock price, or due to other reasons.

With size strategy it should be obvious that smaller companies are less likely to be able to pay large dividends to their investors. So that results is perfectly what is to be expected. Difference between North and Latin America in S/P strategy is more interesting then. It could show how these two markets are in a different situation (developed market versus evolving market), or how their culture to pay out dividends differs from each other. Could of course be studied in more detail how dividend payout cultures differ between markets, especially in this case between emerging and developed markets.

Lastly, average returns from these groups. As results indicate, it is likely that bigger and smaller groups have good and bad performers since differences between top and low are absolutely clear. It should also be noticed, how first periods returns are clearly larger than in the last period. This change in returns could be still an after effect of the global credit crisis. As market perhaps still hasn't actually fully stabilized itself from everything that happened. Or perhaps the market is indeed in a bubble state, which mixes stocks too much to find proper returns with such simple strategies.

I remind you again of figure 5 that shows all countries' stock market development. In there we see how emerging markets (except Argentina) have not grown in recent years and that Canadian and USA markets have grown in a constant manner. Also table 3 shows yearly P/B ratios and comparing current values to previous, especially to values before global credit crisis shows that North American market is cheaper than before the crisis, while Latin American market is at its most expensive level. So it is not absolutely without basis to claim that the emerging markets are in a bubble, as we can see the stock market calming down and P/B ratios indicate strongest overvaluation during this period. A more precise look should be performed for any conclusions in this matter.

In terms of size results it is very interesting how constantly top 10's median and max results are smaller than those of the low performing part. Due to this it seems more and more obvious that size is an important factor for an investment into a stock. Due to the large differences between North and Latin America it isn't possible just to state a unified measurement for a good size to mark great investment possibilities. This should be studied in more detail to understand what are the details behind company's size and its success.

Table 11. Deeper look into best and worst of the winning group.

P/S strategy's top and low of group one.														
2000-2003			2004-2007				2008-2013							
	P/S	Size (mil.)	P/B	P/E	CF/P	DPS	Return	P/S	Size (mil.)	P/B	P/E	CF/P	DPS	Return
North America														
T20 Median	0.17	32	0.63	10.9	0.32	0.000	6.42	0.31	367	1.47	17.6	0.19	0.001	1.99
Min	0.02	1	(0.42)	2.60	0.00	0.000	3.84	0.07	46	(5.21)	8.68	0.02	0.000	1.35
Max	0.32	714	2.75	71.9	1.74	0.049	97.8	0.51	8 916	11.6	89.4	6.41	0.057	57.7
Latin America														
L20 Median	0.23	1 121	1.31	13.5	0.19	0.008	(0.157)	0.36	1 174	1.31	15.1	0.16	0.008	(0.44)
Min	0.06	26	0.25	5.93	0.01	0.000	(0.655)	0.13	256	0.06	5.1	0.04	0.000	(0.79)
Max	0.32	22 345	5.79	359	9.93	0.076	0.130	0.53	24 660	4.77	84.4	11.5	0.041	(0.31)
North America														
T10 Median	0.09	7.4	0.20	4.73	0.47	0.000	7.49	0.13	5.9	0.39	2.70	0.51	0.000	7.94
Min	(5.11)	(4.7)	(5.51)	(3.93)	(6.28)	0.000	4.07	0.02	0.8	(0.02)	0.85	(0.80)	0.000	3.95
Max	0.13	81	0.94	12.4	3.43	0.181	82.6	0.22	303	13.3	35.4	9.24	0.204	43.6
Latin America														
L10 Median	0.09	15	0.30	2.36	0.26	0.000	(0.307)	0.12	32	0.63	12.8	0.21	0.000	(0.48)
Min	0.03	2.0	(0.49)	1.23	(3.29)	0.000	(0.765)	0.06	1.9	(0.03)	6.13	(2.46)	0.000	(0.72)
Max	0.14	301	2.25	6.65	9.50	0.173	(0.146)	0.22	467	10.6	350	1.24	0.074	(0.19)
Size strategy's top and low of group one.														
2000-2004			2005-2008				2009-2013							
	Size (mil.)	P/S	P/B	P/E	CF/P	DPS	Return	Size (mil.)	P/S	P/B	P/E	CF/P	DPS	Return
North America														
T20 Median	36	0.66	0.89	11.7	0.12	0.000	11.2	141	1.48	1.73	23.3	0.07	0.000	3.94
Min	4.2	0.07	(18.4)	2.90	(0.02)	0.000	7.03	5.5	0.13	(1.07)	8.55	(0.00)	0.000	2.03
Max	114	18.4	12.31	262	0.91	0.058	191	349	14.0	12.3	160	7.48	0.078	55.5
Latin America														
L20 Median	52	1.33	1.24	34.8	0.06	0.000	(0.27)	235	1.83	1.65	23.5	0.06	0.000	(0.47)
Min	0.5	0.14	(3.75)	11.6	(0.14)	0.000	(0.88)	46	0.32	(15.3)	10.5	(0.98)	0.000	(0.91)
Max	121	380	32.6	148	3.94	0.085	0.17	366	443	734	129	0.94	0.081	(0.34)
North America														
T10 Median	1.6	0.23	0.22	18.4	0.26	0.000	6.20	1.8	0.34	0.29	3.50	0.43	0.004	7.15
Min	0.3	0.08	(0.28)	1.68	(1.73)	0.000	3.91	0.1	0.03	(0.03)	0.58	(0.83)	0.000	3.98
Max	2.9	11.3	15.0	101	2.78	0.227	30.5	5.5	31.1	1.50	8.43	4.01	0.326	37.3
Latin America														
L10 Median	0.9	0.24	0.36	2.23	0.39	0.000	(0.40)	3.5	0.37	0.65	11.3	0.048	0.000	(0.33)
Min	0.2	0.06	(0.31)	0.61	(0.41)	0.000	(0.70)	0.7	0.07	0.20	5.38	(1.94)	0.000	(0.78)
Max	3.0	1.18	1.74	8.88	1.13	0.323	(0.17)	6.1	2 672	1.74	1 699	1.18	0.340	(0.11)

This table highlights the problem with these ratios as an investment tool. While they all show that they principally function as expected, providing perfect average results to support value investing theories and its ideas, it is the maximum results that show nothing is that simple in the end. Though median and minimum results are acceptable, the maximum can be well beyond all expectations. Being so well above all expectations that no investor who basis her decision on strict limits would even invest in that company. Therefore it is implied by these results that if an investor is not willing to invest into large groups as tested in this thesis, then they have to perform a much more detailed analysis of companies. Looking at facts not depicted in this thesis, facts such as current ratio, quality of management and company's precise market outlook.

As a conclusion it can be stated, that based on the available data size and price-to-sales strategies are the best to use. Yet I would not make permanent conclusions on this unless I was creating for example a fund with over 100 stocks in it, as results are quite clear with large groups but would not perform so efficiently with small groups more likely to be owned by an individual investor. Also, as tables above show, all ratios are useful in some way to pick stocks. Yet they would certainly miss out on some excellent performers that are great in terms of one ratio, but fail some other one. So, if an investor wants to create small groups of stocks then she has to go deeper into the details of the company to understand, if company is more or less likely to be able to go from an undervalued company into a growth company.

In terms of which one might be the better market, conclusion is more difficult to state. It seems that Latin American market is experiencing a slowdown, perhaps there is even a negative period coming as indicated by overly large P/B valuations during 2013. Yet, the potential of Latin American market can not be denied, and therefore investor should not avoid the market entirely. If individual Latin American based companies seem too scary or are difficult to obtain, then owning stock of international companies that also operate in the area is an easy way to try to get profits. Latin American markets are still very different from North American, developed economies and their stock markets, so it is understandable if an investor prefers to stay in the seemingly safer area. Though, plenty of great potential would be missed then.

8. CONCLUSIONS

As a conclusion to chapter 3 on economic outlook, there exists no reason for an investor to avoid any of these markets. Some face more difficulties, such as Argentina, but all provide investing opportunities in some scale. Therefore stock research should be performed in whole Americas to diversify effectively, find companies with different skillsets and opportunities, and by all this find some of those investing opportunities that are out there. Stock market of the US is large enough for an average investor to focus on, if they prefer to do so. Strong returns are possible to achieve by focusing on that market alone, due to its massive size and selection of stocks based all around the world. Many large companies that have their main operations in Latin America, have also listed their stocks in the US market to find more stock holders and better liquidity for their stock. Therefore I can perfectly understand anyone who says that they don't invest outside US listed stocks, I merely remind them of the possibilities available in Latin American markets and advise them to keep in mind companies that are available there.

Actual research part focuses to test multiple simple value investing strategies that could easily be applied by institutional or private investors alike. Out of these ratios best results were achieved by using size or price-to-sales as the sorting criteria. This provided strong returns and most constant outperformance from top value groups, especially most undervalued group. As I attempted to gain a deeper understanding by looking at the best performers, I understood that such simple stock picking method can work well with large groups of stocks that contain a few excellent performers. Picking small groups of stocks based on one ratio is likely not to succeed as well. This became clear once I was looking at the behaviour, especially maximum results of other ratios in best performing stocks.

So investing by using one simple, but effective financial ratio can work well. Though it seems it is more effective in large groups and smaller groups are less likely to contain stocks that give majority of returns (the top performers). For small groups, based on the maximum ratios found to be had by some of the best performing stock, it seems clear that precise stock picking should be started with a guiding financial ratio (such as price-to-sales) and finished by deeper analysis of the effectiveness and expectations based on the company itself. It is a simple notion and unlikely to shake anyone's understanding

of investing, but offers an important lesson or reminder on proper usage of stock picking strategies and expectations.

I would answer hypothesis one by most easily by referring to tables 5 and 4 which show how strongly value groups outperformed other end of the spectrum, referring to growth groups. Some surprises were there and it is not clear if it is due to the market or the data used, but those results were a small minority and I focused my following efforts to understand the best performers. Returns tended to also change steadily between group one and group ten, as expected. Some sudden change in performance was measured in some group tens which could be due to momentum, as people invest more into a stock that is already growing in a strong manner. These groups managed to outperform some of the groups that should have outperformed it, and it indicates that momentum can be an efficient strategy to follow. Top value groups were still the typical best performer, and therefore these growth groups were not studied further.

Hypothesis two is not as simple to answer to. Table 5 would indicate this to be so, but closer inspection (see table 11) reveals that during last years of this study Latin American stock market has underperformed North American market. Figure 5 gives us a graphical view of these years. In overall hypothesis two is confirmed. Though, it could just very well be that if this study was done a few years from now, that then the result would be the opposite.

Answer to hypothesis three is as well multisided. Tables 6 and 7 show that even investors following a one year rolling strategy would have beaten the index and achieved very good returns. Portfolios that were started during the first third of the time period showed better returns to cumulate generally after the year five. Best years varied between year five and fourteen, last year of the study. So results do indicate that longer holding period of at least five years is generally better as previous research stated, but global credit crisis and slowdown it caused in the stock market harmed portfolios that were formed around that time. In the end results support findings of Rousseau and Rensburg (2003), and Lakonishok et. al. (1994) in terms of longer investing periods being winners. In general crisis periods, precisely stock price dumps they cause are great for investors and portfolios that have been started in the bottom. Those just happen to clearly and negatively affect results if they are located during a short time period of a thesis such as this.

Hypothesis four was clearly answered in supportive manner by table 11 and those preceding it. Group's median and / or mean ratios most often behaved in a manner expected under value investing theories. The other interesting, and also confusing notion is the behaviour of maximums contained in those ratios. Those results show, that even if for example an investment is done into a group of stock with a price-to-book average of 0.7, a group with an average under 0.7 could very well outperform a group where all stocks have their price-to-book ratio under 0.7.

That notion is something I have not seen before in value investing research. Typical research does not focus on how other ratios behave when stocks are grouped based on some other ratio(s). Results show, that if an investor strictly makes their decision based on multiple ratios using strict limits, then discard pile will contain stocks that could have otherwise been gems of the portfolio. As I already stated, it seems it is better to first form large groups of stocks based on one ratio and if smaller group is needed, then should be focused on the abilities and possibilities of those companies to succeed. Other ratios should be guiding information, not strictly followed unless those are found to be extremely vital for the company.

That is one notion that could be attempted to study in more detail in future research, what information best separates winning and losing stocks. Though I suspect it will be difficult, if not impossible to find a method that would be clear and always working. Simple strategies are likely to be the best performers, as an overdose of information is too paralyzing in most occasions. Repeating this research and comparing those results to these would also be interesting. As Latin American economies and their stock markets change quickly, results of research could change dramatically as well.

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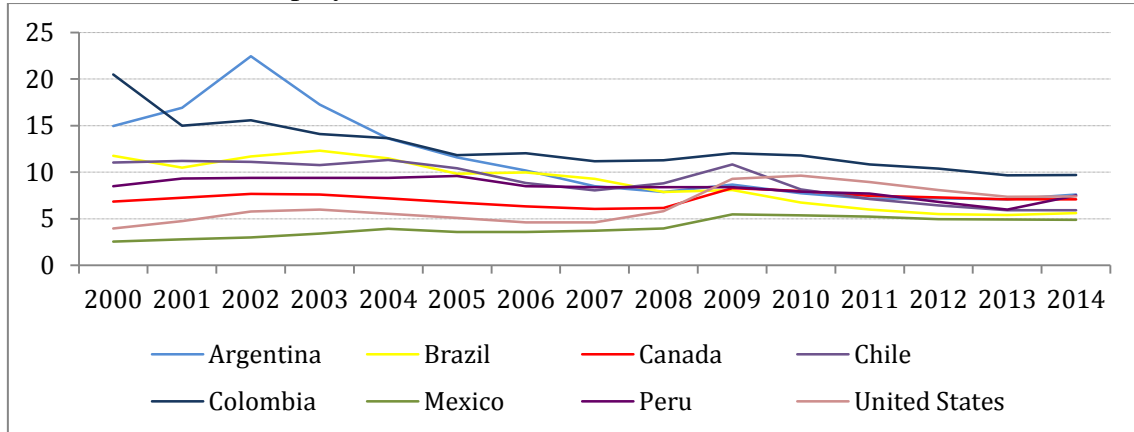
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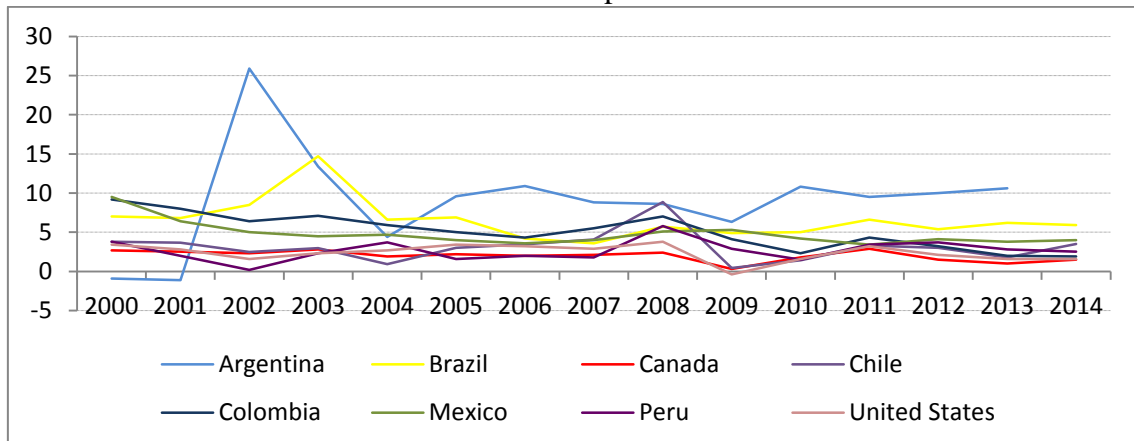
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APPENDICES

APPENDIX 1. Unemployment rate %.



APPENDIX 2. Annual inflation on consumer prices %.



APPENDIX 3. Averages of cumulative returns.

	NA		LA	
	Growth	Value	Growth	Value
P/S	0.76	1.85	1.63	4.24
Size	0.56	2.89	1.84	4.42
P/E	0.79	1.36	1.94	3.47
P/B	1.09	1.66	2.31	3.58
CF/P	1.38	1.48	2.42	3.65
	L DPS	H DPS	L DPS	H DPS
DPS	2.73	0.76	3.73	2.48

APPENDIX 4. Size strategy's cumulative returns.

North America								Latin America							
Portfolio starting year	Holding period in years							Holding period in years							
	1	3	5	7	9	11	13	1	3	5	7	9	11	13	
2000	0.348	2.655	7.836	14.328	9.117	25.079	24.690	0.005	(0.019)	1.267	3.662	4.465	8.324	6.831	
2001	0.786	7.261	14.400	21.862	23.056	29.427	36.410	0.065	0.647	5.130	20.288	26.444	13.950	10.040	
2002	1.818	8.040	20.533	10.875	40.256	33.575		0.170	2.453	7.987	15.912	34.842	15.073		
2003	2.195	8.682	19.422	19.743	26.884	27.501		0.961	9.224	35.729	44.129	25.105	17.100		
2004	0.866	4.810	2.724	10.961	10.306			1.001	3.852	14.979	32.507	10.036			
2005	1.112	4.645	4.163	5.412	7.7942			1.013	4.359	5.196	7.559	7.739			
2006	0.623	0.293	2.515	2.571				0.423	1.804	6.092	6.066				
2007	0.402	0.577	1.349	2.614				1.215	2.026	4.554	4.397				
2008	(0.221)	0.765	1.148					0.206	1.868	2.766					
2009	1.710	3.259	6.064					0.334	1.087	0.952					
2010	0.508	1.066						0.285	0.534						
2011	0.045	1.134						0.034	0.169						
2012	0.352							0.133							
2013	0.615							0.086							

APPENDIX 5. Price-to-sales strategy's cumulative returns.

North America								Latin America							
Portfolio starting year	Holding period in years							Hold period in years							
	1	3	5	7	9	11	13	1	3	5	7	9	11	13	
2000	0.352	1.576	3.9372	6.339	4.384	8.810	10.327	0.030	(0.680)	1.582	2.791	3.428	8.752	10.638	
2001	0.822	3.664	5.325	7.238	8.589	10.499	19.810	0.155	0.698	6.554	28.108	34.721	21.823	27.346	
2002	0.259	2.623	4.534	2.467	9.227	9.711		0.179	3.108	6.192	17.059	44.468	22.550		
2003	1.124	3.806	6.573	6.318	6.708	11.873		1.169	11.697	46.142	52.888	34.659	31.876		
2004	0.432	1.993	0.932	2.407	2.950			1.249	3.669	4.464	11.604	12.159			
2005	0.320	1.880	1.342	1.359	4.267			0.978	5.212	8.086	8.814	8.263			
2006	0.305	(0.113)	0.519	0.783				0.468	2.076	5.673	5.010				
2007	0.053	(0.612)	0.0690	0.736				1.559	2.054	2.271	1.759				
2008	(0.337)	0.257	0.514					(0.255)	0.261	0.308					
2009	1.564	2.544	5.276					0.966	1.298	2.177					
2010	0.306	0.637						0.539	0.547						
2011	(0.308)	0.687						(8.88)	0.098						
2012	0.2956							0.189							
2013	0.495							0.636							