



VERDAD

EMERGING MARKETS CRISIS INVESTING

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CONTENTS

1. Key Insights	3
2. Emerging Markets: Slow Growth, High Volatility	5
3. Emerging Markets Crisis Investing: Opportunity	14
4. Emerging Markets Crisis Investing: Analysis	20
Equities	22
Debt	25
5. Emerging Markets Crisis Investing: Strategy	29
6. Conclusion	36
APPENDICES	37

1. KEY INSIGHTS

Over the past 30 years, buy-and-hold investors in emerging markets (EM) have endured high volatility for disappointing returns. \$100 invested in the S&P 500 in 1989 would have been worth \$1,900 today, after experiencing a 15% standard deviation throughout this period. The same \$100 invested in EM would have been worth \$1,340, having experienced a 22% standard deviation.

One of the reasons for EM's high volatility and low returns is frequent crises. Since 1989, there have been more than twice as many EM equity market crises with >50% drawdowns than in developed markets. Even worse, we observed that emerging markets have been less likely to recover after a crisis.

We studied every EM crisis since 1987 (71 crises over the 18 most tradeable markets) and found that it can be possible to reap excess returns by only investing in the two years immediately after a crisis, an approach we call "crisis investing." We define EM crises as periods when major EM stock markets drew down at least 50%. Some of these crises are caused by global recessions, while others are idiosyncratic to an individual country or region. We found important differences in outcomes between the global crises and the idiosyncratic crises.

We found that excess returns in EM equities were most dramatic after global crises. Investing in EM equity indices during global crises would have returned on average 91% over 2 years, with an 84% chance of positive returns versus 23% for the S&P 500 and a 75% chance of positive returns.

Buying EM equity in idiosyncratic crises returned 47% over two years, compared to 24% for the S&P 500 over the same period. But in 35% of cases, the strategy lost money. EM debt was a better approach to idiosyncratic crises. EM debt returned 50% with only a 18% chance of losing money in the two years after these crises.



Based on our research we feel that the best approach to investing in EM crises is to buy EM large value stocks in equal weights during global crises and EM sovereign debt during idiosyncratic ones. When coupled with holding US treasuries in times of no crisis, we found that this strategy produces equity-like returns with debt-like risk.

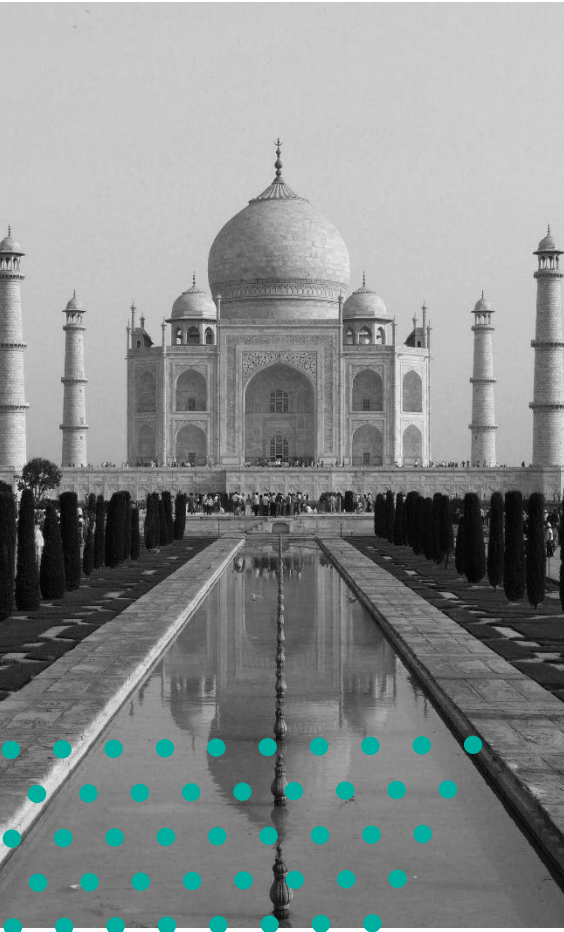
Figure 1: **Annualized Performance Indicators by Investing Strategy, 1993–2020**

	Emerging Markets Crisis Investing	Buy and Hold			
		S&P 500	MSCI EM Equity Index	JPMorgan EM Bond Index	EM Large Value
Total Period Return	16.0%	9.5%	4.7%	8.4%	6.8%
Average Annual Return	17.4%	10.7%	7.4%	9.2%	9.7%
Standard Deviation	16.1%	14.8%	22.3%	12.2%	23.2%
Sharpe Ratio	0.83	0.45	0.15	0.43	0.25
Maximum Drawdown	-19%	-51%	-61%	-31%	-66%

Source: Capital IQ, Bloomberg, Global Financial Data, Ken French Data Library

This approach would have led to total period returns of 16.0% versus 9.5% for buying and holding the S&P 500, as shown above. Additionally, this strategy beat holding the S&P 500 in 64% of monthly rolling 5-year periods, and in 80% of incremental 5-year periods since 1995. All with lower volatility and drawdowns.

2. EMERGING MARKETS: SLOW GROWTH, HIGH VOLATILITY

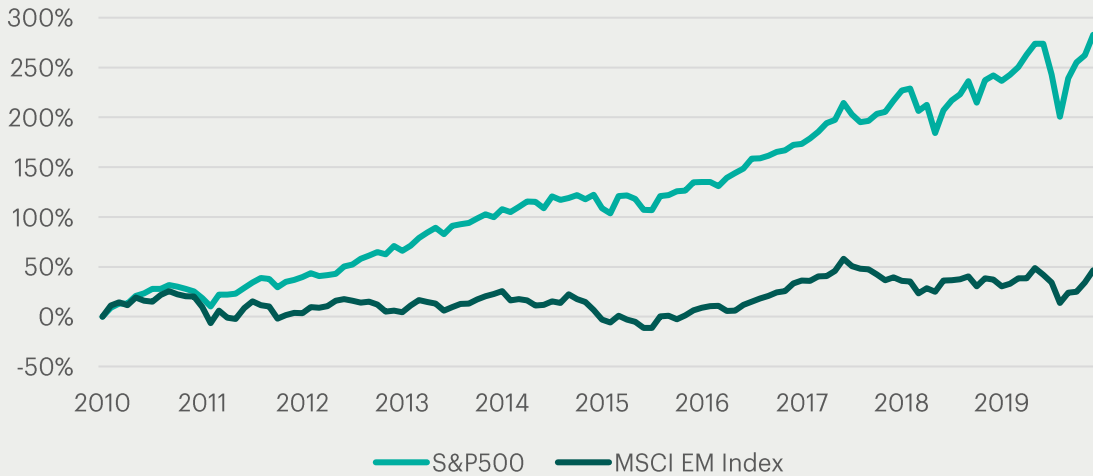


In a 2010 interview with USA Today, Mohammed El-Erian, the former CEO of Harvard Management Company and a notorious emerging markets bull, declared confidently that the world was on the precipice of a “global realignment.” This realignment, he declared, was “accelerating the migration of growth and wealth dynamics from the industrial world to the larger emerging economies.”

At the time, most pundits and investors, particularly those in the developed world, accepted El-Erian’s position as common knowledge. After all, they reasoned, globalized trade policies and an increasingly interconnected world naturally shifted capital away from boring, first-world financial centers and toward new, exciting economies like China, Brazil, and Indonesia. To take advantage of this obvious trend, wealthy investors poured money into emerging market ETFs and mutual funds throughout the late 2000s—in their mind, providing capital that would accelerate the inevitable, hockey-stick growth bound to appear in emerging economies.

It never happened. Perhaps we have experienced some sort of global realignment in the last decade, as El-Erian predicted, but that realignment never translated into equity returns—the buy-and-hold EM investors have never experienced the above-market growth about which they were so confident. The graph in Figure 2 on the next page shows MSCI’s Emerging Market Index returns since August, 2010, the month of El-Erian’s interview, plotted against the S&P 500. We believe that EM investors would have been far better suited in traditional, developed economies. In fact, \$100 invested in the emerging market index in 2010 would net a measly \$47 profit today, compared to a \$383 profit from the S&P 500 index.

Figure 2: Returns in Emerging Markets vs. S&P 500 Since El-Erian’s Interview

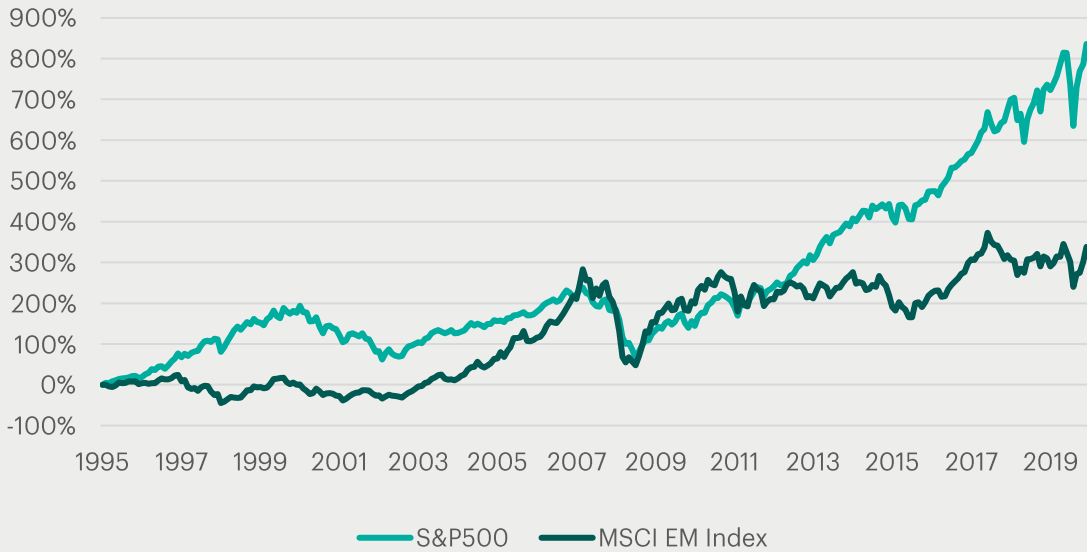


Source: Capital IQ

This underperformance—and the boosterism of the proponents of this asset class—is far from a recent phenomenon. In a 1995 report, [“Trends in Developing Economies,”](#) the World Bank declared “growth in developing country stock markets will be enhanced as policies liberalizing trade and investment regulations, realigning exchange rates, consolidating public finances, and continuing with privatization are implemented.” As with El-Erian, the World Bank’s prediction may indeed have come to pass, as today’s global economy features liberal trade policies, investment deregulation, and aligned exchange rates. But in a key sense, we noticed that the World Bank was wrong: these changes did not drive equity returns. The graph in Figure 3 on the next page plots EM equity returns against the S&P 500 since July 1995, the month of the World Bank report.



Figure 3: Returns in Emerging Markets vs. S&P 500 Since the World Bank Report



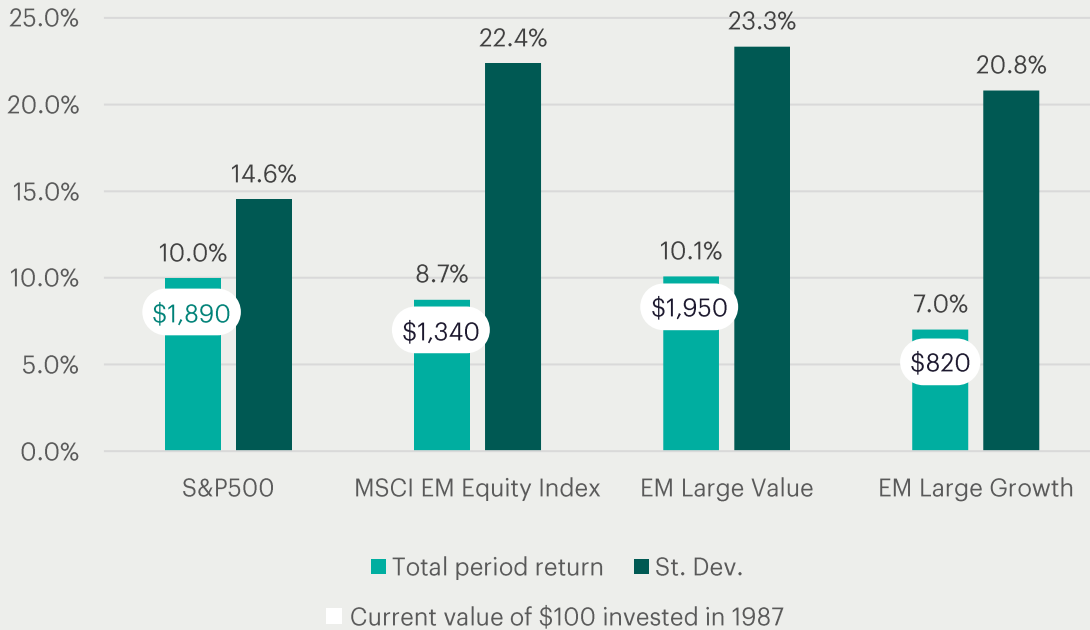
Source: Capital IQ

Moreover, these EM equities underperformed their developed market equivalent despite a higher historic GDP growth. According to the IMF, the average annual GDP growth in emerging economies was 4.7% versus 1.8% for developed economies from 1989-2020. (See [Appendix Figure 5](#)).

The disappointing results for EM equity investors were even worse for investors who specifically sought to invest in EM growth stocks, which, in theory, should have benefitted the most from the sort of realignment El-Erian and the World Bank described. These stocks were in fact the major cause of EM underperformance, we believe, as EM value stocks delivered returns on par with the S&P 500.



Figure 4: US and EM Equity Performance Indicators, 1989–2020



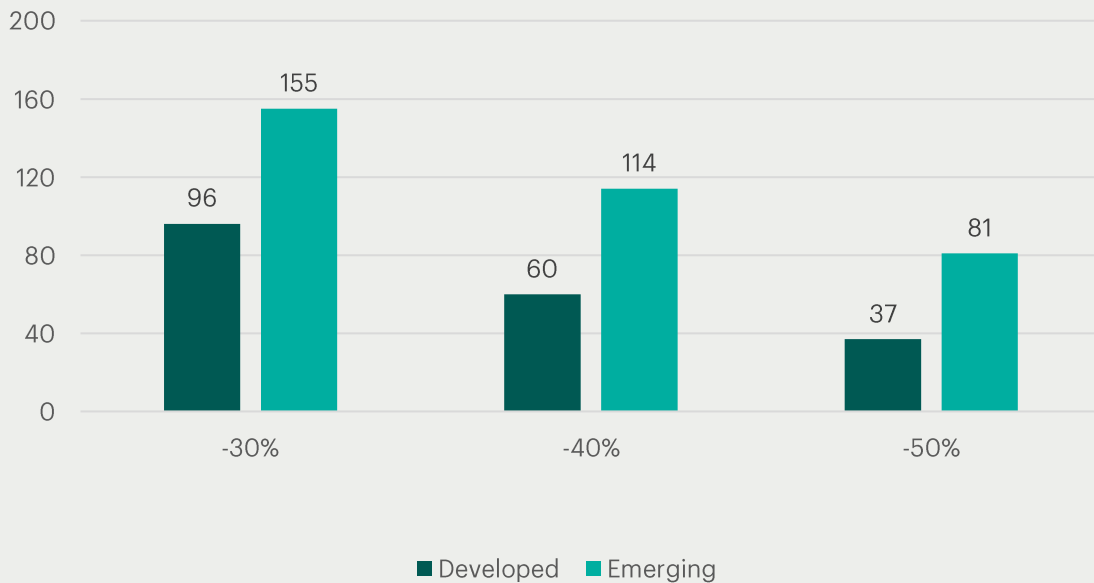
Source: Capital IQ, Ken French Data Library

\$100 invested in EM growth stocks in 1989 would have been worth less than half of the same investment in the S&P 500 or in EM value stocks.

Taken together, these insights paint a bleak picture for EM equity investing over the past 30 years. Over this period, EM investors took on more risk for less reward, while being unable to capture the benefits of GDP growth in these economies.

The frequency and severity of EM crises help explain both slow growth and high volatility in EM equity indices. Since 1989, emerging economies have experienced significantly more crises than their developed counterparts, as measured by the percentage drawdown in their equity markets. Not only are these crises more frequent in emerging markets, they're also more severe.

Figure 5: Number of Crises by Severity of Crisis, 1987–2020



Source: Global Financial Data

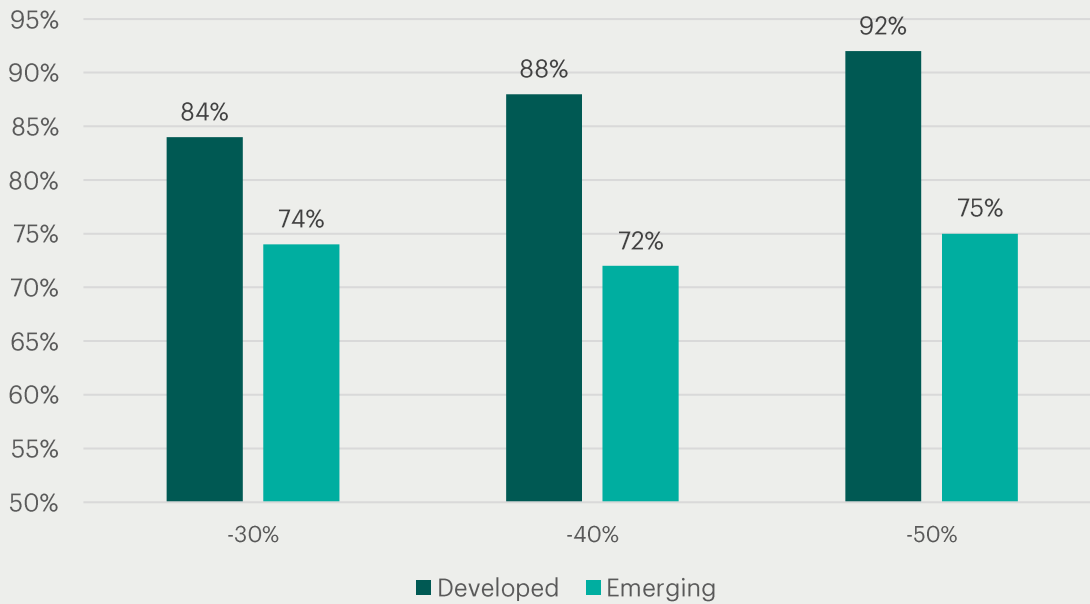
When crises occur in developed markets, investors respond with predictions of the apocalypse. Take, for example, *Mad Money* host Jim Cramer, who screamed on air in late 2007, “It is not the time to be an academic . . . we have an Armageddon!” Yet, these panicked investors succumb to Chicken Little Syndrome: they’ve been hit by an acorn and scream that the sky is falling. After all, an investor in New York or London, even in the midst of financial turmoil, never doubts that a government bond will safely store capital, that his political system is stable, or that water will continue to run from his faucet. Indeed, after every American crisis in the last century, market indices have experienced short-term pain and long-term rebound to even higher values.



The same is not true for an investor living in a developing country. When poorer markets enter times of crisis, there are few certainties. Perhaps a government will default on its debt, or, even more extreme, maybe war has uprooted an established political system. When poor countries enter these same financial crises, the question is not when, but whether, their economy will truly recover. Take, for example, the Philippines, a country which—alongside many others in the developing world—experienced a financial crisis in late 1997. The Philippines’ MSCI index, which tracks overall stock market performance, has never returned to its 1997 peak. In other words, when emerging markets enter crisis periods, some countries never recover.

The graph in Figure 6 below shows the probability of recovering to pre-crisis levels after 24 months by crisis severity, based on GFD equity data since 1987. For each crisis threshold, emerging economies are significantly less likely to recover, based on our research.

Figure 6: **Historic Probability of Equity Recovery after 24 Months by Crisis Severity**



Source: Global Financial Data

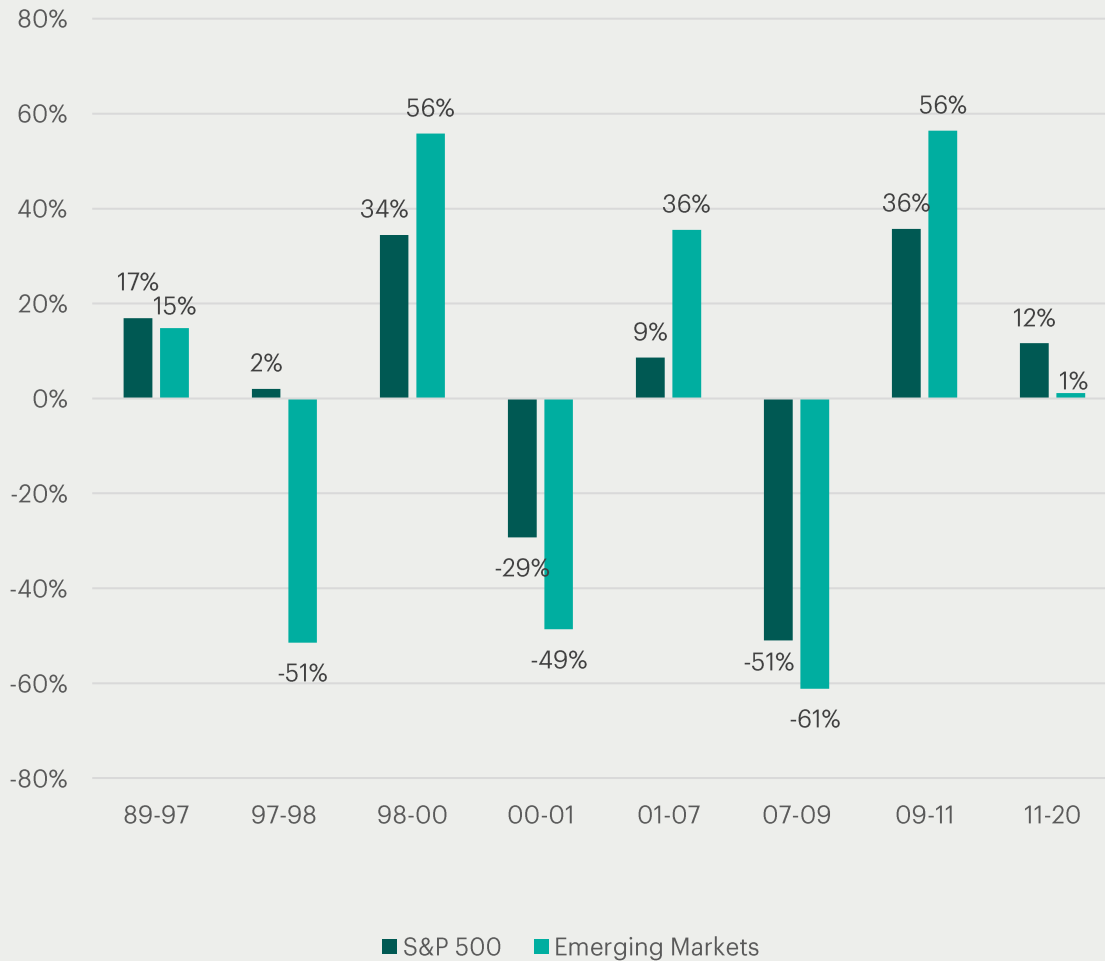
In his book *The Volatility Machine*, Michael Pettis delivers a compelling theory explaining both growth and crisis. Pettis proposes a model of economic growth that focuses on liquidity conditions in wealthy countries. Typically, we tend to think of capital flow from developed to emerging markets as a function of growth opportunities in poor countries. Pettis argues that the causality is precisely reversed. Instead, increased liquidity conditions in rich countries lead ambitious investors to make nontraditional emerging market bets. These bets, Pettis argues, drive growth in emerging economies. In this way, growth doesn't attract investment; rather, investment causes growth.

That's not to say that conditions internal to emerging markets don't matter. In fact, it's quite the opposite. Because EM growth is contingent on foreign investment, conditions internal to a developing country can scare rich investors, who subsequently remove their capital—triggering a financial crisis. Here, Pettis cites Mexico's 1994 "Tequila Crisis," a financial panic precipitated by the assassination of a popular presidential candidate. Emerging markets are more prone to these exogenous, market-moving events—political assassinations, tumultuous transfers of power, civil war—and when these events occur, central banks in the developing world often lack the global credibility to comfort wealthy investors. To make matters worse, a disproportionate number of investors in emerging markets are speculators with short time horizons. These investors are often unwilling to ride out a small loss, and their exit further exacerbates existing crises. These structural forces combine to generate more volatility in emerging markets.

Intense liquidity dependence and structural instability combine in emerging markets to generate immense volatility that magnifies both investor optimism and pessimism. In this sense, periods of growth become more lucrative—and periods of crisis become more disastrous. Figure 7 on the next page demonstrates this magnification of gains and losses, showing that emerging markets generally have underperformed the S&P 500 in contractionary environments and outperformed in growth environments.



Figure 7: Boom-Bust Growth in Emerging Markets vs. S&P 500



Source: Capital IQ

If—as Pettis’s research suggests—liquidity plays a more important role in emerging markets than in their developed counterparts, investors should be duly compensated for the value of the cash that they provide. At the same time, it seems that the value of this cash diminishes when a plenitude of investors dabble in EM investment.

But this theory of crisis investing in emerging markets is not the result of Pettis’s book alone. Through the lens of economic development studies, he was exploring something the finance community had already become obsessed with: the relationship between stock market liquidity shocks and associated asset price returns. It has been well acknowledged in quantitative finance since the 1980s that (all else being equal):

- Illiquid assets generally trade at lower prices on the basis of their expected cash flows compared to more liquid assets.
- In times of scarce liquidity, investors flee from illiquid assets and toward more liquid safe havens.
- The value factor has dramatically outperformed in post-crisis recovery periods globally as well as in emerging markets.
- Investors who were present to take the other side of these trades were historically rewarded handsomely, beyond what we can explain using other fundamental risk factors.



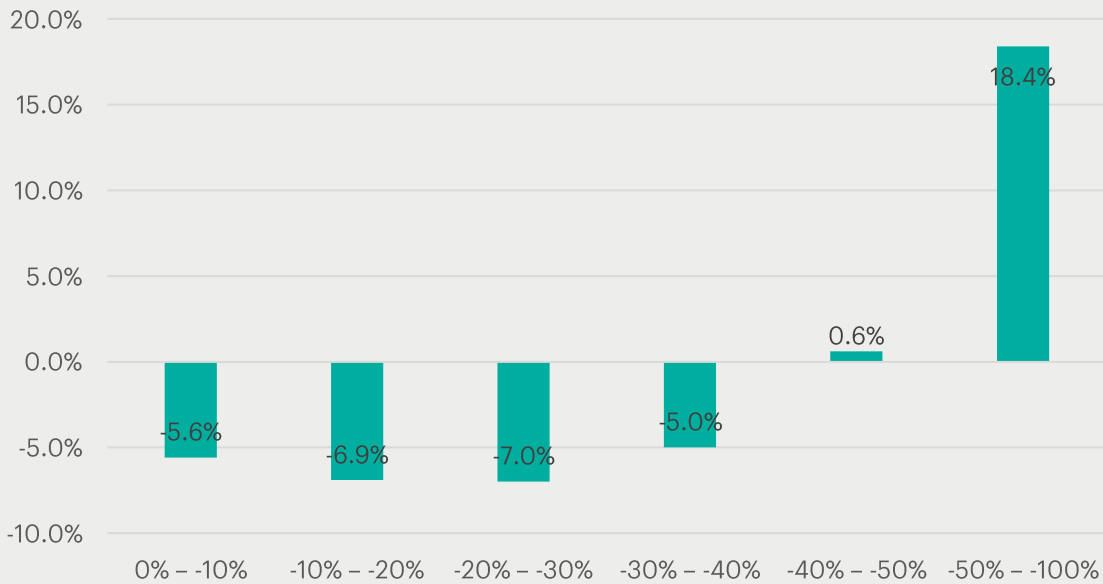
The last 20 years of quantitative finance literature have also highlighted that the premium paid to this “contra-flight-to-liquidity” trade was strongest in emerging markets, especially during global liquidity shocks. And researchers have found that these premia are not eliminated by transaction costs or slippage alone (see [Appendix Section D](#) for the literature review).

However, few attempts have been made to bridge the gap between academic theory and practical, executable strategies that align with the evidence. What works on paper hasn’t yet been put to work on Wall Street today. We hope our focus here bridges that gap.

3. EMERGING MARKETS CRISIS INVESTING: OPPORTUNITY

After a stock market has lost half of its value, investors may be hesitant to put money into play. But Yale professor William Goetzmann argues that these catastrophic crisis events for individual countries are *exactly* when investors should be pouring money into the market. Goetzmann studied 101 global stock markets from 1692 to 2015 and theorized that >50% drawdowns represented “[negative bubbles](#)” after which equity returns tended to be very high.

Figure 8: Annual Return after Specified Previous-Year Return



Source: Goetzmann and Kim, 2018

Investors were unlikely to realize significant gains after lesser crises, but the true fire sales were handsomely rewarded.

Given this research, what is the best way to execute an EM crisis investing strategy after investors have fled to the most liquid assets in global and emerging markets? And are there better, more practical, and more logical ways to exploit this than simply buying the EM indices at different times in history? We started with three hypotheses:

1

Following global liquidity shocks, emerging markets in general should outperform.

2

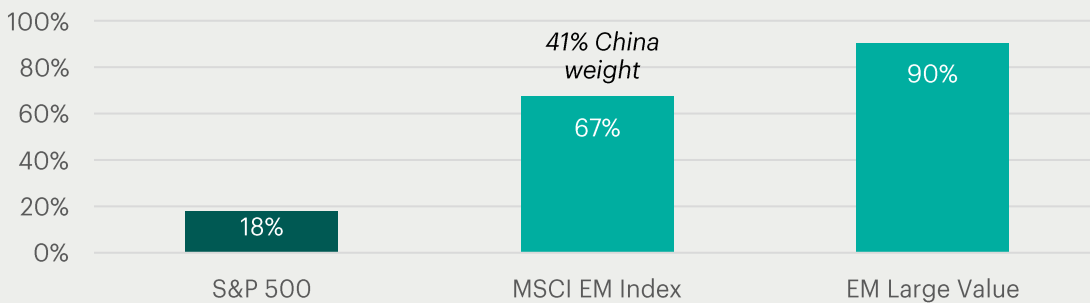
Following idiosyncratic country crises not related to global liquidity shocks, specific emerging markets should outperform after they experience extreme drawdowns.

3

The value factor should amplify post-crisis returns in both environments.

On a high level, these basic hypotheses look plausible to us. For global crises, we compared the performance of the S&P 500, the MSCI US Small Value Index, MSCI EM Index, and the Fama-French EM Large Value Index during these crises. In Figure 9 below, we show 2-year returns by index 3 months after a major EM index had drawn down 50% and the S&P 500 hit a 20% drawdown for all global crises since the 1990s ([see methodology in sections below for rationale](#)).

Figure 9: 2-Year Returns to EM Strategies During Global Crises



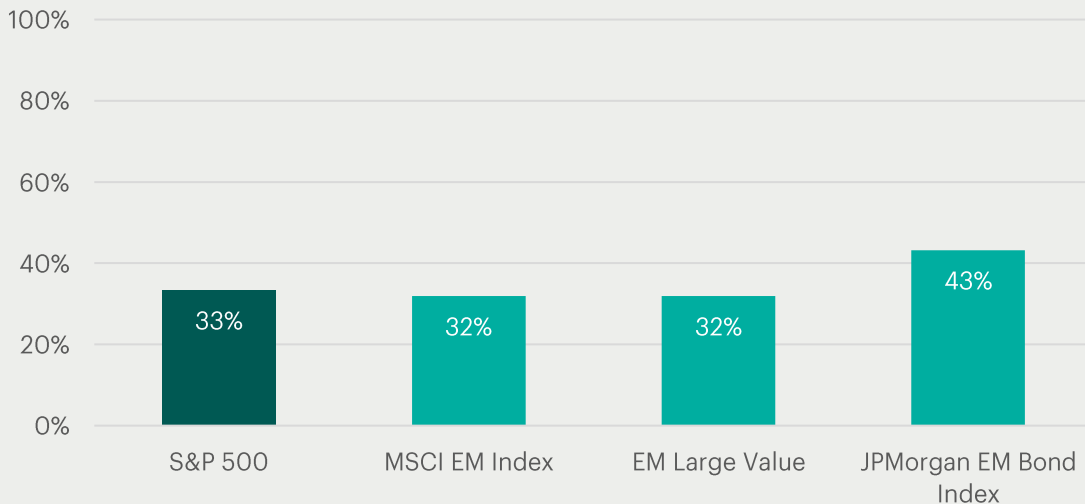
Source: Capital IQ, Bloomberg

We observed that EM exposure following global liquidity shocks has been extremely attractive, especially for value investors.

What about country-specific crises not related to global liquidity shocks? Did it make sense to allocate to EM countries that were starved for liquidity for local/regional reasons even when global developed markets weren't?

To test this on a high level during idiosyncratic EM crises, we looked at the Asian Crisis in 1997-98, a series of idiosyncratic crises (see [Appendix Section B](#) for the detailed case study) that affected a wide pool of EM countries while developed-market growth stocks were on rally. The EM countries that drew down more than 50% included Thailand, Malaysia, Korea, Indonesia, the Philippines, Hong Kong, Taiwan and China, according to our research. These countries make up the majority of the MSCI EM index weight, so we've shown the 2-year returns to investing in EM markets after it had drawn down 54% in July of 1998 in the figure below. We assume entry 3 months after the 50% equity drawdown threshold that Goetzmann's uses for his definition of a negative bubble.

Figure 10: 2-Year Returns to EM Strategies During the Asian Crisis



Source: Capital IQ

It was difficult to beat growth anywhere in this 2-year window of market history in the midst of the dot-com bubble, but investing in EM equities during the 1998 crisis kept up very well. That said, we think that investing in EM sovereign debt during this crisis would have been the better strategy, as it outperformed EM equities investing by a comfortable margin (See [Appendix B](#) for the detailed case study).

Given the alignment of theory and experience here on these simple tests, we conducted a more in-depth analysis of EM crisis investing and how one might thoughtfully maintain exposure to emerging markets over time given these frequent crises. We looked at 71 crisis situations across the 18 most tradeable markets and analyzed debt and equity returns in the two years following each crisis.

METHODOLOGY

We used the [MSCI](#) universe of Emerging and Frontier markets as a baseline for our market scoping. We then filtered this list based on “tradeability.” We defined a market as “tradeable” if a country ETF larger than \$100m AUM is available and can be traded on reputable brokerage platforms. Of the initial 46 countries, 18 met these criteria, of which 17 are Emerging and one is Frontier. As a shortcut, we will refer to our target market pool as Emerging throughout the paper. The countries are: Brazil, Chile, China, Greece, India, Indonesia, Korea, Malaysia, Mexico, the Philippines, Poland, Russia, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey, and Vietnam.

After applying the “tradeability” test on a market level, we replicated that exercise at a company level. In this case, we defined a company as “tradeable” if its shares reach \$200k in daily value traded. We found that China accounts for >50% of the tradeable tickers in our target markets, and most emerging markets had <100 tradeable tickers (See [Appendix Figure 6](#)). Therefore, we decided to use country indices rather than individual securities for our analysis due to the limited number of tradeable companies in most emerging markets.

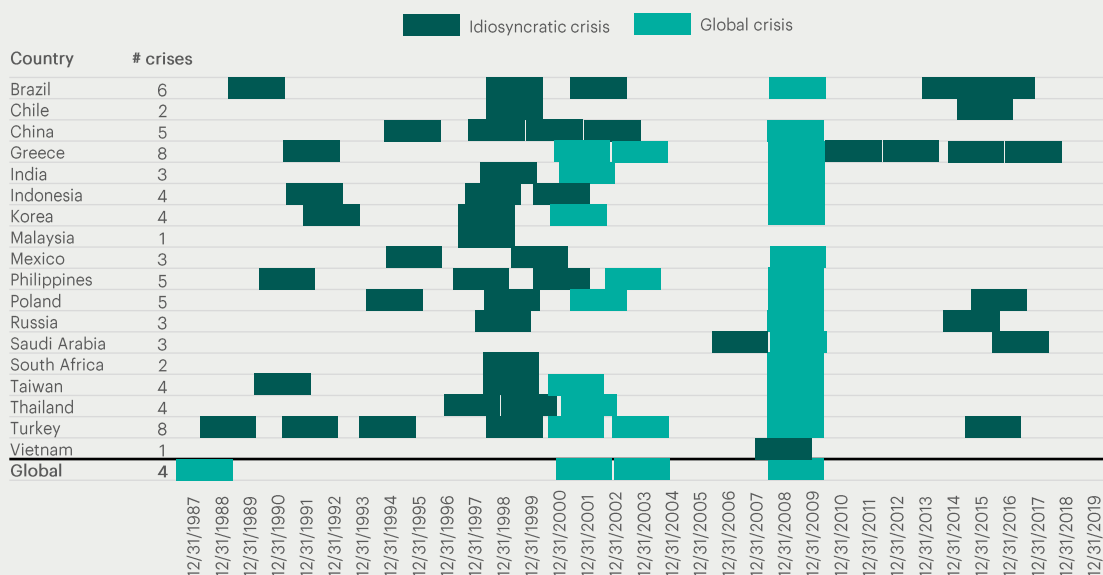


CRISIS DEFINITION

In our previous analysis of [Crisis Investing](#), we concluded that the high-yield spread is a prime indicator of financial distress in the United States. There is no real high-yield market in emerging markets, so we instead relied on individual equity market drawdowns as an indicator, building on Goetzmann’s definition of a “negative bubble” as a 50%+ drawdown. To confirm this threshold, we looked at equity market returns after a 30%, 40%, 50%, and 60% drawdown (See [Appendix Figure 7](#)).

We identified 71 emerging market crises when EM equity indices experienced >50% drawdowns. Of these, 46 were idiosyncratic to emerging markets and 25 were global. We considered an EM crisis to be global if it occurred 4 months before or after a >20% drop in the S&P 500. This separation is in line with academic research that found “US market returns affect asset prices of individual stocks from around the world through covariance of illiquidity with US market return” (Lee 2011). The chart in Figure 11 below shows the crises we studied.

Figure 11: Crisis Timeline per Country, 1987–2020



Source: Capital IQ

Harvard's Andrei Shleifer relies on substantial empirical work in markets to show that investors extrapolate from recent past in forming their return forecasts for the future, a behavior he calls [diagnostic expectations](#). In other words, good news lead to expectations of more good news and higher returns, and vice versa. Shleifer's big reveal is that this mental model is irrational and results in a systematic and recurring error in markets, namely "the presence of excessive optimism in good times and excessive pessimism in bad times." This explains why markets trend in the short-term, yet they tend to reverse in the long-term.

One way to account for this short-term trend and avoid steep drawdowns at the beginning of crises is to implement a lag from the time a crisis begins to the time to invest. In our Crisis Investing paper, we found that a 2- to 3-month lag was the best amount of time to wait before deploying capital after high-yield spreads hit 6%. We tested a lag in this strategy as well and found that a 3- to 4-month lag was the ideal period to wait before investing (See [Appendix Figure 8](#)). We used a 3-month lag for this analysis to keep our study results consistent with our previous research.

Additionally, we assume a 24-month cooldown period since the beginning of a crisis before computing a new drawdown and entering a new trade. We assume that any additional drawdowns that happen within that 24-month period are a continuation of the existing crisis.

DATA

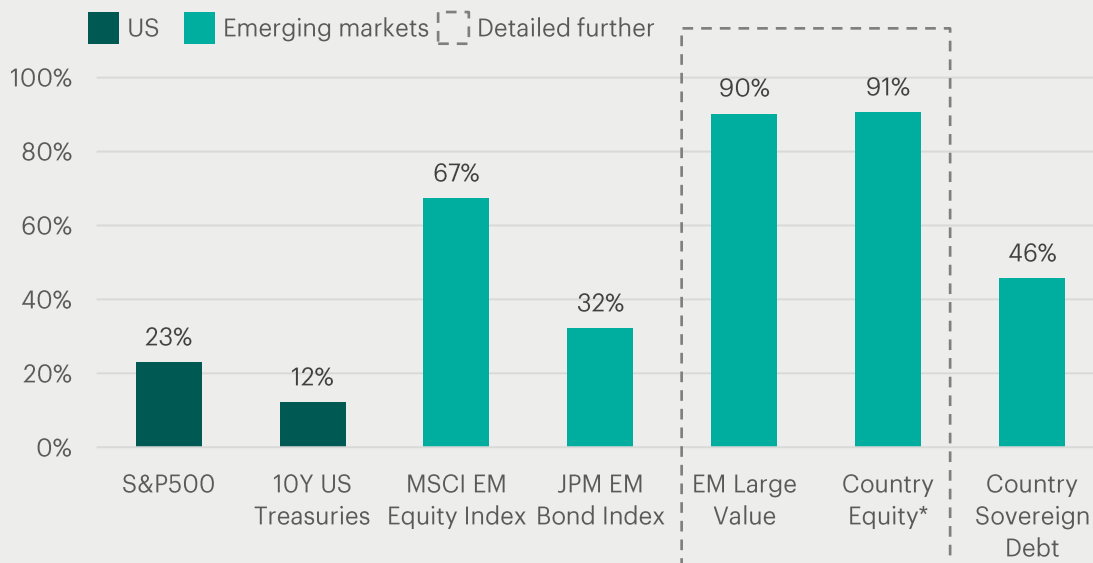
To analyze equity returns, we used MSCI index data. For government bonds, we used Global Financial Data (GFD) total return data. To build comfort with using GFD bond data in conjunction with MSCI equity data, we have tested the GFD index and MSCI index databases and confirmed consistency (See [Appendix Figures 9, 10](#)).



4. EMERGING MARKETS CRISIS INVESTING: ANALYSIS

We analyzed 24-month forward returns for stocks and bonds in 71 crisis situations across 18 target markets. We differentiated between idiosyncratic and global crises. We found that EM equities outperformed EM debt and US equities and treasuries in global crises, when the capital pull from emerging markets is at its highest. Focusing on countries that had experienced >50% drawdowns (shown as Country Equity below), or investing in large value stocks, resulted in a better performance compared to the broad EM index.

Figure 12: **2-Year Returns by Financial Instrument in Global Crises, 1987 (or Earliest Available Data) to 2020**

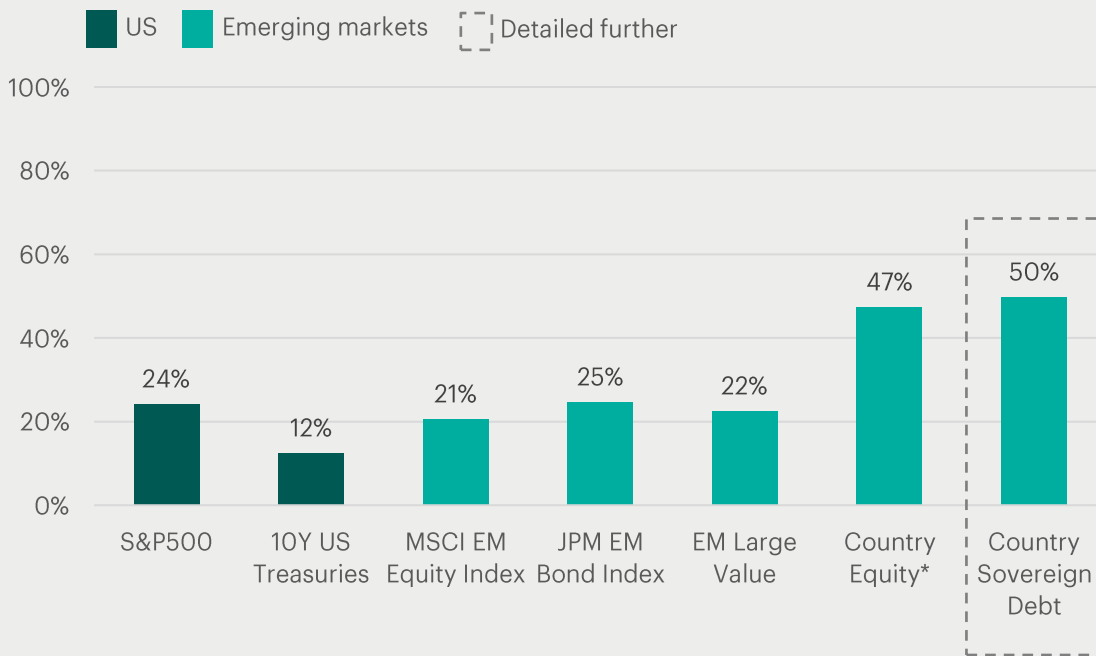


Source: Capital IQ, Global Financial Data, Ken French Data Library

*Country equity indices are cap-weighted, but the strategy is based on an equal-weighted portfolio of countries

EM sovereign debt outperformed all other instruments during idiosyncratic crises, with a strategy focused on countries whose equity markets had experienced a >50% drawdown performing the best (shown as Country Sovereign Debt in Figure 13 below).

Figure 13: **2-Year Returns by Financial Instrument in Idiosyncratic Crises, 1987 (or Earliest Available Data) to 2020**



Source: Capital IQ, Global Financial Data, Ken French Data Library

*Country equity indices are cap-weighted, but the strategy is based on an equal-weighted portfolio of countries

In the following section of this report, we contrast equity and debt performance, including for the value segment, in the US and emerging markets, going into more depth on the winning strategies.

Equities

GLOBAL CRISES

We wanted to answer if emerging markets or the US would have generated better returns during global crises. We compared EM country equity indices and the EM Large Value index to the S&P 500. We show return and recovery profiles for these strategies in Figure 14 below.



Figure 14: **2-Year Return and Recover, US vs. EM Equities in Global Crises, 1987 - 2020**

Instrument	Total Return	Recovered		Not recovered	
		% of Total	Return	% of Total	Return
EM Country Equity Indices	91%	84%	113%	16%	-25%
EM Large Value	90%	100%	90%	-	-
S&P500	23%	75%	37%	25%	-18%
EM Country Indices vs. S&P500	68%	9%	76%	-9%	-7%
EM Large Value vs. S&P500	67%	25%	54%	-25%	18%

Source: Capital IQ

Investors appear to have been handsomely rewarded for investing in emerging markets during global financial crises. EM country equities have historically generated 4x the returns of the S&P 500 in the 24 months after global crises. Most importantly, emerging market equities have historically displayed a superior recovery rate compared to the already high rate of the S&P 500. And EM value investing did even better, we found.

IDIOSYNCRATIC CRISES

We also wanted to look at those crises that were idiosyncratic to emerging markets. For each idiosyncratic crisis in our target EM markets, we wanted to compare the returns from investing in that country’s equity index for two years to those from investing in alternative instruments: EM Large Value, and the S&P 500. Below we show the average returns for all idiosyncratic crises across all countries.

When global liquidity dries up quite indiscriminately in a crisis, local EM market indices and value portfolios are some of the best equity investment opportunities, we believe. When global crises unfold, foreign investors typically pull out capital from emerging markets either in defense or to invest that capital into their home countries during unfolding domestic crises. Emerging markets are thus starved for liquidity, which further amplifies the drawdowns that were initially set in motion by the global crisis. These drawdowns translate into ever cheaper stocks and bonds for the few investors that enter positions in these markets and take advantage of the likely rebound.

Figure 15: **2-Year Average Return and Recovery, US vs. EM Equities in Idiosyncratic EM Crises, 1987–2020**

Instrument	Total Return	Recovered		Not recovered	
		% of Total	Return	% of Total	Return
EM Country Equity Indices	47%	65%	89%	35%	-31%
EM Large Value	22%	76%	33%	24%	-12%
S&P500	24%	87%	32%	13%	-26%
EM Country Indices vs. S&P500	23%	-22%	57%	22%	-4%
EM Large Value vs. S&P500	-2%	-11%	2%	11%	15%

Source: Capital IQ

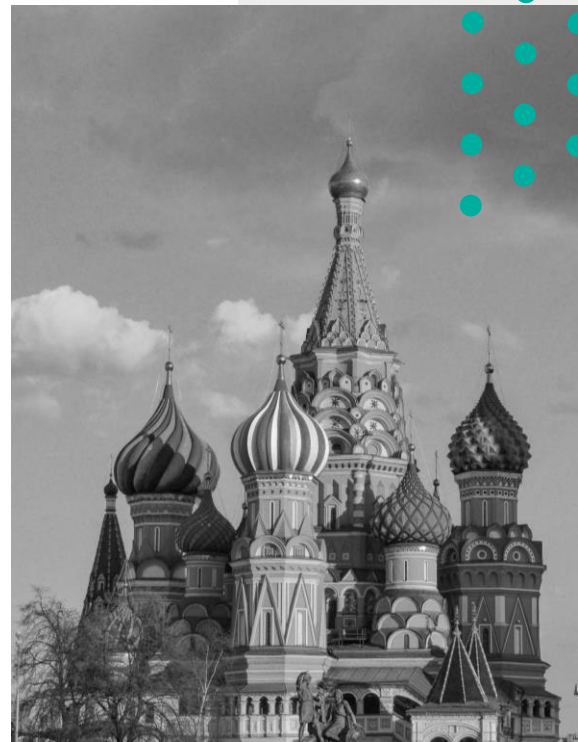
Like investing in global crises, we found that investors can potentially expect attractive returns from investing in country equities during idiosyncratic EM crises, but not in value portfolios. However, the S&P 500 has a higher recovery rate – this is not a low-risk investment.

COMPARISON TO BUY-AND-HOLD STRATEGY

Finally, we wanted to check what percentage of total emerging markets returns are captured by investing in crises.

We compared the returns from a buy-and-hold strategy in our target markets to those from investing “in and out” of crises. For example, let’s assume an index went from 100 to 200, generating 100% return over 30 years. There were two crises during that period: in one the index went up 50%, and in the second it went up 25%. Investing only during those two crises and holding the investment for 24 months would have generated a compound return of 87.5%, thus capturing 87.5% of the total gain in only 4 years instead of 30, according to our research.

On average, we found that an investor could have achieved 185% of the buy-and-hold strategy across countries by investing in crises over 24 months. However, crisis investing only outperformed in 28% of the countries. This is because crisis investing worked particularly well in a few countries, such as Turkey, Russia, or Korea (See [Appendix Figure 11](#)).



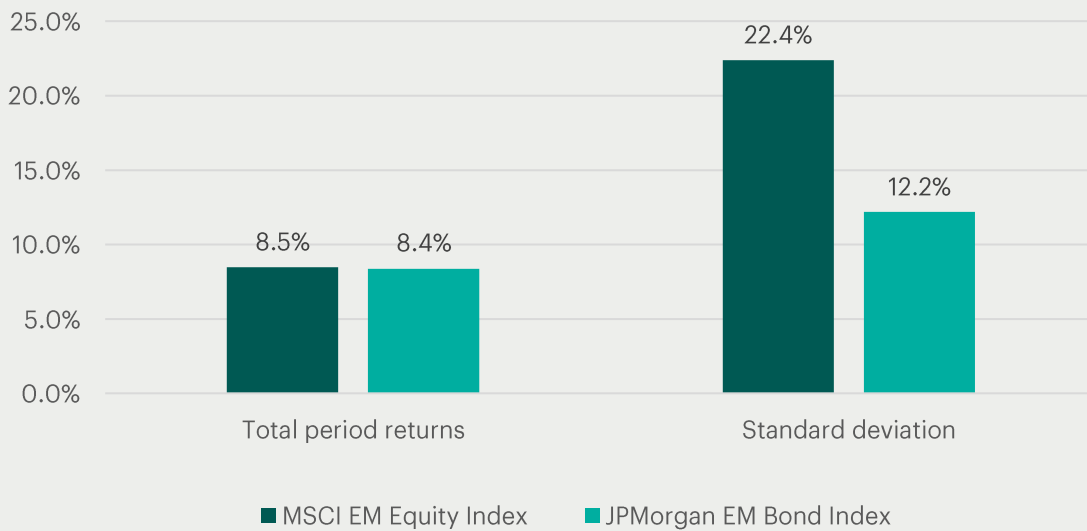
CONCLUSION

Investors can potentially expect a higher return from investing in EM equities during crises compared to investing in the United States. EM investing in global crises seems particularly rewarding to investors. While country-level returns were historically a whopping 4x higher compared to the S&P 500, they have also had higher recovery rates. This is different for idiosyncratic crises, when higher returns from country-level EM equities are accompanied by higher risk. Value investing has also historically performed better in emerging markets compared to the United States in times of crisis.

Debt

We wanted to understand how debt performed relative to equities in emerging markets. We looked at MSCI Emerging Markets Equity Index starting in 1989 and J.P. Morgan Emerging Markets Bond Index (EMBI) starting in 1993 as proxies for overall EM equity and debt markets.

Figure 16: **EM Historic Debt and Equity Performance, 1989 (or Earliest Available Data) to 2020**



Source: Capital IQ, Bloomberg

Over the full period, we observed that EM debt had comparable returns to equities but with lower associated risk. Therefore, we wanted to see if this risk-return profile is as attractive in crises.

We contrasted EM sovereign debt returns with 10Y US Treasury returns over 12- and 24-month holding periods after a crisis. In addition, we looked at recovery rates (i.e., when returns are positive) in each instance to understand if returns are driven by high recovery rates or by performance at the extremes.

GLOBAL CRISES

In Figure 17 below, we show return and recovery profiles for EM sovereign debt and 10Y US Treasuries during global crises (defined as periods when the S&P 500 experienced 20% drawdowns).

Figure 17: **2-Year Average Return and Recovery, US vs. EM Sovereign Debt in Global Crises, 1987–2020**

Instrument	Total Return	Recovered		Not recovered	
		% of Total	Return	% of Total	Return
EM Sovereign Debt	46%	95%	49%	5%	-15%
10Y US Treasuries	12%	75%	17%	25%	-2%
EM vs. US	34%	20%	32%	-20%	-13%

Source: Capital IQ, Global Financial Data

Once again, EM sovereign debt appears to have performed better than US treasuries in global crises historically. High EM debt returns also had lower associated risk historically. This is directionally aligned with the performance of EM equities after global crises. However, EM sovereign debt generally does not outperform EM equities in global crises.



IDIOSYNCRATIC CRISES

In computing average debt returns, we applied the same logic as to computing average equity returns during idiosyncratic crises. In Figure 18 below, we show average return and recovery profiles for EM sovereign debt and 10Y US Treasuries during idiosyncratic crises.

Figure 18: **2-Year Average Return and Recovery, US vs. EM Sovereign Debt in Idiosyncratic EM Crises, 1987–2020**

Instrument	Total Return	Recovered		Not recovered	
		% of Total	Return	% of Total	Return
EM Sovereign Debt	50%	82%	63%	18%	-11%
10Y US Treasuries	12%	93%	13%	7%	-4%
EM vs. US	37%	-11%	50%	11%	-7%

Source: Capital IQ, Global Financial Data

Historically, debt investors seem to have been much more incentivized to take advantage of EM crises when times were smooth at home. EM sovereign debt returns have been 5x higher compared to 10Y US Treasuries during idiosyncratic crises, with similar recovery rates, as depicted above. Moreover, EM sovereign debt returns during idiosyncratic crises are higher than those of any other strategy, be it debt or equity, value or not.



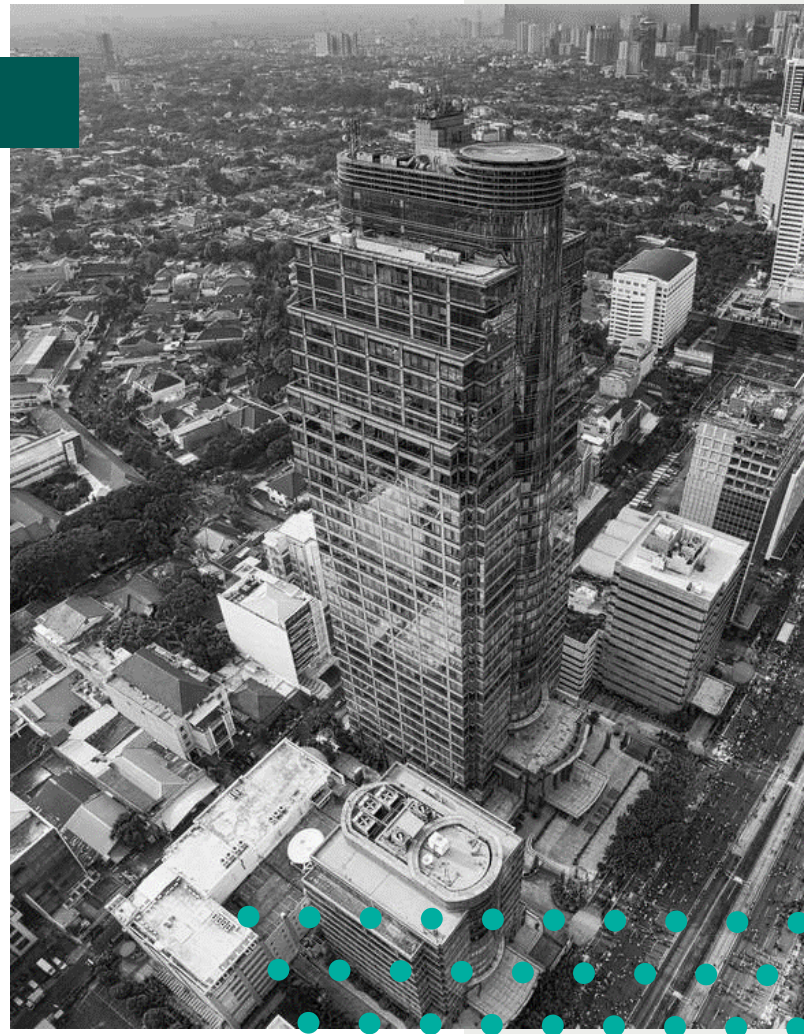
COMPARISON TO BUY-AND-HOLD

Crisis investing did not outperform buy-and-hold in EM debt historically, as research shows. On average, crisis investing in EM debt over 24 months captured ~40% of the buy-and-hold returns and outperformed in only 21% of countries, including Brazil, Russia, and Turkey (See [Appendix Figure 11](#)).

CONCLUSION

A buy-and-hold strategy for EM debt over the full period had comparable returns to EM equity, but with lower volatility. This low-risk, high-return profile has also been true during EM crises historically. Crisis investing in EM sovereign debt outperformed US equities in both idiosyncratic and global crises, with similarly attractive recovery rates. At the same time, crisis investing in EM sovereign debt outperformed investing in EM equities in idiosyncratic crises, but not in global ones.

Moreover, when we contrasted the return and recovery profiles of equity and debt in emerging markets to those in developed markets, we found that EM sovereign debt is potentially more attractive relative to EM equity. Despite similar recovery rates between the two markets, developed-market debt returns in crises were 70% below equity returns, while in emerging markets, debt returns were only 30% below equity returns (See [Appendix Figure 12](#)).



5. EMERGING MARKETS CRISIS INVESTING: STRATEGY

We analyzed 24-month forward returns for stocks and bonds in 71 crisis situations across 18 target markets. We differentiated between idiosyncratic and global crises. We found that EM equities outperformed EM debt and US equities and treasuries in global crises, when capital pull from emerging markets is at its highest. Focusing on countries that had experienced >50% drawdowns, or investing in large value stocks, performance was even better than the broad EM index.



STRATEGY DEFINITION

We propose a crisis investing strategy that captures excess returns from crisis investing while avoiding EM risk during times of no crisis:

1

Long EM large value stocks during global crises: 3-month entry lag, 24-month hold

2

Long EM sovereign debt during idiosyncratic crises: 3-month entry lag, 24-month hold

3

Long US sovereign debt when not invested in EM debt or equity: a “no-crisis” instrument

We also tested our strategy for different “no-crisis” instruments, such as the S&P 500 or cash. We found that holding 10Y US Treasuries in times of no crisis had the best risk-return profile (See [Appendix Figure 13.14](#)). We propose unhedged USD exposure in the context of this strategy (See [Appendix Section A](#)).

PORTFOLIO ALLOCATION

In the previous chapter we showcased the appealing combination of potentially high returns and recovery rates that EM debt and equity can deliver during crises. Another way of reading that is: there still is a chance that a market might not recover from a crisis. To manage this risk, we propose limiting our portfolio exposure to a single market by capping the allocation per market in crisis at 15% of the portfolio, as well as implementing an equal-weighted allocation. The model returns are not particularly sensitive to this assumption and implementing a 20% or 25% cap would have had similar results.

For example, in a period with only one EM country in crisis, we will allocate 15% of the portfolio to that country's debt (in an idiosyncratic crisis) or equity (in a global crisis) and 85% to 10Y US treasuries. Conversely, in a period with 10 EM countries in crisis at the same time, each will be allocated 10% of the portfolio, while nothing will be allocated to 10Y US Treasuries.

We tested our logic for different allocation caps: 100% maximum allocation on one hand and equal weighting (i.e., 1/18 of the total portfolio) on the other hand. We found that a 15% maximum allocation per country has the best risk-return profile (See [Appendix Figure 13](#)).

For periods when country-level debt data is not available, we used J.P. Morgan's EM Bond Index (EMBI) returns as a proxy for country-level returns.



RESULTS

We contrasted the performance of our crisis investing strategy to that of buying and holding benchmarks: S&P 500, 10Y US Treasuries, MSCI EM Equity Index (proxy for overall EM equities), J.P. Morgan's EM Bond Index (proxy for overall EM debt), and the Fama-French EM Large Value Index. In our crisis investing strategy, we used the equal-weighted EM Large Value Index, rather than the market-cap weighted index shown throughout the paper, because of the significantly higher weight towards value in the equal-weighted index and, hence, higher returns. However, it is important to note that an equal-weighted EM Large Value strategy is more difficult to execute and has more capacity issues than market-cap weighted.

We compared the returns of equal-weighted and market-cap weighted value indices for large and small EM stocks and found that equal-weighting outperforms market-cap weighting, while the cheapest and most illiquid value stocks – small stocks – outperform large ones. Although an equal-weighted EM Small Value strategy is virtually impossible to execute, this trend makes us believe that a more concentrated equal-weighted EM Large Value strategy, in which we would tilt the portfolio towards value even more, could potentially further boost the returns of our strategy.

In Figure 19 below, we show the total period returns, average annual returns, standard deviation, Sharpe ratio, and maximum drawdown for all strategies starting in 1993 (the earliest period with overlapping data).

Figure 19: **Annualized Performance Indicators by Investing Strategy, 1993–2020**

	Buy and Hold				
	EM Crisis Investing	S&P500	MSCI EM Equity Index	JPMorgan EM Bond Index	EM Large Value
Total Period Return	16.0%	9.5%	4.7%	8.4%	6.8%
Average Annual Return	17.4%	10.7%	7.4%	9.2%	9.7%
Standard Deviation	16.1%	14.8%	22.3%	12.2%	23.2%
Sharpe Ratio	0.83	0.45	0.15	0.43	0.25
Maximum Drawdown	-19%	-51%	-61%	-31%	-66%

Source: Capital IQ, Bloomberg, Global Financial Data, Ken French Data Library

The top-performing crisis investing strategy outperformed buy-and-hold strategies in both the United States and emerging markets by 7–11% in total period returns. Most importantly, that performance came with low volatility and limited drawdowns.

In Figure 20 below, we show the allocation and return contribution of each instrument in the strategy.

Figure 20: **Total Period Allocation and Return Decomposition**

Asset class	Investment Period	Average Allocation	Return Contribution
EM Large Value*	Global Crises	16%	7.3%
EM Country Sovereign Debt	Idiosyncratic Crises	24%	4.1%
J.P. Morgan EM Bond Index**	Idiosyncratic Crises	10%	1.2%
10Y US Treasuries	Remaining Period	50%	3.4%
		100%	16.0%

Source: Capital IQ, Bloomberg, Global Financial Data, Ken French Data Library

* Equal-weighted

** Proxy in periods when country-level debt return data is missing

Strategy returns are boosted by the equal-weighted EM Large Value Index in global crises and country-level sovereign debt during idiosyncratic crises. While contributing a smaller relative amount to returns, 10Y US Treasuries are critical to reducing the strategy’s risk. Consequently, this strategy bears a debt-like risk profile with an equity-like return profile.



To make sure the outperformance is not driven by singular events, we have also tested these strategies on monthly 5-year rolling periods and contrasted to their benchmarks in Figure 21 below.

Figure 21: **5-Year Rolling Returns, EM Crisis Investing vs. S&P 500, 1993–2020**

Performance	% of Periods	Total Period Return		
		EM Crisis Investing	S&P500	Difference
Overperformance	64%	20%	4%	16%
Underperformance	36%	12%	16%	-4%
Average		18%	8%	9%

Source: Capital IQ, Bloomberg, Global Financial Data



We found that our proposed strategy would have outperformed the S&P 500 by 16%, on average, two thirds of the time. On the other hand, our strategy only underperformed by -4% in the remaining periods.

To put this in perspective, we have detailed in Figure 22 on the next page, the 5-year performance for five full periods between May 31, 1995 and May 31, 2020, the last period with available data in our analysis.

Figure 22: : 5-Year Performance of Crisis Investing vs. S&P 500, May 3, 1995– May 31, 2020

May 31,	Total Period Return		Sharpe Ratio		Max Drawdown	
	EM Crisis Investing	S&P500	EM Crisis Investing	S&P500	EM Crisis Investing	S&P500
1995-2000	20.5%	23.3%	0.71	1.27	-19%	-15%
2000-2005	19.7%	-1.9%	1.28	-0.34	-14%	-45%
2005-2010	19.0%	0.3%	0.93	-0.14	-11%	-51%
2010-2015	13.1%	16.2%	0.98	1.22	-13%	-29%
2015-2020	10.5%	9.7%	1.03	0.60	-7%	-20%

Source: Capital IQ, Bloomberg, Global Financial Data

The proposed strategy would have outperformed the S&P 500 in four out of five periods. This includes the two periods between 2000 and 2010 when the S&P 500 was flat or negative. In the one period when our strategy would have underperformed, we conclude that it would have done so by -3%. Interestingly, we believe our strategy would have had double-digit returns for the last 5 years, when the US Small Value segment has been flat (See [Appendix Figure 15](#)).



CONCLUSION

We feel that a crisis investing strategy that captures excess returns from crisis investing by holding EM sovereign debt and large value equities while diversifying EM risk during times of no crisis by holding 10Y US Treasuries could represent an attractive alternative to a buy-and-hold approach to emerging markets. This strategy results in equity-like returns with debt-like downside protection, based on our analysis.

Historically, this strategy was a better performer than buying and holding the S&P 500, 10Y US treasuries, overall EM debt or equities, and US and EM value stocks. In particular, this strategy beat holding the S&P 500 over the full period, 64% of rolling 5-year periods since 1993, and in four out of five 5-year periods since 1995, with double-digit returns even in periods when the S&P 500 were flat.



6. CONCLUSION

Emerging markets' history of high volatility and low returns has hardly been attractive for investors. Despite overly optimistic views from promoters such as El-Erian or the World Bank, \$100 invested in EM equities in 1987 would be worth \$1,340 today, compared to \$1,890 if invested in the S&P 500. This underperformance has been driven by the frequent and severe crises from which, compared to their developed counterparts, emerging market indices are less likely to recover.

Paradoxically, these crises are caused by EM bulls who inject vast amounts of capital into these markets, causing them to crack either from unsustainable growth or from negative macroeconomic effects, such as widening current account deficits or high inflation. When that happens, those same promoters are quick to pull their capital out of the country, amplifying the crisis even further.

Research shows, however, that it is possible to successfully invest in emerging markets through a crisis investing strategy. Goetzmann argues that the months just after a crisis are the best times for investors to enter the market and reap outsized returns by providing their capital when no one else does.

We have tested Goetzmann's hypothesis and found that EM debt and equities perform better than their US references in times of both idiosyncratic EM crises and global ones. We found that EM equities perform better than US equities and EM debt during global crises, while EM sovereign debt performs better than US Treasuries and EM equities during idiosyncratic EM crises.

Our research suggests that a crisis investing strategy that captures excess returns from crisis investing by holding EM debt and equities while diversifying EM risk during times of no crisis by holding 10Y US Treasuries is an attractive alternative. This strategy results in equity-like returns with debt-like downside protection and is a better performer than buying and holding the S&P 500, 10Y US Treasuries, EM debt, EM equities, or even EM large value stocks.

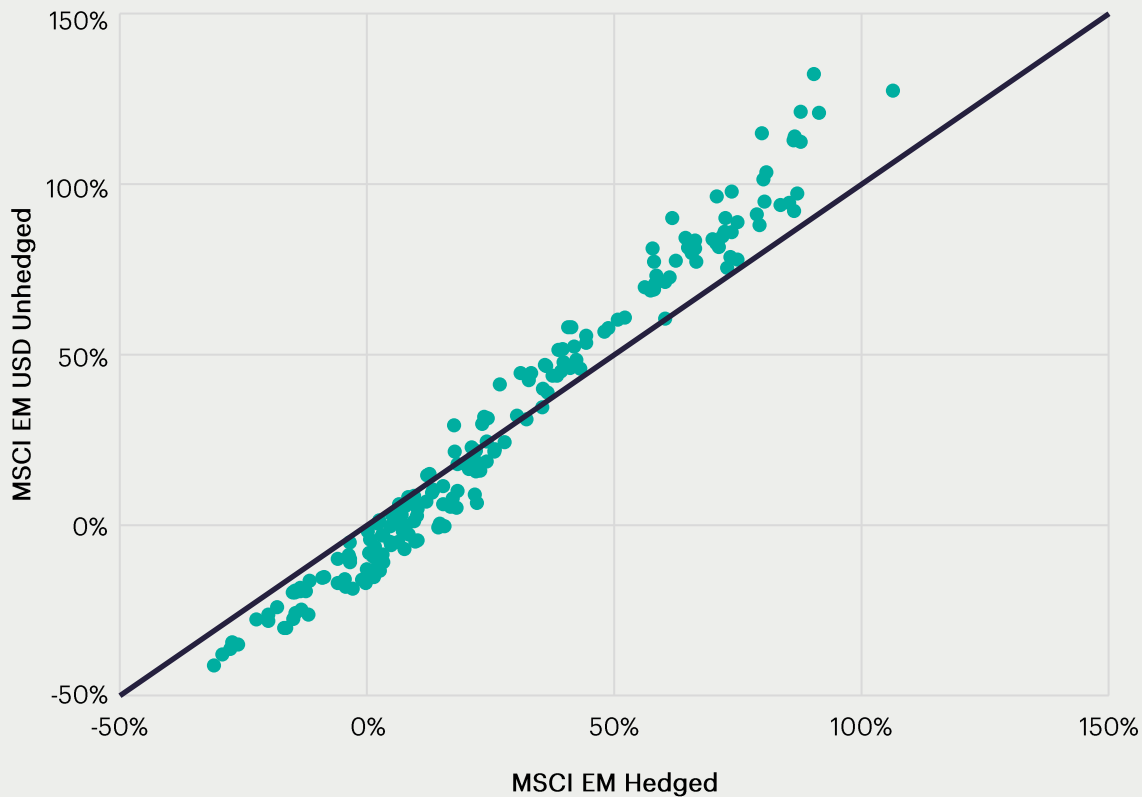
APPENDICES



APPENDIX A: HEDGED VS. UNHEDGED EM EQUITIES

Our methodology shows unhedged USD total returns. We prefer unhedged exposure to EM equities in crisis recovery periods. In the last 20 years of crisis recoveries, an unhedged USD investor would have benefited compared to a currency-hedged investor. Conversely, holding unhedged exposure to emerging markets going into drawdowns made them more painful.

Figure 1: 2-Year Rolling Returns for MSCI EM USD Unhedged vs. Hedged Indices (2000–2020)



Source: Capital IQ

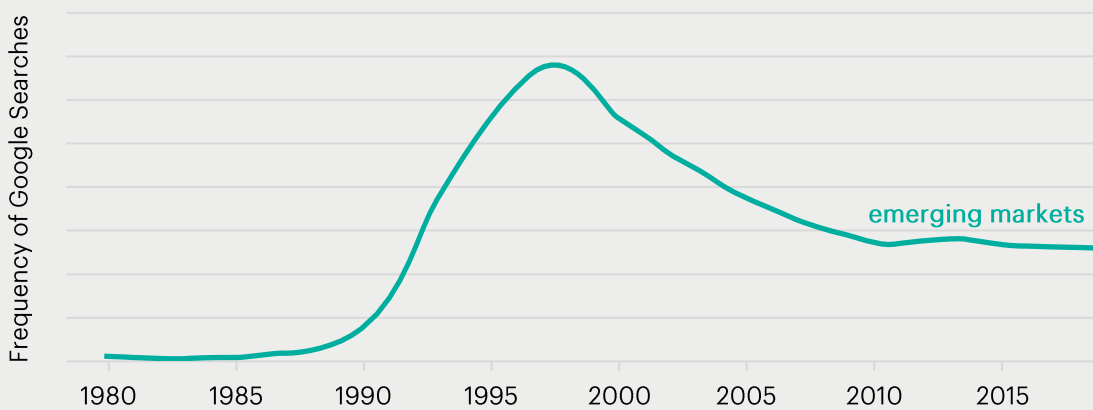
APPENDIX B: CASE STUDY: 1997-98 ASIAN CRISIS

From 1965 to 1990, the 23 economies of East Asia grew GNP per capita at over 5% per year, lifting hundreds of millions out of poverty and creating an economic region to rival Europe, according to our research.

How did these countries achieve these results? In a 1993 paper titled "[The East Asian Miracle](#)," the World Bank concluded that the key ingredients for rapid growth were "market-friendly economic policies" that facilitated "unusually high rates of private investment" into countries with a highly educated population that could master new technologies. During this period, investment exceeded 20% of GDP on average in the highest-growth countries, and this investment led to substantial productivity gains.

This economic miracle caught the attention of investors in developed markets. If these countries had indeed implemented market-oriented financial and legal regimes, and if the investment was leading to high growth and substantial productivity improvements, then surely there was money to be made by western investors investing in these economies. Below we show the spike of interest in "emerging markets" using Google's NGram technology.

Figure 2: Interest in Emerging Markets over Time

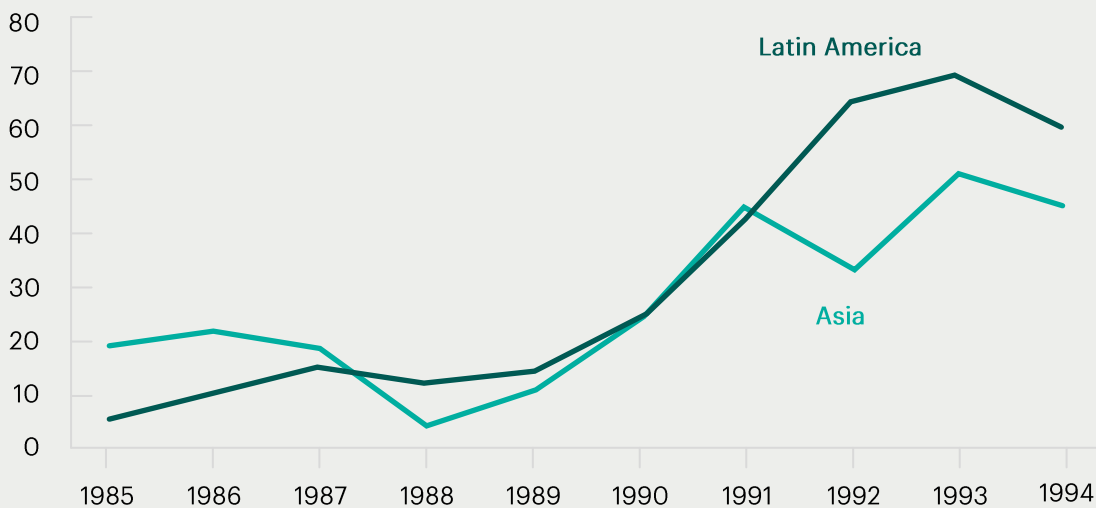


Source: Google NGram

Investors in developed markets were dealing with a sharp decline in interest rates and recessions in the United States, Japan, and Europe, all of which made investing abroad seem more attractive. Investing in these emerging markets seemed to offer a way to bet on secular growth in modernizing economies while achieving diversification at the portfolio level: a win-win.

This spike in interest was matched by a spike in capital flows. From 1990 to 1994, foreign investors poured \$670B into Asia and Latin America, about five times the \$133B total of the previous five years.

Figure 3: **Capital Account Balance in Asia and Latin America, 1985–1994 (USD Bn)**



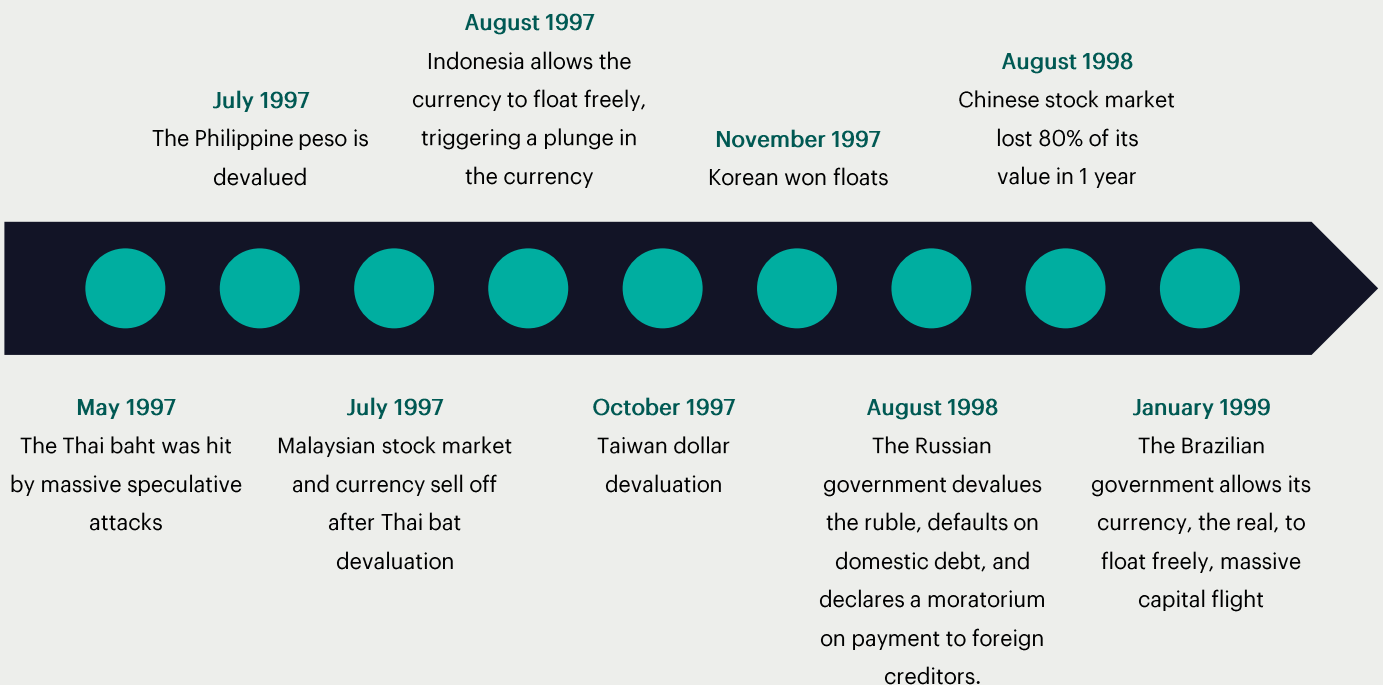
Source: Calvo et al., “Inflows of Capital to Developing Countries in the 1990s.”

But writing in 1996, three distinguished economists—including Carmen Reinhart, who would later co-author the bestseller *This Time is Different: Eight Centuries of Financial Folly*—warned that these inflows could pose serious risks. “Large capital inflows can also have less desirable macroeconomic effects, including rapid monetary expansion, inflationary pressures, real exchange rate appreciation, and widening current account deficits,” they wrote. “History has also shown that the global factors affecting foreign investment tend to have an important cyclical component, which has given rise to repeated booms and busts in capital inflows.”

Their warning was well timed. Less than a year later, a massive financial crisis hit these emerging economies. In July of 1997, Thailand was forced to massively devalue the baht, which had previously been pegged to the US dollar. Foreign investors immediately reacted by withdrawing their capital, leading to a 55% fall in stock prices and an 8% drop in GDP in 1998. The foreign investment that had led to a boom in Thailand’s economy turned to bust overnight.

Other emerging economies were quick to follow. Two weeks later, the Philippines and Indonesia devalued their currencies. And by the fall, even Asia’s stronger economies like Taiwan and South Korea were forced to devalue as foreign investment flows collapsed. The crisis rolled in waves over different markets, with Russia devaluing in 1998 and defaulting on its domestic debt, the Chinese stock market losing 80% of its value by the summer of 1998, and massive capital flight from Brazil after its devaluation in 1999.

Figure 4: **1997–1999 Crises Timeline**



Source: IMF, Federal Reserve, Wikipedia

The effusive optimism of the early 1990s about the East Asian economic miracle turned to investor despair and panic. Backed by analyses from the World Bank and others, investors had moved money from the low-interest, slow-growth developed markets to high-yielding, high-growth emerging markets. But by moving too much capital too fast, they created economic dislocations in small and fragile countries that led to a bubble and then collapsed.

Banks and other financial intermediaries played an essential role in the crisis. Nobel Prize-winning economist Paul Krugman wrote that these banks made risky loans that caused asset price inflation that, in turn, made their balance sheets look sounder. But when the bubble burst, this same circular process reversed. “Falling asset prices made the insolvency of intermediaries visible, forcing them to cease operations, leading to further asset deflation,” Krugman wrote. “This circularity, in turn, can explain both the remarkable severity of the crisis and the apparent vulnerability of the Asian economies to the self-fulfilling crisis—which in turn helps us understand the phenomenon of contagion between economies with few visible economic links.”

Financial markets and investor sentiment are fickle. And while foreign capital flows played an essential role in funding economic growth during the East Asian miracle, investor appetite for EM growth quickly overwhelmed the limited opportunity set in these small markets. And thus, excessive capital flows created a bubble, whose bursting not only punished the irrational exuberance of developed-market investors but also created negative feedback loops within the real economies of a host of different countries. EM crises thus follow a pattern akin to what Ben Bernanke calls “the financial accelerator,” whereby financial markets accelerate and exacerbate underlying moves in the real economy.

APPENDIX C: SUPPORTING FIGURES

Figure 5: Real GDP Growth, 1989–2020



Source: IMF

Figure 6: Number of Companies with Daily Value Traded >\$200K by Country and Market Cap

Country	Large	Mid	Small	Total	% of Total
China	233	933	3,032	4,198	53%
South Korea	27	70	1,214	1,311	17%
Taiwan	20	71	604	695	9%
India	35	91	129	255	3%
Malaysia	7	30	179	216	3%
Turkey	1	17	178	196	2%
Saudi Arabia	11	30	142	183	2%
Brazil	20	45	110	175	2%
Thailand	9	39	119	167	2%
Indonesia	7	20	66	93	1%
Vietnam	3	12	61	76	1%
South Africa	7	26	41	74	1%
Mexico	7	22	27	56	1%
Poland	1	15	36	52	1%
Russia	13	16	15	44	1%
Philippines	2	17	15	34	0%
Chile	2	15	9	26	0%
Greece	0	3	18	21	0%

Source: Capital IQ

Figure 7: **2-Year Forward Returns by Drawdown Threshold**

Drawdown Threshold	Equity		Debt	
	# crises	Returns, %	# crises	Returns, %
60%	49	74	49	54
50%	71	63	71	48
40%	94	51	94	39
30%	121	35	121	33

Source: Capital IQ, Global Financial Data

Figure 8: **2-Year Forward Returns by Investment Lag (Months) at 50% Drawdown Threshold**

Lag (months)	Equity	Debt
1	55%	44%
2	56%	40%
3	63%	48%
4	67%	53%
5	56%	53%

Source: Capital IQ, Global Financial Data

Figure 9: **Forward Returns for Overlapping MSCI and GFD Markets, All Crises and Overlapping Crises**

We compared MSCI and GFD databases to confirm overlap. There are three important structural differences between MSCI and GFD databases: (1) MSCI index data only covers large and mid-cap companies, while GFD index data covers the entire market. (2) MSCI index data starts in December 1987, while GFD goes back to the 1800s in some cases. For the purposes of this analysis, we used the overlapping period. (3) GFD lacks equity data for Saudi Arabia and Vietnam.

We found that applying our investment strategy on MSCI and GFD data in overlapping countries (i.e., excluding Saudi Arabia and Vietnam from MSCI) flags 68 and 60 crises for MSCI and GFD, respectively. Of these, 51 are overlapping, a 75% and 85% crisis overlap for MSCI and GFD, respectively. When looking at the full set of crises, GFD data generates slightly higher returns (41% 12-month forward returns for GFD versus 38% for MSCI). This makes intuitive sense, given GFD includes small caps. However, the gap narrows considerably when only looking at overlapping crises (12-month returns of 43% for GFD versus 44% for MSCI). As expected, differences are larger for 24-month forward returns given the compounding effect. We therefore concluded that, beyond structural differences, the two databases are consistent.

All crises, 1987-2020

Holding period	# Crises		Equity			Debt		
	MSCI	GFD	MSCI	GFD	Diff.	MSCI	GFD	Diff.
12 months	68	60	38%	41%	-4%	27%	23%	3%
24 months	67	60	66%	72%	-6%	48%	45%	3%

Overlapping crises, 1987-2020

Holding period	# Crises		Equity			Debt		
	MSCI	GFD	MSCI	GFD	Diff.	MSCI	GFD	Diff.
12 months	51	51	44%	43%	0%	22%	25%	-3%
24 months	51	51	68%	69%	-1%	49%	49%	0%

* excludes Saudi Arabia and Vietnam

Source: Capital IQ, Global Financial Data

Figure 10: **Return Decomposition, EM Crises with Debt Data Availability**

It is important to note that we found gaps in GFD debt data. Specifically, 21 of the 72 crises identified based on the MSCI equity data did not have associated debt data for comparative returns analysis. However, a comparison of equity returns and recovery statistics (i.e., percentage of all events with positive returns) for all crises versus crises with debt data availability reveals insignificant differences. For example, average 12-month equity returns are 37% in both cases. Additionally, crisis recovery is -65% for both data sets. It is worth noting that 24-month figures show larger differences, which are largely driven by compounding.

This tells us that there is limited data fitting when comparing crises with and without debt data. Therefore, we feel comfortable applying the debt performance of the smaller sample to the broader analysis.

	12-Month Hold					
	Equity			Debt		
	# Crises	% of Total	Return, %	# Crises	% of Total	Return, %
Recovery	35	69%	65%	42	82%	37%
No recovery	16	31%	-24%	9	18%	-21%
Total	51	100%	37%	51	100%	27%

	24-Month Hold					
	Equity			Debt		
	# Crises	% of total	Return, %	# Crises	% of total	Return, %
Recovery	34	68%	99%	44	88%	56%
No recovery	16	32%	-33%	6	12%	-12%
Total	50	100%	57%	50	100%	48%

Source: Capital IQ, Global Financial Data

Figure 11: Returns by Market for 'In-and-Out' Crisis Investing vs. Buy and Hold Strategies

Country	Equity					Debt				
	24-Month Hold			Full-Period Hold		24-Month Hold			Full-Period hold	
	Return, %	> Full Period	Total hold, mo	Return, %	Total hold, mo	Return, %	> Full Period	Total hold, mo	Return, %	Total hold, mo
Average	2,282%	Y	95	1,225%	354	375%	N	86	899%	310
Brazil	221%	N	144	4,464%	395	117%	Y	72	105%	135
Chile	63%	N	48	2,984%	395	17%	N	48	236%	333
China	31%	N	120	55%	334	54%	N	96	268%	276
Greece	-88%	N	192	-58%	395	185%	N	168	1,185%	338
India	255%	N	72	598%	334	67%	N	72	363%	335
Indonesia	633%	N	96	1,355%	395					
Korea	2,394%	Y	96	591%	395	499%	N	96	1,288%	395
Malaysia	48%	N	24	577%	395	31%	N	24	260%	395
Mexico	479%	N	72	6,284%	395	286%	N	72	759%	309
Philippines	595%	N	120	666%	395	278%	N	96	955%	289
Poland	375%	Y	120	372%	334	1,009%	N	96	4,154%	286
Russia	1,293%	Y	72	1,123%	309	344%	Y	72	251%	286
Saudi Arabia	-9%	N	72	205%	226					
South Africa	126%	N	48	641%	334					
Taiwan	102%	N	96	748%	395	64%	N	72	212%	309
Thailand	2%	N	96	893%	395	89%	N	96	975%	395
Turkey	34,511%	Y	192	536%	395	2,205%	Y	120	1,582%	261
Vietnam	37%	Y	24	9%	164					

Source: Capital IQ

Figure 12: Debt and Equity 24-Month Return and Recovery, Developed vs. Tradeable Emerging Markets

Market	Average Return			Recovery Rate, %		
	Debt	Equity	D/E	Debt	Equity	D/E
Developed	24%	70%	0.3x	93%	93%	1.0x
Emerging	48%	57%	0.8x	88%	68%	1.3x

Source: Capital IQ, Global Financial Data

Figure 13: Annualized Returns by Investing Strategy – Crisis Investing

Global Crises	EM Large Value	EM Country Equity Indices	EM Country Equity Indices	EM Country Equity Indices	EM Country Equity Indices	EM Country Equity Indices	EM Country Equity Indices	EM Country Equity Indices	EM Country Equity Indices	EM Country Equity Indices
Idiosyncratic Crises	Sovereign Debt	Sovereign Debt	Sovereign Debt	Sovereign Debt	Sovereign Debt	Sovereign Debt	Sovereign Debt	Sovereign Debt	Sovereign Debt	Sovereign Debt
Remaining Period	10Y US Treasuries	10Y US Treasuries	S&P500	Cash	10Y US Treasuries	S&P500	Cash	10Y US Treasuries	S&P500	Cash
Maximum Allocation per Country	15%	15%	15%	15%	100%	100%	100%	6% (Equal)	6% (Equal)	6% (Equal)
Total Period Return	16.0%	13.4%	15.0%	10.0%	9.8%	10.3%	9.1%	13.4%	15.0%	10.0%
Average Annual Returns	17.4%	14.7%	16.9%	11.3%	15.4%	16.0%	14.7%	14.7%	16.9%	11.3%
Standard Deviation	16.1%	16.2%	18.6%	16.0%	32.4%	32.7%	32.3%	16.2%	18.6%	16.0%
Sharpe Ratio	0.83	0.66	0.69	0.45	0.35	0.37	0.33	0.66	0.69	0.45
Maximum Drawdown	-19%	-22%	-43%	-25%	-80%	-80%	-80%	-22%	-43%	-25%

Source: Capital IQ, Bloomberg, Global Financial Data

Figure 14: Annualized Returns by Investing Strategy – Buy and Hold

Global Crises	S&P500	10Y US Treasuries	MSCI EM Equity Index	JPMorgan EM Bond Index	MSCI US Small Value Index	EM Large Value (Equal-Weighted)	EM Large Value (Market-Cap Weighted)
Idiosyncratic Crises							
Remaining Period							
Maximum Allocation per Country	-	-	-	-	-	-	-
Total Period Return	9.5%	5.5%	4.7%	8.4%	9.2%	9.6%	6.8%
Average Annual Return	10.7%	5.7%	7.4%	9.2%	10.9%	12.8%	9.7%
Standard Deviation	14.8%	6.3%	22.3%	12.2%	17.7%	23.6%	23.2%
Sharpe Ratio	0.45	0.27	0.15	0.43	0.39	0.37	0.25
Maximum Drawdown	-51%	-10%	-61%	-31%	-55%	-64%	-66%

Source: Capital IQ, Bloomberg, Global Financial Data

Figure 15: **Crisis Investing vs. MSCI US Small Value and S&P 500 Performance, 5-Year Periods between May 31, 1995–May 31, 2020**

May 31,	Total Period Return			Sharpe Ratio			Max Drawdown		
	EM Crisis Investing	S&P500	MSCI US Small Value	EM Crisis Investing	S&P500	MSCI US Small Value	EM Crisis Investing	S&P500	MSCI US Small Value
1995-2000	20.5%	23.3%	12.5%	0.71	1.27	0.55	-19%	-15%	-25%
2000-2005	19.7%	-1.9%	13.8%	1.28	-0.34	0.68	-14%	-45%	-23%
2005-2010	19.0%	0.3%	4.0%	0.93	-0.14	0.12	-11%	-51%	-55%
2010-2015	13.1%	16.2%	15.1%	0.98	1.22	0.92	-13%	-29%	-24%
2015-2020	10.5%	9.7%	0.5%	1.03	0.60	0.03	-7%	-20%	-38%

Source: Capital IQ, Bloomberg, Global Financial Data

APPENDIX D: LITERATURE REVIEW AND CITATIONS

New York University's Yakov Amihud coauthored the original 1986 paper that set off the ensuing 35-year firestorm of academic research on the topic of an illiquidity premium. His 2002 article introduced the now infamous "ILLIQ" variable to explain cross-sectional and time-series variations in premia achieved by illiquid stocks over liquid ones. Over the long term, and during liquidity shocks especially, illiquid stocks seem to earn a higher return than liquid stocks—a return that is not explained by traditional risk measures. Last year, Amihud summarized the ensuing 20 years of debate over his paper as more about "which" liquidity measures help explain excess returns than it is about "whether" liquidity measures explain excess returns.

The discovery fit in quite naturally with the growing literature on emerging markets. So much so that one of the finance community's most cited professors who earned his reputation on EM premiums, Campbell Harvey, changed his mind on the theory of his earlier work. What was an "anomaly" (Harvey, 1995) to him in EM return patterns became a very logical compensation for taking the other side of the liquidity trade (Harvey, 2007).

In 2015, Amihud extended his tests on the illiquidity premium to 45 countries (including 19 emerging markets) and found that the payoff is "much higher for emerging markets than it is for developed ones." The study also found that "the country-level illiquidity premium is higher when global market returns are lower, suggesting that in such times liquidity is more valuable." And finally, that equal-weighted return premia to illiquid stocks were approximately 2x the value-weighted premia. In short, you got paid a lot for taking on EM risk when global returns were very bad, and you got paid even more for doing so in a portfolio construction that reduced the weight of the biggest stocks in the market (see excerpts from Amihud 2015 below).

Subsequent Researchers have found the important impact of global liquidity, driven by US flows, on local country return premia during liquidity shocks (Lee, 2011).

Amihud, Y. and H. Mendelson, "Asset Pricing and the Bid-Ask Spread," *Journal of Financial Economics* 17 (1986): 223-249.

Amihud, Y., "Illiquidity and Stock Returns: Cross Section and Time Series Effects," *Journal of Financial Markets* 5 (2002): 31-56.

Amihud, Y., A. Hameed, W. Kang, and H. Zhang, "The Illiquidity Premium: International Evidence," *Journal of Financial Economics* 117 (2015): 350-368. [excerpts with emphasis added below]

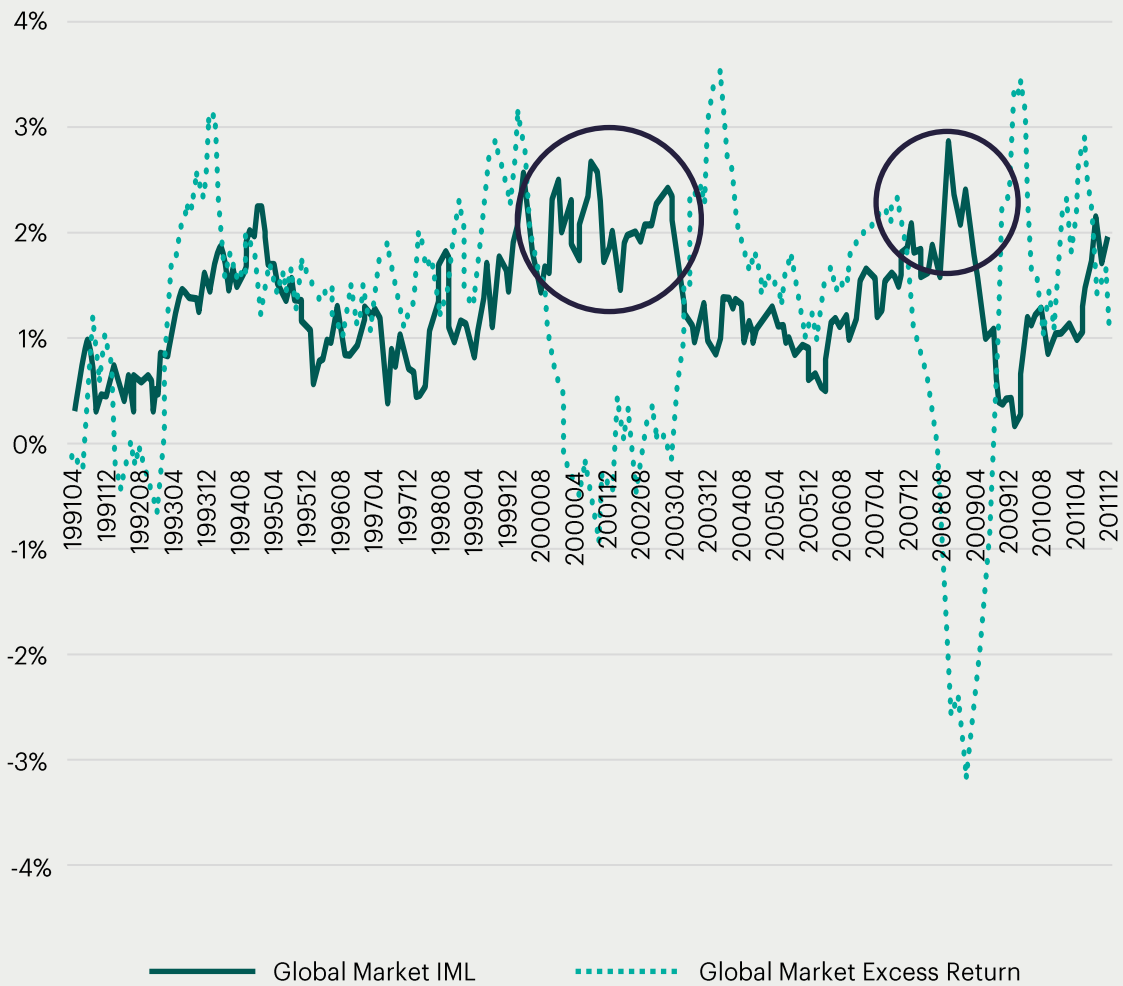
Figure 1: Summary of illiquidity premium

This table summarizes the results on illiquidity premiums. The returns are monthly in percent. IML_c is the mean monthly excess return on the illiquid-minus-liquid portfolio of country c . $\alpha_{IML,c}$ is the risk-adjusted excess return on the illiquid-minus-liquid portfolio of country c , obtained as the intercept from a regression of $IML_{c,t}$ on six risk (return) factors; see Model (1). IML_c and $\alpha_{IML,c}$ are estimated for each country and then averaged across countries. In weighted mean IML_c , the weights are the inverse of the country's standard errors of estimation. The p -value is the significance level of the test that the values of IML_c or $\alpha_{IML,c}$ are equally likely to be positive or negative (i.e., probability of 50%).

	Equally-Weighted Method		Value-Weighted Method		Volume-Weighted Method	
	IML_c	$\alpha_{IML,c}$	IML_c	$\alpha_{IML,c}$	IML_c	$\alpha_{IML,c}$
<u>Global Markets (all 45 countries)</u>						
Mean	0.951	1.044	0.437	0.535	0.697	0.882
(t -statistic)	(8.26)	(8.12)	(5.02)	(5.52)	(6.68)	(6.86)
Median	0.935	1.067	0.461	0.432	0.561	0.867
Weighted Mean	0.718	0.685	0.282	0.288	0.568	0.615
(t -statistic)	(6.31)	(5.77)	(3.67)	(3.73)	(6.08)	(5.63)
% positive	88.9%	86.7%	77.8%	77.8%	86.7%	86.7%
P -value	0.000	0.000	0.000	0.000	0.000	0.000
<u>Emerging markets (19 countries)</u>						
Mean	1.288	1.508	0.742	0.942	0.874	1.232
(t -statistic)	(9.49)	(10.06)	(5.63)	(7.32)	(5.67)	(6.73)
Median	1.172	1.388	0.619	0.967	0.987	1.330
Weighted Mean	1.194	1.333	0.662	0.846	0.806	1.024
(t -statistic)	(9.17)	(9.24)	(5.50)	(6.93)	(6.11)	(7.02)
% positive	100.0%	100.0%	100.0%	94.7%	94.7%	94.7%
P -value	0.000	0.000	0.000	0.000	0.000	0.000
<u>Developed Markets (26 countries)</u>						
Mean	0.705	0.706	0.214	0.237	0.567	0.627
(t -statistic)	(4.46)	(4.24)	(2.22)	(2.21)	(4.10)	(3.85)
Median	0.477	0.431	0.280	0.055	0.473	0.523
Weighted Mean	0.555	0.486	0.162	0.154	0.482	0.477
(t -statistic)	(3.72)	(3.34)	(1.81)	(1.88)	(3.90)	(3.38)
% positive	80.8%	76.9%	61.5%	65.4%	80.8%	80.8%
P -value	0.001	0.005	0.163	0.084	0.001	0.001

Figure 2: **Global illiquidity premium and global stock market returns**

The indexes are the global monthly returns series, $IML_{G,t}$ and $RM_{G,t}$. $IML_{G,t}$ is the global, equally-weighted average return of illiquid-minus-liquid portfolio return of each country. $RM_{G,t}$ is the MSCI index return in excess of the one-month T-bill rate. The figure presents 12-month moving average of these return indexes. The period is 1990-2011.



Amihud, Y., "Illiquidity and stock returns: A revisit," *Critical Finance Review*, Forthcoming.

Harvey, C.R., "Predictable risk and returns in emerging markets," *Review of Financial Studies* 8 (1995): 773-816.

Harvey, C.R., "Liquidity and expected returns: Lessons from emerging markets," *The Review of Financial Studies* 20, no. 6 (2007): 1783-1831

Bekaert, Harvey, Lundblad, "Liquidity and expected returns: Lessons from emerging markets," *The Review of Financial Studies* 20, no. 6 (2007): 1783-1831

Fama and French, "Value versus growth: The international evidence," *The Journal of Finance* (1998).

Goetzmann and Kim, "Negative bubbles: What happens after a crash," *European Financial Management* (2018). [Summary below]

A major academic study by William Goetzmann, a professor at Yale's School of Management, and Dasol Kim, argued that crises represent unique return opportunities across countries. Their paper, "Negative Bubbles: What Happens After a Crisis," uses data from 101 separate stock markets since 1692—most of which, like the United States, transitioned from emerging to developed within Goetzmann's large time horizon—to quantify the extent of these post-crisis returns. "Markets tend to rebound," they observe, "in the year following [a] crash."

They find that the extent of post-crisis returns is positively correlated with the magnitude of a crisis. So, we conclude that periods of higher, more sustainable equity growth follow steeper, more catastrophic losses.

Lee, K.H., "The World Price of Liquidity Risk," *Journal of Financial Economics* (2011).

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