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Expanding Institutional Investment into Emerging Markets via Currency Risk Mitigation

Final report and going forward insights

USAID FROM THE AMERICAN PEOPLE

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EMPEA

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Project Team

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EMPEA is *the* global industry association for private capital in emerging markets. EMPEA is an independent non-profit organization with over 300 member firms, comprising institutional investors, fund managers and industry advisors, who together manage more than US$1 trillion of assets and have offices in more than 100 countries across the globe. EMPEA supports its members through global authoritative intelligence, conferences, networking, education and advocacy with the broad purpose of catalyzing private investment in developing economies.

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Crystalus Inc. is a leading international advisory firm specializing in development finance and risk management, including public-private partnering approaches, capital deployment, fund structuring, due diligence and best practices. Crystalus has advised on nearly US$5 billion in new development finance initiatives, with clients spanning private-sector fund managers, multilateral development banks, development finance institutions, donor agencies, and major foundations.

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This report shares the findings from the project "Expanding Institutional Investment into Emerging Markets Via Currency Risk Mitigation," an initiative supported by USAID's Office of Private Capital and Microenterprise (PCM). PCM works across USAID sectors and across a powerful network of traditional and non-traditional investors to catalyze private finance for development, and increase the scale, impact, and sustainability of USAID programs.

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Photo: Roberto Nencini Yongero, Sierra Leone

Letter from Sarona Asset Management

Dear Reader:

Twelve months ago, we embarked on a road less traveled.

In emerging market private equity, currency risk is a persistent problem. Not the measured, moderate local currency erosion we often see over time – international investors are hardy enough to embrace this risk. But rather, the possibility of unexpected, major currency shocks, which can destroy overnight many years of good investment returns.

This fear of precipitous currency loss keeps billions of private equity dollars firmly on the sidelines – capital that could otherwise play a game-changing role in promoting sustainable growth across the developing world.

Conventional currency hedging approaches provide little relief. The amounts and timing of private equity cash flows are notoriously hard to predict, so instruments like swaps, forwards and options – even where available – are costly, and can create as many financial risks as they solve.

So, entrusted by USAID – and with our partners EMPEA and Crystalus – Sarona set out to address this thorny issue, by developing new ideas and approaches tailored to our industry's specific needs.

Happily, we have succeeded.

As highlighted herein, three solution pathways have emerged, and several innovative product ideas have been favorably market-tested among institutional investors and fund managers.

Along the way, we uncovered important new insights and clear guideposts that will help inform hearts and minds across the impact investing spectrum as we build momentum going forward.

For Sarona, this is not the end of a project, but the beginning of a journey. We invite like-minded practitioners, both public and private, to help us advance these achievements toward market-ready solutions.

There is still work to be done. Thankfully, the path forward is now clear and compelling.

Sincerely,

Gerhard Pries
CEO & Managing Partner
Sarona Asset Management

Introduction

Photo: Lewis Tse Pui Lung Kathmandu, Nepal

The United States Agency for International Development (USAID) has identified and championed a pressing issue that is, at once, a major public policy imperative and a crucial concern for the international investment community: how to mobilize greater flows of private equity (PE) capital for private sector development in emerging markets (EMs) by reducing currency (FX) risk for institutional investors and fund managers?

Within the development finance community, mobilizing greater private capital for sustainable growth is the issue of our time. Bilateral international development priorities and global Sustainable Development Goals cannot be achieved though public-sector spending alone. The needs are too great and the dollars too few.

Development actors must actively engage private-sector players to catalyze and leverage substantial resources to promote sustainable growth across the developing world.

Unfortunately, FX risk – specifically, the fear that an investment return in an EM will be washed away when converted back to U.S. dollars or Euros, because the local currency loses its relative value over time – is keeping billions (perhaps trillions) of dollars on the sidelines that could otherwise be invested in EM businesses to create jobs, grow tax bases, and enhance social safety nets.

USAID's focus on PE reflects its crucial importance in EM private sector development. Unlike debt, PE delivers impact beyond mere dollars and cents. Investors and fund managers bring governance standards, industry connections, and best practices to their investee companies. Especially for smaller enterprises in EMs, PE represents patient capital allowing fledgling businesses to grow and flourish in a stable manner. Further, PE helps relieve and rebalance the debt burden that many EMs face.

To date, much focus has been placed on reducing FX risk for local-currency loans in EMs. Recent years have seen the emergence and growth of specialized FX hedging entities such as The Currency Exchange Fund (TCX) and MFX Currency Risk Solutions, as well as local-currency debt guarantors such as GuarantCo and the Credit Guarantee and Investment Facility.

As for PE investments in EMs (i.e., not debt), the FX risk protection picture is far bleaker. Most existing FX hedging approaches for PE are impractical due to cost, availability, suitability, or the unwanted financial obligations that may arise. Hedging costs for appropriate products are for the most part prohibitive, and trading in hedging products for most of the riskier currencies remains relatively illiquid.

As a result, very little actual hedging takes place in EM PE investing, save for small amounts over short periods of time in the early and late stages of PE investments, when the timing and amounts of cash flows can be predicted with some certainty. Meanwhile, cost-effective FX protection during the much longer and riskier investment holding period is, for all intents and purposes, unavailable.

Without this kind of FX risk protection, many institutional investors shy away from EM PE, fund managers find it hard to raise new funds, and much-needed investment into worthy countries is severely constrained.

This project sought to address this vexing problem.

USAID engaged Sarona Asset Management Inc., Emerging Markets Private Equity Association and Crystalus Inc. to identify and help develop innovative, attractive, and new solutions to reduce FX risk for EM PE investments. This report sets out the project's analysis, key insights, conclusions and recommendations.

Despite the challenges noted, this project has demonstrated that innovative solution pathways are available to help reduce FX risk for EM PE investments. Perhaps the biggest impediment to implementation is a lack of awareness, understanding and development capacity to advance new product ideas and approaches.

This report reflects the project's extensive engagement with key players from across (and beyond) the EM PE market spectrum, including institutional investors, fund managers, industry associations, development agencies, development finance institutions, insurers, reinsurers, brokers, banks and others. It highlights several leading-edge prospective hedging ideas that EM PE investors might consider to help mitigate adverse FX risk. Further, it explores in depth one of these approaches (tailored proxy hedging), including results from detailed analysis and back-testing simulations.

An important result is that, despite the deficiency of conventional direct hedging capacity, some of the most promising new indirect hedging techniques can, even at the current time, potentially provide meaningful protection (even if probabilistic in nature) for reasonable cost.

Indeed, a compelling conclusion is that more PE investors will now have a choice: not to hedge and take full exposure to adverse FX shocks (with the negative impact on investment returns) – or to hedge, at relatively low cost, and achieve meaningful (albeit incomplete) protection.

Finally, the report gives consideration as to how FX hedging capacity for EM PE might be more widely developed going forward, including further testing methodologies and supporting activities to introduce the techniques more broadly and spur incrementally greater flows of capital into EMs.[1]

[1] The views and conclusions expressed herein reflect the judgment of the authors, and do not necessarily reflect the views of USAID or any other persons involved in this project. The authors have made all reasonable efforts to ensure the accuracy and completeness of information, and shall be not liable for any errors or omissions.

Executive Summary

Photo: Anton Ivanov Antananarivo, Madagascar

This Project Has Achieved its Objective

This project set out to solve a vexing problem:

Can new and innovative solution(s) be developed to help reduce FX risk for EM PE, thereby unlocking substantial new investment capital for private sector development?

This objective has been achieved. Several new and promising solution pathways – including tailored proxy hedging and insurance approaches – have already garnered substantial interest and engagement within the EM PE community. Along the way, important new insights have arisen that significantly advance the yardsticks for how EM PE market participants think and act in this challenging area.

But in many ways, this is just the first step on a longer path. A good deal remains to be done to grow and advance these solution ideas into easily digestible, market-ready products at scale. This report underscores the need to continue to build on the momentum that has been established, and identifies key action areas to advance successes to date.

While this project focuses on PE, many of the same issues are true of investments in EM infrastructure and real estate, as well as private debt transactions that have variable payment features. As such, the research findings, product ideas, and lessons learned described herein may also be applicable in helping unlock capital flows for these other asset classes.

Why is Reducing Currency Risk So Important?

Simply put, FX risk – real or imagined – prevents billions (perhaps trillions) of dollars of institutional PE investment from flowing to the poorest economies, which severely inhibits private sector-driven development and growth. If a solution can be found to unlock even a fraction of this capital, this is a game-changing result that forever changes the calculus for EM private-sector development and sustainable growth.

Solving this challenge finds common agreement across the development finance spectrum, from development agencies like USAID, to socially-minded fund managers like Sarona Asset Management, to advisory specialists like Crystalus, and to industry associations like the Emerging Markets Private Equity Association (EMPEA). USAID has been instrumental in championing this project, convening recognized market leaders, and promoting focused development of new product ideas tailored to the needs of the EM PE community.

Avoid Reinventing the Wheel

A fundamental tenet of this project's approach and methodology was to avoid "reinventing the wheel", and instead build on existing products, thinking and players in this space. As such, much initial work involved research and interviews to assess the current state of play. In surveying the landscape, there appeared, on the surface, to be much FX hedging activity happening in EM PE. Various banks and hedging entities list diverse FX hedging products available widely throughout EMs (e.g., forwards, swaps, options and futures), and numerous reports highlight risk mitigation solutions already in place. Several EM PE market participants even expressed strong views that the problem was overstated.

However, more careful examination of the landscape revealed major gaps, challenges and misconceptions, which have impeded meaningful progress in finding solutions for EM PE investing. See Annex A for landscape schematic.

Existing FX hedging products are, generally, well-suited to debt activities but not to PE activities, mainly because these existing hedging products are generally based on predictability of cash flows (timing and amounts), which is notoriously difficult to do in PE; often, no one knows for certain when a PE investment will be made or exited, nor what the exited amount will be. Even where some FX hedging products – such as options – might be suitable, these are either unavailable in amounts or tenors required or, if available, prohibitively expensive.

Further, some accounts of successful hedging of PE in EMs were, on further inspection, mischaracterized. For instance, industry discussions indicated that an equity tranche of a particular EM project had been successfully hedged; but in reality, the "equity" tranche was mezzanine debt, which was hedged quite easily being a debt product.

As such, it was important to conduct this project's activities in a methodical and comprehensive way,

making sure to engage key EM PE market players – institutional investors, fund managers, donor agencies, development finance institutions, industry associations, hedging entities, insurers, brokers, etc. – on a regular basis throughout the project.

The project's initial research and market scoping included understanding the current state of play for FX concerns in EM PE, existing FX risk mitigation approaches, and possible new idea areas to meet unaddressed needs.

Engaging the EM PE Community

As part of this project, EMPEA surveyed EM PE investors and fund managers to bring into clear focus key questions:

- Who is (and who isn't) concerned about FX risk for EM PE?
- Who has actually hedged FX risk for EM PE, and at which point in the investment process?
- Where are the actual gaps for FX risk mitigation – cost, protection, other?
- What would the EM PE investment community like to see in an ideal FX risk mitigation product (cost, protection, ease of use, etc.)?

Feedback from 119 respondents identified key needs, preferences and product parameters, which were integral in designing and refining the innovative FX risk mitigation product ideas set out herein.

In addition to the EMPEA survey, the EM PE community was engaged widely and often, including:

- One-on-one discussions with hedging entities, industry associations, banks, multilateral development banks, development finance institutions, development agencies, insurers, reinsurers, brokers, etc.;
- Initial project findings were presented at an international conference on FX risk management for EM development, hosted by the European Commission, the OECD, and the European Development Finance Institutions association;
- An Interim Report on project findings was published and released at IFC and EMPEA's annual conference, and was widely embraced by the EM PE community; and,
- A limited global Request for Proposal (RFP) was issued for the best and brightest solution pathways to address this problem.

FX risk mitigation specialists in the U.S., Canada and Europe were engaged to advance thinking on three new "Proof of Concept" solution ideas representing the leading-edge of global innovation and creativity in this space.

These three solution ideas were market-tested with a broad array of institutional investors and fund managers, to get their views and critical insights on what worked, what didn't, and what should be further explored. One of these solution ideas – the tailored proxy hedge – was selected for "Piloting" on actual EM PE investment portfolios, and two leading fund managers (one globally focused and one regionally focused) were engaged to help with a historical simulation exercise.

Key Insights Arising from This Project

During the project, important insights were uncovered that will help going forward in two ways.

First, they help shine a clear and objective light on the actual market gaps, needs, and preferences. This alone is a significant achievement in moving the yardsticks by establishing a deep and consistent understanding of the current state of play – which is so crucial as a foundational base to start moving forward on solutions.

Second, these insights provide clear guidance in developing and tailoring possible solution ideas that will actually be useful and appealing to the EM PE investment community. This has been indispensable in helping to shape and refine "Proof of Concept" solution ideas, and in educating FX hedging and risk management entities on what to focus on (and not focus on).

The main insights are as follows:

- Need for Segmentation: When it comes to FX risk for EM PE, the views and needs of institutional investors and fund managers are not homogenous – some are very keen for new products to help address this risk, while others are not. It is

important to recognize this segmented nature of demand for solutions, and design products tailored to those seeking protection. There is no "one size fits all" solution.

- Fear Factor: The fear of FX risk is just as important as the reality of FX risk in keeping potential investors on the sidelines. Addressing this fear of FX risk must be a key focus in devising possible solutions.
- Tipping the Balance: Solutions don't need to take away all FX risk for investors, but just enough risk to "tip the balance" and get more institutional capital flowing. This is important because most existing FX hedging products are designed to perfectly match cross-currency risks (and provide 100% protection beyond a specified risk tolerance level), resulting in high cost and limited availability.
- Catastrophic Risks Most Important: Protecting against catastrophic/outlier FX risk is key. PE investors in this space are generally comfortable with the regular "drip-drip" of gradual FX depreciation during the life of an investment fund, but want to avoid one-time unexpected FX shocks that can destroy overnight all the gains made over several years. The analogy of fire insurance is useful here – no one expects their house to burn down, but everyone buys fire insurance since this possibility of catastrophic loss must be avoided.
- No Appetite for Capital Calls: PE investors and fund managers are willing to pay (i.e., forego some of their financial return) for the right kind of FX risk protection; however, they are not prepared to assume the risk of unexpected cash outlays or financial exposures arising from such protection. This is important, as it limits the kinds of hedging products that can be used in devising solutions, since some hedging activities (e.g., forwards) can create financial obligations down the road.
- Ease of Use Important: Investors and fund managers want a product solution that is easy to use and understand – ideally, an insurance-like product: i.e., pay a premium, incur a deductible (first loss) if an insurable event occurs, and receive a capped insurance payout.
- Crucial Holding Period: Investors and fund managers need FX protection during the investment holding period, which is the long period from the time the fund manager starts making investments until the fund manager starts exiting investments. It is during this period, often 7 to 10 years, when the risk of substantial FX loss is greatest, yet appropriate hedging products are either unavailable or too costly during this period.
- Persistent Interest Rate Differential Problem: Direct FX hedging products are priced on factors including interest rate differentials between two currencies – the larger the difference in interest rates, the costlier the hedging product. In EMs, this can make appropriate FX products for PE prohibitively expensive using direct hedging approaches. This increases the possible attractiveness of more indirect hedging approaches like proxy hedges or insurance.
- Upfront Financing Required: Some FX hedging products – such as options – must be paid for upfront, even though their protection will apply over a period of time, often many years. For PE institutional investors and fund managers, this creates a timing mismatch (since money used to pay for hedging cannot be used to make investments) and reduces investment returns. This is a key stumbling block in advancing new hedging solutions, and is an important area where development agencies could play a facilitative role in reducing or eliminating this timing mismatch.
- Combining Different Product Ideas: Given that each product idea described herein has advantages and disadvantages, the ideal product solution may involve combining key elements of different product ideas. Going forward, more product ideas will arise from more risk practitioners (i.e., banks, hedging entities, insurers), and elements of these must also be considered in refining market-ready products.
- PE Investors Now Have a Choice: With emerging new solutions like tailored proxy hedging, some PE institutional investors and fund managers will have a new decision to make that, for the most part, did not exist before: should I hedge or not hedge my FX risk during the investment holding period? The fact that many within the PE investment community now have this choice is a compelling outcome of this project.

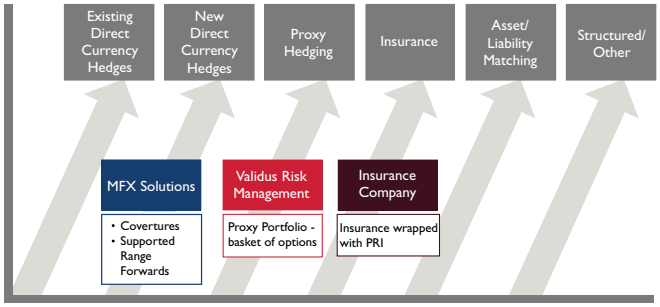
Towards a Solution – Three Promising Ideas

The project's limited global RFP produced numerous innovative ideas to help address FX risks for EM PE investments. The ideas generated were categorized along several potential solution pathways (Exhibit 1).

Of the many good ideas proposed, three entities were selected to develop their solution ideas further in a "Proof of Concept" stage: MFX Solutions, Validus Risk Management, and an insurance company, as noted in Exhibit 1.

Each entity's product proposal reflects a promising idea along one of the solution pathways identified.

Exhibit 1: Pathways explored towards a new solution for PE EM currency risk



One product idea involves direct hedging by using existing market products in new ways (covertures and supported range forwards). Another product idea involves indirect hedging by creating a tailored "parallel" portfolio of instruments whose value is expected to increase when an investment portfolio suffers FX losses (proxy hedge). The third product idea involves extending an existing insurance product – political risk insurance – to include cover for FX losses in an investment portfolio.

The Proof of Concept stage fleshed out indicative features of each new product idea, including structure, costs, amount of cover, merits and potential limitations as summarized in Exhibit 2.

These ideas were then market-tested with a variety of focus groups comprising EM PE institutional investors and fund managers from around the world. It became clear from these focus groups that there is no single or perfect solution – each product idea has pros and cons in terms of indicative cost, protection and complexity, and each investor and fund manager has different requirements.

Overall, the proxy hedge and insurance ideas gained the most traction. However, further investigation confirmed our initial views that the insurance concept is still early stage: there is currently little, if any, reinsurance interest for such a product, and so there is no immediate path forward for this product idea, even though insurance could be an ideal product solution in terms of ease of understanding and simplicity of use.

As a result, one product idea – the tailored proxy hedge developed by Validus Risk Management, was advanced to a "Pilot" stage, involving back-testing actual EM PE investment portfolios against four major FX stress events over the past 20 years: the 1998 Asia/ Russia financial crisis, the 2008 global financial crisis, the 2012-2015 commodity decline, and the 2013-2016 period of EM FX turbulence. Validus Risk Management constructed customized simulated proxy hedge portfolios (containing options on oil, gold, emerging-market stock indices, and other components) and conducted extensive scenario analyses to determine the cost and effectiveness of FX protection on two actual EM PE investment portfolios in years including these global stress events.

The Overall Results of the Pilot Were Promising, Though More Work is Needed

- The Pilot demonstrated that the tailored proxy hedge provided substantial protection during two stress events (2008 crisis and 2012-2015 commodity decline), and some protection during the other two stress events (1998 crisis and 2013-2016 period of EM FX turbulence) for one of the portfolios;
- The proxy hedge was cost-effective – the proxy portfolio made positive excess returns (i.e., covering its implementation cost) for one of the portfolios; and
- The proxy hedge's effectiveness in countries with pegged exchange rates, which remained pegged during stress events, was inconclusive.

While the Pilot yielded positive results, the analysis and presentation of results were complex. More work is needed to refine and simplify the product approach and value proposition for PE institutional investors and fund managers, including its mechanics, cost and coverage, as

Exhibit 2: High level comparison of new product ideas

	MFX Solutions		Validus Risk Management	Insurance Company
Product	**Covertures**	**Supported Range Forwards**	**Portfolio of Proxy Hedges**	**Insurance Policy**
Cost	3-12% p.a. (on notional, paid upfront) (potential for partial repayment of premium)	1% p.a. (on notional; requires Agency support for put)	1-3% p.a. (on investment value + return; also a mgmt fee of $100k p.a.)	2% p.a. (of invested amount)
1st Loss (for investor)	12% p.a.	7% p.a.	6-7% p.a.	5% p.a. (can be increased w/ Agency support as 2nd loss)
Coverage (after 1st loss)	100% p.a. (of notional)	100% p.a. (of notional; only available where options exist for tenor/ currency required)	70% p.a. (of investment value + return)	5% p.a. (of portfolio)

Note:
- Indicated terms based on specific examples provided; terms will vary.
- Some generalizations made to facilitate cross product comparisons.
- Order of magnitude only.
- Development ongoing.

well as to clearly articulate where its use is most (and least) helpful.

Market Positioning of Proposed Solutions

The direct hedging proposals (covertures and supported range forwards) are expected to work well for individual investments, on a currency by currency basis. Covertures would apply well and be available in most EM countries, but would be costly; whereas supported range forwards would be less costly but only be available in the least risky of the developing countries.

The proxy hedge approach is expected to work well in a variety of global or regional contexts for a variety of different portfolio types. It is not be expected to work as well for countries whose currencies are pegged. It would likely work best in the riskiest countries which have floating rate regimes.

The insurance approach would in theory have the broadest applicability, but due to the lack of reinsurance interest and the early proposed cost/cover relationships, has only a moderate potential positioning at this time.

Assessing the Project's Success

How has this project achieved its objective?

Several accomplishments are worth highlighting:

- It establishes a clear and common understanding of the current market gaps and needs for FX risk mitigation for EM PE investments, including who needs what protection, when they need it, the fact that hedging is not being done generally in the long holding period, and what kind of product is desired (cost, protection, ease of use).
- It has identified and advanced several innovative solution pathways (direct hedging, indirect hedging, insurance) and has bolstered numerous market players' efforts to advance the thinking, expertise, and products needed to meet market needs.
- It has developed, refined and market-tested the feasibility of a ground-breaking, high-potential product idea – a tailored proxy hedge – including rigorous Proof of Concept design and Pilot back-testing. This product idea is now well positioned for real-world application and testing.

This Work Has Helped Draw out Important Themes

- FX risk mitigation for EM PE is not a problem that's going away. The investment community – including EMPEA members representing $4 trillion of assets under management – are calling for solutions and have described what they want in a clear and comprehensive way.
- A growing number of key market players are

coming to the table, eager to contribute ideas and explore solutions. For FX hedging and insurance entities, the commercial motivation is clear – if a new solution could achieve even 1% market uptake among EMPEA members, for instance, this represents a $40 billion market (based on total assets under management).

- Regarding FX risk mitigation for EM PE, like any nascent market (the early days of political risk insurance is an instructive example), many costs and risks will be acceptable to the commercial market, but some costs and risks may not. The dividing lines on these costs and risks are becoming clear, along with the types of possible interventions by public-sector actors

Going Forward

This project has amplified the awareness, interest and engagement in FX risk mitigation for EM PE, and strongly indicates solutions are within our grasp that can help unlock billions of dollars for private-sector development and economic growth. The challenge will be to harness this creative capacity and encourage momentum along solution pathways.

Recommended Action Items to Help Maintain Momentum

1. Continue the conversation, keep people engaged, keep the momentum going. This is a low-cost activity with high potential rewards.

2. Communicate clearly and broadly what solution parameters EM PE investors and fund managers want (cost, protection, ease of use) – this provides blueprint parameters to help shape new solution ideas, while saving time and money, and avoiding blind alleys.

3. Encourage further development along product pathways (e.g., real-life, real-time demonstrations), especially for tailored proxy hedging and insurance, both of which have been endorsed by EM PE investors and fund managers. Also, select use of covertures or supported range forwards would be promising additions to direct hedging market capacity.

4. Decide how development actors can best help address market failures (costs, risks) to bring promising solutions to market. This includes risk-sharing approaches with emerging hedging product innovators, as well as more direct blended finance funding vehicles to partially offset FX losses incurred by EM PE investors and fund managers.

Photo: Sam D Cruz Katima, Nambia

The Way Forward: Key Insights and Recommended Action Items

Photo: Rawpixel Jaipur, India

3. The Way Forward: Key Insights and Recommended Action Items

The One-Minute Read

While many hedging solutions are currently available for debt, very few are appropriate for PE. As a result, the long PE holding period is largely not being hedged by investors. PE investor orientation must be considered with any hedging solution, as it is significantly different from debt.

Hedging products which create potential delivery obligations must be avoided for PE solutions, since equity exits are uncertain in timing and amount. There is no tolerance to ask investors for additional capital calls.

An ideal PE hedging solution would include cover during the holding period, provide only partial protection (not 100%), be priced somewhere between 2%-5% of annual returns, be simple to understand, and avoid unexpected financial obligations.

Since upfront costs for hedging products affect overall equity returns, any assistance with upfront financing for these costs could be catalytic in facilitating new hedging approaches.

The industry now has a choice: with tailored proxy hedging, investors can obtain meaningful (albeit probabilistic) FX protection at a reasonable cost. The alternative is to leave the FX risk uncovered.

Going forward, it is important to build on the momentum generated by this project, via industry events, real-time demonstration of product ideas, building greater awareness and understanding among global players, and articulating greater potential roles for development agencies.

Key Insights

Over the course of this project many important insights arose. These insights substantially move the yardsticks for how the industry thinks about and acts on FX risk mitigation for EM PE investments. Moreover, the insights were instrumental in developing and refining innovative new product ideas along high-potential solution pathways.

1. Direct Hedging Approaches for EM PE Holding Periods are Costly and Scarce

Direct FX hedges for PE investors in the riskiest EM currencies persistently have high cost and low availability.

The high cost is because hedging instruments – like options, forwards, and swaps – are priced based largely on the difference and volatility in interest rate levels between the EM currency and the hard currency (e.g., U.S. dollars). Riskier EM currencies often have greater interest rate differentials, and thus higher costs.

As for availability, this depends to a large degree on the capacity and liquidity of local bond markets – if a local bond market is not sufficiently developed, the tenor (i.e., term) and availability of direct hedges can also be limited.

These cost and availability issues limit the potential for direct hedging solutions to make a significant impact on FX risk mitigation efforts for EM PE investments. For this project, this issue compelled greater focus overall on indirect FX hedging approaches - thereby sidestepping this problem of interest rate differentials and local bond markets.[2]

More particularly, it helps explain why both proxy hedging and insurance-like approaches hold such promise – the proxy is an indirect hedging approach, and insurance represents an unfunded form of risk transfer. Neither relies solely on interest rate differentials or local bond market capacity for pricing.

2. Notwithstanding this focus on indirect hedging approaches, substantial project effort, including early industry consultations and later "Proof of Concept" product pathways, involved engaging hedging providers to identify market-based solutions via direct hedging. As noted in this report, certain innovative direct hedging approaches (e.g., covertures, supported range forwards) have important potential market applications.

To be sure, strengthening local bond markets and improving the cost/availability parameters of direct hedges remains a worthy objective. However, this insight underscores the practical challenge – that direct and appropriate FX hedging in EMs will continue to be expensive and scarce, especially for the PE community.

2. Existing FX Hedging Approaches Are Largely Suited to Debt, not Equity

Existing direct FX hedging products are largely geared to debt products (e.g., loans, bonds, mezzanine funds, acquisition finance, etc.), since the timing and amounts of cash outflows and inflows (disbursements, repayments, interest payments) are known upfront. Certainly, the most affordable direct FX hedges (e.g., forwards, swaps) require that one knows the precise timing and amounts of future cash flows, which for PE cannot be predicted with certainty.

Unlike debt, a PE investor or fund manager does not know when – or if – an investment will result in cash inflows or what the amount of such inflows will be (except in the short periods during entry and exits). Thus, FX hedging techniques, even where available and relatively cost-efficient, are not well suited for the holding period for EM PE investments, as these instruments create potential obligations to deliver cash at a certain time and for a certain amount that an investor or fund manager may not be able to meet.

3. EM PE Investing Requires a Fundamentally Different Mindset and Approach to FX Risk Mitigation

Understanding PE investor orientations and expectations is crucial – for example, the amount of FX risk protection desired and the risk/return trade-offs can be substantially different between PE and debt.

Typically, PE investors do not seek (or need) a perfect hedge covering 100% of the FX risk (beyond specified risk levels) on 100% of the cash flows. Rather, they want just enough risk removed to address the fear of FX loss, then allow local investment returns to do the heavy lifting. The state of the financial markets and global economic outlook also impact on this orientation in a dynamic way.

This gives promise to potentially more affordable solutions which are not direct or comprehensive FX hedges, but rather indirect risk approaches, including probabilistic and insurance-like approaches.

> "As such, all product ideas and solution pathways considered in this project have been carefully crafted to avoid unexpected future financial obligations"

4. PE Currency Hedging Approaches Must Avoid Attributes that Give Rise to Unforeseen Financial Obligations

In exploring potential new FX risk mitigation approaches, it was important to avoid products or techniques that would give rise to uncertain future financial obligations for PE investors or fund managers. For example, forwards, swaps, and selling put options entail a possibility to deliver a certain amount of currency at a specific date.

Such a requirement is problematic in the PE space since investment exits are uncertain in both timing and amount – indeed, some investments may never be exited. Effectively, it would be a fatal flaw for a fund manager to have to ask its investors for an additional (unexpected) capital injection simply to cover a hedging obligation, without an underlying investment exit to back up the requirement.

As such, all product ideas and solution pathways considered in this project have been carefully crafted to avoid unexpected future financial obligations.

5. An Ideal FX Hedge for EM PE Has Several Distinct Parameters, which Must Inform Product Development

Based on EMPEA's extensive survey of PE institutional investors and fund managers, an ideal FX risk product for EM PE should incorporate several characteristics:

- Address FX risk during the investment holding period, where the potential risk and magnitude of FX loss is greatest;
- Cover only a portion of overall FX risk, especially more catastrophic or unexpected FX depreciation;
- Be reasonably priced – ideally somewhere between 2% and 5% of annual investment returns;

- Be akin to buying insurance or an FX option; and,
- Avoid unexpected costs or liabilities that could require a capital call.

In determining the most effective product ideas and product pathways to pursue during this project, several additional factors were taken into account, to help promote instruments with the greatest potential impact:

- Degree of interest/uptake from investors;
- Soundness and impact in mobilizing more capital;
- Scalability potential;
- Near-term ability to implement;
- Requirement for development agency support; and,
- Cost versus protection relationship.

6. There Is No "One Size Fits All" Solution for Currency Risk; A Segmented, Tailored Approach Is Needed

The PE investment community is highly fragmented, and this will impact how potential FX risk mitigation approaches are structured and delivered.

Some PE funds have broad geographic focus (diversification itself can provide helpful FX risk mitigation benefits), whereas others are country-focused. Some investors are large, diversified institutions with many types of assets under management, which may benefit from overlay strategies or other hedging approaches, whereas others may be concentrated in equities (public or private). Meanwhile, size is a factor impacting both institutional investors and PE funds – smaller organizations tend to have less internal capacity to manage FX risk.

> "Meanwhile, outside the public sector, there may be little or no tolerance for FX risk exposure, where the inability to hedge impedes EM investment altogether."

Further, any FX hedging strategy decision will reflect the risk-reward tolerance of the investor. For example, there may be high tolerance for the risk of FX loss, where an investor may have a view and decide to try and capitalize on FX movements, or may have assessed and incorporated adequate return from the underlying investment to establish high tolerance and capacity to sustain loss.

Some public-sector investors (e.g., multilateral development banks, development finance institutions) may see it as part of their mandate to demonstrate the ability to generate adequate PE financial returns without the need for external hedging. Yet many of these institutions manage their cross-currency risks internally via risk management platforms and other strategies.

Further, there are risk tolerance levels where there is sizable demand for capacity to provide coverage against extreme adverse FX events, assuming a reasonable level of cost for protection.

Finally, FX hedging efforts must consider the complexity, concerns and uncertainties characterizing the international financial system and current economic environment. For example, at the current time, financial market volatility is at a historic and protracted low, despite a number of geopolitical factors which when combined might suggest coming instability.

In short, any potential FX risk mitigation approach must pay heed to the motivations and drivers of a given segment, including specific consideration of: the level and nature of FX protection desired; the financial and economic situations and stresses of concern; the design and use of techniques and market instruments that can afford protection, at reasonable cost; and the availability of experience and expertise to develop and execute a hedging strategy.

7. Financing Costs Impact PE "J Curves"– Development Agencies Could Assist

Due to various factors including the higher cost of equity compared to debt, the long lifespan of most PE funds and the timing of cash flows (capital and reflows), the need to fund upfront premiums associated with some FX hedging products (e.g., options) can have a large impact on the investment returns of PE funds and the development of their J curves.[3] The difference is significant enough as to add several percentage points per annum to return projections if these upfront costs are "financed" (and

repaid at the end of the fund's life) versus paid upfront in cash.

For most PE fund managers, it would be difficult and costly to arrange their own funding for this (e.g., via a line of credit). If the upfront premiums could be deferred/ financed – by way of blended or other trust fund vehicle – this could have a significant positive cost impact and adjust the risk-return profile accordingly.

8. Need to Continue Advancing the Insurance Pathway Given its Broad Appeal and Potential to Scale

The concept of insurance, in its clarity and administrative ease, was of strong interest amongst focus group participants. While an insurance product for FX depreciation – combined with or separate from more traditional political risk insurance (PRI) – was investigated, the initial conclusion is that there is insufficient interest from the reinsurance market to warrant such product development at this time.

However, there are still important reasons to continue to pursue this product pathway, both due to the inherent suitability of an insurance product for PE investors and fund managers, and recognizing the precedent with some other novel insurance products (e.g., PRI), which went through an initial period of publicly-backed support before being adopted more widely by private insurers.

9. The Ideal Product Solution May Involve Combining Key Elements of Different Product Ideas

While this report describes several stand-alone product ideas to help mitigate FX risk for EM PE, an ideal solution for investors and fund managers may involve combining key elements of multiple product ideas.

As noted in Section 7, feedback from focus groups indicates that each product idea profiled herein has its advantages and disadvantages. For example, insurance was appealing from a simplicity and ease-of-use viewpoint, but fared less well on overall risk protection versus cost; meanwhile, the proxy hedge was attractive in scope of protection, but appeared somewhat complex and uncertain. Would some combination of insurance "storefront" and proxy hedge "back office" be worth considering?

Further, with a growing understanding of EM PE's particular FX challenges, more product ideas will arise over time from more risk practitioners (i.e., banks, hedging entities, insurers), and these must be considered in refining market-ready products.

Finally, what role can development agency funding support (e.g., grants, guarantees, etc.) play in bringing products to market for demonstration and scale-up? Such funding can be instrumental in mitigating real or perceived risks and costs, and crowding in private-sector innovation and risk capacity.

10. The PE Investment Community Will Have a Deliberate Choice – to Hedge or Not to Hedge

With this project advancing new product ideas like tailored proxy hedging, it is important to recognize that some PE investors and managers will now have a deliberate choice: not to hedge and take full exposure to adverse FX shocks (with potentially severe negative impact on investment returns) – or to partially hedge, at relatively low cost, to achieve meaningful (albeit incomplete) protection.

Recommended Action Items

This project has substantially moved the yardsticks on how the EM PE investment community and related market players think and act about FX risk mitigation. Going forward, it is crucial to maintain this momentum, and build on achievements to date. Presented below is an integrated approach for the path forward.

1. Find Opportunities to Continue the Conversation, Early and Often

Conferences, workshops, webinars, and specially convened events in all areas of development finance are excellent opportunities to disseminate key learnings from this project and continue the conversation as broadly as possible among engaged stakeholders.

Industry-sponsored events including platforms involving EMPEA, USAID, Sarona, other development players or impact investors and fund managers would similarly be ideal communications opportunities to help enhance

3. The J-curve effect refers to the fact that after investments are made, typically, losses initially occur, followed later by gains.

understanding of the limitations of existing direct hedging products and the tremendous promise of new approaches.

Additional ideas such as hosting blogs or other live platforms to share real-time information could be especially powerful.

2. Demonstrate One or More Product Ideas in a Real-world, Real-time Situation

Product ideas will gain awareness, understanding, and uptake only if they are properly demonstrated in real time within the EM PE investment community. The proxy hedge, for example, could be applied on a real-time, real-world PE portfolio in the near term. This would bring greater understanding of the mechanics (e.g., trading accounts), cash inflows and outflows, and quarterly valuation of the proxy assets vis-à-vis the underlying investment portfolio. As a mini-demonstration activity, this would be highly instructive and clarifying.

Alternatively, a multi-donor trust fund or other blended finance vehicle could be established relatively easily to provide partial backing for insurance or other FX losses for any of the product solutions outlined herein.

3. Build Greater Awareness and Engagement among Development Actors to Help Bring these Ideas Full Circle

Finding opportunities to move these ideas forward within the development community (development agencies, DFIs, MDBs) – especially as relates to any potential willingness to allocate resources to removing early risks/barriers in getting some of these solution ideas moving forward, will be critical in advancing the main objective: unlocking more PE investment for EM private sector development.

4. A Role for Development Agencies

Invariably, all key players focused on possible solutions – investors, fund managers, hedging entities, insurers, industry associations – see a crucial role for development agencies to play at this important time to help maintain momentum and continue progress along solution pathways. There remain some gaps, risks and barriers in further advancing the compelling solution ideas presented herein, for example:

- For new direct FX hedges (e.g., covertures, supported range forwards) – the need for capital cushion.
- For the proxy hedge – the need to demonstrate a clear and digestible proposition to the market and understand the mechanics.
- For the insurance – the need to provide risk capital/backstop to engage private insurance/reinsurance capacity and advance initial insurance FX depreciation protection coverage.
- The steep cost of premiums and the requirement for upfront payment – presents an opportunity for development agencies to help reduce these barriers.

> "Invariably, all key players focused on possible solutions see a crucial role for development agencies to play at this important time to help maintain momentum and continue progress along solution pathways"

More immediately, development agencies might consider blended finance solutions directly with EM PE investors and fund managers, via mechanisms that partially offset FX losses incurred on investments. Such approaches are relatively simple and could be brought to market very quickly, but do have drawbacks, including limited capacity to scale and crowd in private risk capacity. Nevertheless, this could be considered as a parallel approach to other solution pathways, designed to build market awareness and engagement.

Development agencies can play an essential role in reducing fears, addressing persistent market failures and encouraging the demonstration of new approaches. In structuring a blended finance vehicle, development agencies could direct the focus on priority countries or sectors – especially where no FX hedging product or risk capacity currently exists.

Without such support, further progress along solution pathways could be substantially delayed, or even abandoned.

As seen in Section 7, and given the diversity and breadth of country coverage amongst PE fund managers, there are natural segments for which different product approaches would be most suitable. From a development agency perspective, focusing on FX protection for the riskiest countries could be most valuable.

4. Clearly Defining the Problem

The One-Minute Read

There are persistent misconceptions that existing FX hedging techniques work well in the PE context. This is false.

While many hedging products are available for EM FX risks, none are well suited to the long PE investment holding period.

Existing FX hedging approaches are either tailored for debt activities (with cashflows which can be predicted with certainty), or a broadly diversified portfolio involving multiple types of investment assets. However, adapting these approaches to PE becomes problematic.

PE investments have uncertain exit cashflows – both in timing and amounts. Thus, any FX hedging product that creates a potential obligation to deliver local currency at a specific time and for a specific amount, will be untenable in the PE environment.

As a result, direct hedging products such as swaps, forwards and collars are not well suited to the PE context to mitigate FX risk during the holding period.


Photo: USAID

Why is EM PE so Difficult to Hedge for FX Risk?

Why is private equity – as an asset class – so inherently problematic to hedge for local currency risk? Why aren't current market offerings working? Is it simply a matter of price, availability or tenor of existing hedging products such as forwards and options? Is it more a function of local capital markets having insufficiently developed the required depth and breadth? An early focus of this project's research was to unravel these complex and poorly understood questions in a clear and understandable manner.

In a nutshell, there are two crucial gaps in the market that leave emerging markets PE investors largely unable to hedge FX risk: a lack of suitable products for PE investments, and a lack of solutions that cover the holding period of an investment.

First, while hedging solutions for EM debt investments (e.g., bonds, loans, mezzanine funds, deeply subordinated debt, convertible debt, acquisition finance – any of which may be included in the portfolio of an investor that also invests in PE) have become easier to source in recent years, thanks in part to the pioneering work of firms such as TCX and MFX Solutions, PE FX hedging remains a vexing challenge. On the one hand, identifying the appropriate product can be difficult, as often the timing and amount of cash flows are unknown, and thus products with possible delivery obligations must be avoided. On the other hand, given interest rate differentials, the cost of appropriate hedging instruments, where available, can be prohibitively expensive.

The second gap in the market exists with respect to the holding period of a PE investment (Exhibit 3). Though discrete solutions may be secured upon entry and exit of portfolio companies – when the timing and sizing of cash flows are more predictable – there are few, if any, appropriate or cost-effective solutions during the holding period of an investment, when local FX depreciation and devaluation risks can be highest.

By way of example, some available approaches for PE investments during the holding period – such as using

5. As noted earlier, while this project focuses on PE, many of the same issues are true of investments in EM infrastructure and real estate, as well as private debt transactions that have features of payment optionality.

Exhibit 3: Holding period is longest period of risk for PE investors, and not well hedged with current instruments

currency forwards or collars – can be cost-effective, but also give rise to unacceptable risks to the PE fund manager and investors. Since these kinds of hedges have possible local currency delivery obligations by a certain date, if the fund manager does not achieve the exit (either at all, or in the amount expected), it is still obligated to deliver the local currency if the hedge is exercised. This delivery risk is unacceptable in the PE context. Consider the foregone returns if a fund manager had to withdraw cash from its portfolio, or – worse – had to ask LPs for an additional cash infusion, simply to purchase local currency required to deliver on what turned out to be an unfavourable forward contract, and before exiting its local investment! See Exhibit 4 for additional examples of direct FX hedges and their applicability in the PE holding period.

While buying FX options do not give rise to this type of delivery obligation, they can be very expensive, or not available in the currencies, amounts, or tenors required.

So, why exactly is the holding period so problematic? In summary, this research reveals that three key factors are at play. See Exhibit 5.

Availability: In many EM currencies, the availability of hedging products is limited in terms of type, tenor and amounts; and, in some instances, the availability of the currency itself can be limited. This is due in large part to underdevelopment of local bond markets.

Cost: In addition to the hedging cost arising from the substantial interest rate differentials between the U.S. dollar (the currency used for most emerging market PE funds) and the local currencies where funds invest, there are additional cost implications. For example, FX options, if available at all, can be costly because they are priced in part on the volatility of the reference currency. Further, some hedging products require the posting of collateral, which can create liquidity pressures within the PE fund itself. In addition, managing these hedging products can be administratively burdensome to maintain over an investment holding period, which may last five to seven years (or longer, in some instances).

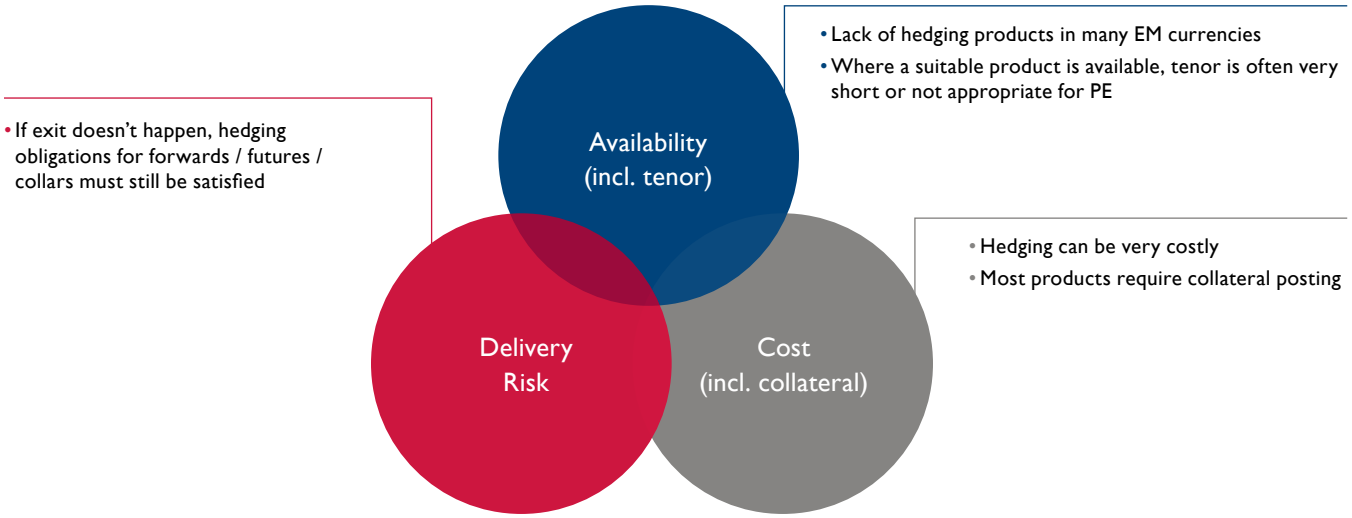
Delivery risk: Since PE cash flow amounts and timing are hard to predict – particularly for exits – FX hedging products can give rise to risks and exposures, including delivery risk in the event a hedging contract has matured and an investment is not exited/realized, or realized in a different amount than expected.

Recognizing these challenges, other FX risk mitigation strategies have been employed; however, these can also have drawbacks. Some investors have tried to use more general "proxies" to hedge FX risk; for example, using

Exhibit 4: Sample direct hedging products and PE suitability

Examples of Existing Direct Currency Hedging Products and Applicability to Private Equity (especially holding period)		
Cross Currency Swaps	✓ Long tenors ✓ Many exotic currencies ✓ Low cost	× Need certainty on income stream (p/e exits are uncertain in timing and amount) × Even rolling swaps, or zero coupon swaps, eventually have to be delivered upon × Untenable for PE in EM countries
Currency Options	✓ No delivery obligation if no exit ✓ Could roll to get longer tenor	× Not available in the riskiest currencies × High cost × Long tenors not always available
Currency Forwards	✓ Cheaper than options ✓ Available in many but not all currencies/tenors	× Need certainty on income stream (p/e exits are uncertain in timing and amount) × Untenable for PE in EM countries
Caps/Collars (combining put & call options)	✓ Cheaper ✓ Available in some, not all currencies	× Selling a put implies a delivery obligation × Untenable for PE in EM countries

Exhibit 5: Factors underpinning challenges hedging holding period for PE EM currency risks



commodity prices (e.g., oil) to hedge natural resource-exporting currencies, or a regional peer's currency that may offer more liquidity (e.g., Mexican peso for Colombian peso). However, many of these correlations can be tenuous and break down over time – often at the moment when a hedge is needed most. Worse, some proxy approaches include instruments with delivery obligations - creating the risk of loss on both the proxy instrument and on the underlying investment. This latter risk is specifically minimized in the product ideas considered herein (including the tailored proxy hedge).

Some institutional investors have used "overlay" strategies to hedge FX risk across their overall portfolio of assets (e.g., equities, bonds, hedge funds, private equity, real estate, other debt assets.). Often this function is outsourced to a firm that focuses on FX risk management, leaving the investment team within the LP to focus on asset allocation, security selection and manager selection. This "overlay" strategy generally requires a portfolio of diverse assets, such as debt (including mezzanine debt), acquisition finance, public equity, or other asset types that lend themselves to traditional hedges. A PE-only portfolio would not lend itself well to this strategy, given the problems described above.

Innovative approaches are clearly required.

Photo: Anton Ivanov Antananarivo, Madagascar

5. EMPEA Survey

The One-Minute Read

EMPEA surveyed 119 emerging market private equity practitioners – 86 fund managers and 33 institutional investors – representing organizations investing in each EM region.

The survey confirmed that there is pent-up demand for a cost-effective FX hedging solution tailored for long-term, PE investments in EMs: 70% of commercial institutional investors indicate that such an instrument would increase their appetite for investing in new and/or frontier markets where they have not yet invested.

In broad relief, the survey results suggest that an ideal, commercially viable FX hedging solution would have the following characteristics:

- Protects against the extreme case (i.e., significant depreciations or devaluations);
- Covers a portion of an investment's notional value;
- Operates like an insurance policy; and,
- Is priced no greater than between 2% to 5% of annual returns.

The survey also revealed that two main variables drive fund manager sentiment toward hedging solutions: size and geographic focus. The biggest gap in the market is for small firms focused on a single market. These firms lack the in-house resources to dedicate to FX management, and they also are unable to enjoy the benefits of diversification across multiple currencies and asset types.

EMPEA's Survey of Practitioners

A core objective of this project was to identify potential hedging solutions that: (1) directly address practitioners' needs; and (2) are commercially viable. To ensure a data-driven approach for identifying potential solutions meeting these requirements, in January 2017 the Emerging Markets Private Equity Association (EMPEA) conducted a survey of individuals active in EM PE. In total, 119 practitioners responded to the survey – 86 fund managers (GPs) and 33 institutional investors (LPs) – representing organizations investing in each EM region.

The purposes of the survey were two-fold: (1) to better understand practitioners' current use of hedging instruments; and (2) to identify the features they would seek in an ideal hedging solution. The findings underpinned the key problems and insights outlined in Sections 4 and 3, respectively; this Section highlights the overarching conclusions that shaped the key parameters for potential solutions.

New Hedging Products Could Catalyze Private Capital Flows to Emerging Markets

EMPEA's survey confirmed that there is pent-up demand for a cost-effective FX hedging solution tailored for long-term, PE investments in EMs. In fact, roughly 70% of commercial institutional investors – such as pension funds, endowments and foundations – indicate that such an instrument would increase their appetite for investing in new and/or frontier markets where they have not yet invested.

The Role of DFIs

Development finance institutions (DFIs) exhibit relatively less interest in hedging instruments than commercial LPs. This is largely due to the fact that DFIs pioneer investments in developing/frontier markets as part of their mandates to drive private sector development and financial inclusion.

Nevertheless, several DFIs report that a hedging instrument could increase their appetite for investing in riskier countries or companies.

Hedging Is Important, but Rarely Done in PE

Approximately 87% of respondents (and 85% of GPs) believe it is important for GPs to hedge during the holding period of an investment. Yet only 14% of GPs report that their firm has actually done so. The disconnect between the broadly accepted importance of hedging and the general lack of execution underscores a clear gap in the market: none of the hedging products commercially available today meet the criteria that EM PE investors demand.

Importantly, most of the fund managers that have hedged during the holding period employ global, pan-emerging market or regional geographic mandates. These funds tend to be larger in size and thus are able to dedicate resources toward building in-house hedging expertise. In addition, many of these larger funds are active in larger markets with more liquid currencies and forward markets, such as Brazil, China, India, Indonesia and Mexico. They likely also include debt-like assets as part of the mix.

Of the 33 LPs surveyed, only two reveal that they have hedged their EM PE commitments, and one of them was a DFI representative. This finding comports with the results from EMPEA's May 2016 Currency Risk Management Survey, which revealed that 64% of surveyed LPs never hedge the FX risk of their EM PE commitments, while 11% ran an overlay across their entire portfolio. When it comes to long-term equity investments in EMs, both GPs and LPs lament the lack of suitable hedging solutions.

Parameters for an Ideal Hedging Solution

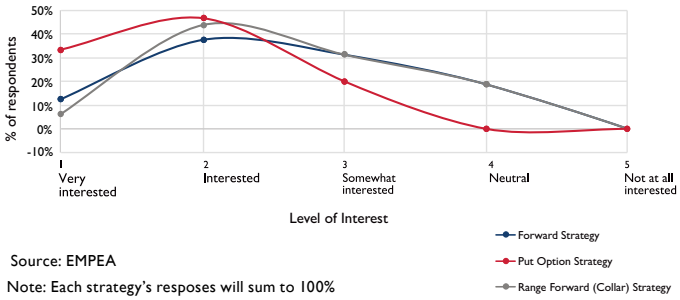
The survey collected sentiment data to guide the research and development of a new hedging solution that would meet the demands of EM PE investors. We sought to measure industry practitioners' preferences for potential solutions across four key variables: product, coverage, complexity and price.

- Product: What type of hedging strategy do practitioners prefer?
- Coverage: Do practitioners seek full or partial coverage of FX risk?
- Complexity: How involved do practitioners want to be in managing the solution?
- Price: At what price would a hedging solution represent good value?

Product

The intensity of demand is greatest for a solution that resembles the economics of a put option strategy – one that establishes a floor on the exchange rate between the local and fund currencies – with 79% of respondents expressing interest in this type of solution. Investors appear most interested in a hedge that protects against extreme FX movements.

Exhibit 6: Breakdown of respondents' preferred strategy by level of interest



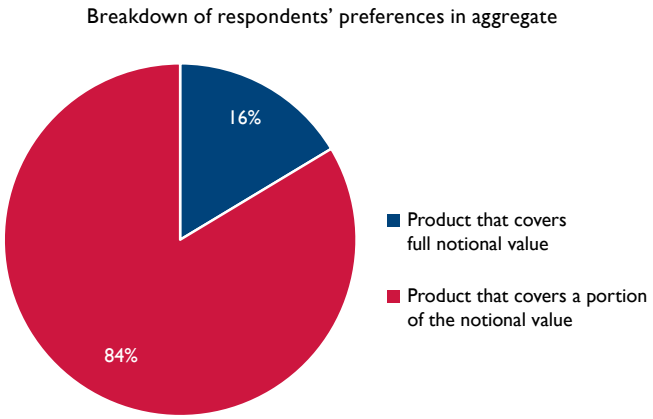
Source: EMPEA

Note: Each strategy's resposes will sum to 100%

Coverage

The clear majority of respondents (84%) prefer a product that covers a portion of the notional value of an investment. This holds across all firm types, and suggests that practitioners are willing to absorb a measure of FX risk themselves, and/or are price sensitive when it comes to hedging solution (ceteris paribus, the greater the coverage, the higher the cost).

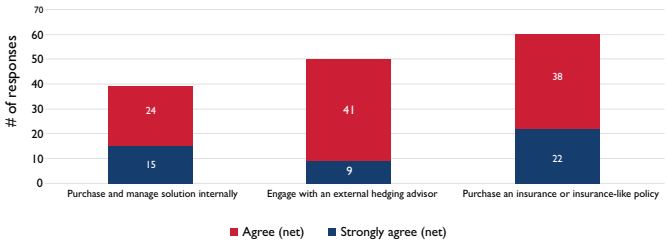
Exhibit 7: Practitioner preferred FX exposure coverage



Complexity

While there is appetite for solutions across the complexity spectrum – managing internally, engaging an external advisor, or purchasing an insurance or insurance-like policy – most respondents evince a preference for adopting an insurance or insurance-like policy (receiving 60 net respondents). This type of solution would enable investors to tailor the amount of coverage they wish to purchase given the level and location of their local currency exposures, as well as their budgetary constraints.

Exhibit 8: Net preferences for managing hedging solutions by strategy



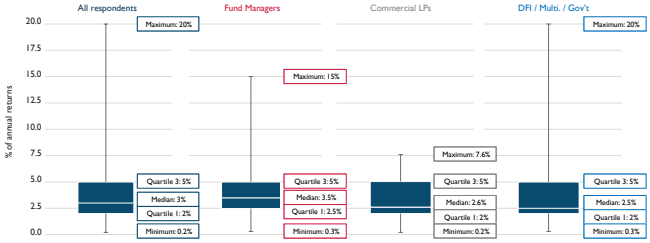
Source: EMPEA

Notably, many of the respondents that strongly prefer to manage a solution internally represent either larger firms that manage PE funds in excess of US$1 billion, or larger institutional investors with deep experience in EMs.

Price

When priced as a foregone percentage of annual returns, 75% of respondents are willing to give up between 20 basis points and 500 basis points to pay for a hedging solution. Notably, commercial institutional investors exhibit the greatest price sensitivity. To achieve the broadest adoption, a hedging solution should be priced no greater than between 2% and 5% of annual returns (200 to 500 basis points).

Exhibit 9: Distribution of helping solution prices representing good value, segmented by respondent firm type



Source: EMPEA
Note: The responses are broken down into quartiles, such that the two blue boxes represent the middle 50% of responses.

Summary of Parameters/Implications for Design

In broad relief, the survey results suggest that an ideal, commercially viable hedging solution would have the following characteristics:

- Protects against the extreme case (i.e., significant FX depreciations or devaluations);
- Covers a portion of an investment's notional value;
- Operates like an insurance policy; and,
- Is priced no greater than between 2% to 5% of annual returns.

We included these parameters in the global request for proposals (RFP) to ensure that proponents were focused on developing solutions that are both scalable and relevant to commercially oriented investors in EMs. Section 6 highlights how respondent ideas to the RFP fell into a grouping of product pathways that could potentially be brought to market over the near and long term.

Insights on Market Segments/Cohorts

Commercial Investors

FX risk is one of the key inhibitors of private institutional investment flows to developing economies. EMPEA's 2017 Global LP Survey corroborates the findings from our survey, revealing that FX volatility poses the greatest concern to LPs evaluating investments in emerging

markets, with 72% reporting that FX volatility has subtracted value from their realized investments. A cost-effective FX hedging solution would give commercial LPs greater comfort in deploying capital to new/frontier markets.

Development Financial Institutions

Most of the bilateral and multilateral DFIs do not see as great a need for FX hedging products as their colleagues in the private sector. On the one hand, these entities are mandated to invest in riskier markets. On the other hand, many of them employ enterprise-wide FX risk management policies that can insulate the effects of FX volatility. That said, these organizations may be potential customers of cost-effective hedging solutions in the riskiest markets, which could help catalyze capital flows to new countries.

Fund Managers

There are two main variables that drive the divergence of views amongst fund managers: size and geographic focus (Exhibit 10).

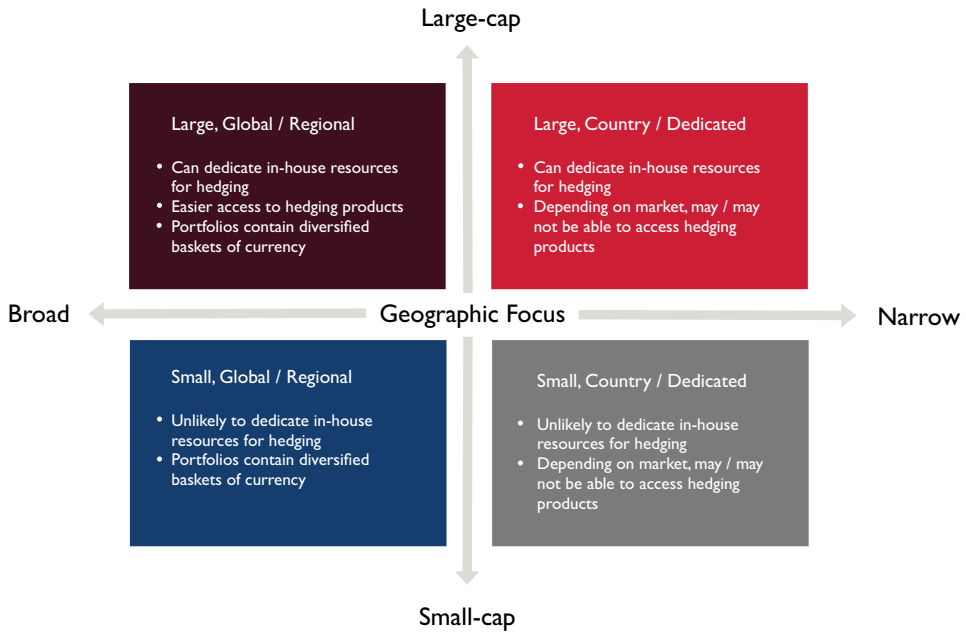
Larger funds (defined as those greater than US$1 billion in size) are better able to dedicate in-house resources for hedging, and – depending on the markets where they are investing – may have easier access to hedging products (e.g., stronger relationships with investment banks/market makers, investing in markets with more liquid currencies, etc.). In contrast, smaller firms are less likely to have the financial and human capital to dedicate for hedging. Moreover, they likely will lack the relationships with investment banks and market makers that large-cap firms enjoy.

Geographically, global and regional funds benefit from the inherent diversification within their portfolios, which can reduce FX volatility at the fund level. In contrast, country – dedicated funds are the most at risk: not only do they lack the benefits of diversification, depending on the market where they are investing, they could lack even the most basic of hedging products.

Clearly, the biggest gap in the market is for small firms focused on a single market. There is a pressing need for a cost-effective solution for these firms.

Ultimately, however, the findings from the survey demonstrate that there is ample demand across firm size and geographic remit – a finding confirmed through our follow-on focus group interviews (see Section 7: Focus Groups).

Exhibit 10: Investor groups - spectrum



6. New Product Pathways

The One-Minute Read

A global limited RFP identified innovative new product ideas for PE FX mitigation in EM markets. Three of these ideas were selected for advancement to a "Proof of Concept" phase.

It was determined that a direct hedging alternative (comprising covertures and supported range forwards) could provide some innovative direct hedging capability, but had limitations in terms of cost-effective hedging instruments and the need to have expertise and financial capacity to manage and administer relatively complex management strategies.

Comparatively, an insurance alternative was found to be the most appealing in concept, but there is a current lack of interest and inclination by insurance and reinsurance companies to extend this capacity, for various reasons including the difficulty of addressing the internal hedging required to offer such product.

Finally, a tailored proxy portfolio alternative was found to be reasonably innovative, and offered a viable path towards providing FX protection similar to insurance, protecting against more extreme EM depreciation events, but varying in degree of effectiveness. Such a strategy would be uniquely tailored to address the characteristics of EM PE investments requiring FX protection. Costs of such a strategy would be limited to option costs and management fees. An economic environment with low underlying price volatilities would offer cheaper cost of protection.

Due to its flexibility and capacity to be applied based on liquid, marketable longer-term options, at reasonable cost, the proxy portfolio alternative was selected to undertake additional analysis and back-testing using actual EM PE investment portfolios.

Global RFP Issued to Solicit Innovative New Ideas

As part of this project, a limited global Request for Proposal (RFP) was issued to identify up to three proponents to work with in designing and developing a possible new FX risk mitigation mechanism for PE investments in EMs.

Key Objectives

The RFP focused on seeking:

- Creative approaches for helping to mitigate FX risks for private equity investments in EMs;
- New ideas that can be applied at scale – ideally at a fund or PE portfolio level, rather than the individual investment or project level – including solutions covering broad geographical and/or sectoral scope and a wide range of currencies;
- True innovations that go beyond existing products and tools, recognizing that existing hedging products and approaches (such as rolling currency forwards, options, and overlay strategies) can be costly and difficult to manage; and,
- Ways to mitigate FX risk during the longer investment holding period, when depreciation/ devaluation risks are greatest.

Risk-sharing approaches with development agencies and other public-sector actors seeking ways to leverage additional private-sector institutional investment for development were also considered.

Promising Solution Pathways Identified

Through industry consultations and a review of responses to the RPF, it became clear that potential new solution ideas from the private sector to address this vexing problem were falling into six broad solution categories – or "pathways" – shown in Exhibit 11 below.

A number of ideas and proposals were received in each of the main categories. These pathways represent to a large degree current, leading edge, innovative thinking applied to this problem, despite the time and resource constraints in responding to this RFP.

The first pathway – Existing Direct Currency Hedges – groups solution ideas proposed by several private hedging entities. These ideas involved the application of existing direct currency hedges in specific ways, including rolling forwards, swaps, collars, and diversification / scenario analyses.

The second pathway – New Direct Currency Hedges – captures ideas proposed to expand the universe of direct currency hedging products available to the market, beyond what is currently available today. These include covertures and supported range forwards.

The third pathway – Proxy Hedging – captures the idea of circumventing entirely the high cost and availability issues associated with using direct currency hedges. While proxy hedging itself is not new, the customization and approaches proposed were innovative. Specifically, the selection of highly liquid, low-cost options based on the key drivers/correlatives of FX movements (i.e., interest rates, equity prices, and commodity prices) for each relevant country was creative and held the promise of a cost-effective, scalable solution.

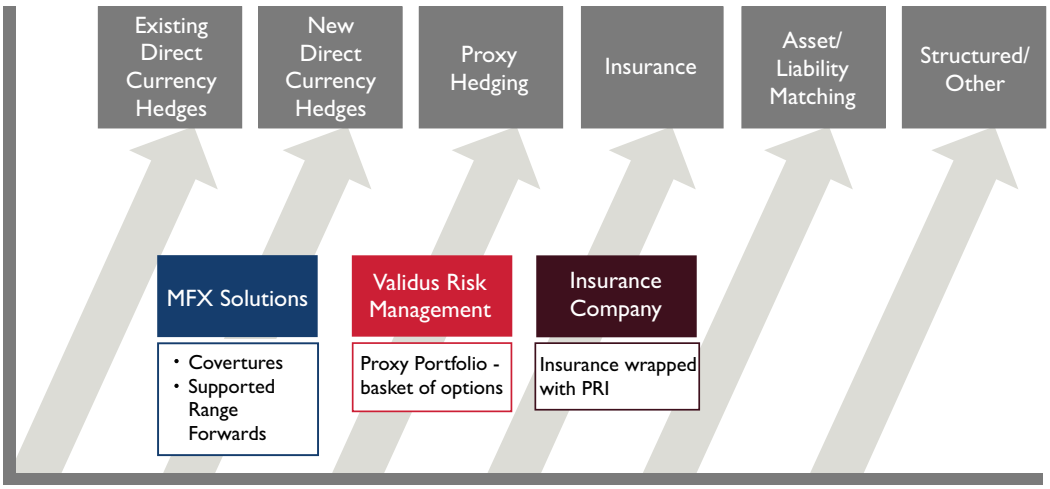
The fourth pathway – Insurance – represents an important and different solution set, and a new form of thinking to help address this issue.

The fifth and sixth pathways – Asset Matching and Structured Approaches/Other – represent important alternative ways of thinking about this problem. The Asset Matching idea involves an interesting approach to match developing country liabilities having long-dated cash outflows (such as insurance policies) to developing country assets having long-dated cash inflows (such as PE).

Structured Approaches involve the combined use of development agency funding via structured/blended facilities. For example, government funding or guarantees could be used to partially offset FX losses incurred on EM PE investments; or, government funding could help defray cost and risks relating to other innovative solutions such as insurance or proxy hedging.

No formal RFP proposal involving Structured Approaches was received.

Exhibit 11: Pathways explored towards a new solution for PE EM currency risk



Three Product Ideas Were Selected for Further Design

The three proponents selected to move forward with additional concept development involved one solution idea along each of three of the most promising product pathways shown in Exhibit 11.[6]

Review Criteria for Evaluating Responses to RFP

In order to ensure the broadest possible engagement, given limitations in budget and time, the RFP was sent to over 35 entities, including hedging providers, insurers/ reinsurers, brokers, commercial banks, DFIs, MDBs, and industry associations. An Evaluation Team was convened

to review, assess, and consensus-score each of the proposals, as well as agree on up to three proponents to recommend for contract awards. Proposals were evaluated and scored against four evaluative criteria as summarized in Exhibit 12.

Key Take-Aways From the RFP Process

1. Impressive array of solution ideas, notwithstanding small scale of RFP

Given the relatively small scale of the RFP (i.e., budget, timeline, etc.), the initiative and creativity of proponents to advance solution ideas for such a vexing problem should be recognized and applauded. As was proven out during the later "Proof of Concept" and "Pilot" stages, entities of different sizes and backgrounds (hedging, risk management, insurance) have important contributions to make in advancing highly innovative new concepts and lessons learned.

2. Recommended proposals were developed to help move yardsticks down three different and important pathways

The recommended proposals focus on three quite different pathways to possible solutions, each of which had good potential to address the PE FX issue: i.e., proxy hedging, increased capacity for direct currency hedges, and insurance approaches.

3. Each proponent's effort contributed to achieving important early milestones that advanced thinking on key pathways to solving this problem

Given the complexity of the problem and the early-stage of awareness and thinking on possible approaches, fully market-ready solutions were not expected to be achieved by the end of this project.

However, the recommended proposals have helped advance important thinking along key product pathways which hold tremendous potential for success in solving this important challenge.

Exhibit 12: Evaluative criteria

Assessing New Ideas – Evaluative Criteria		
Criterion	Description	Weighting
Soundness, creativity and impact of proposed innovative solution/mechanism	The degree of innovation, and its alignment with the overall project objective of mobilizing greater private-sector institutional investment into developing countries, by identifying and developing innovative solutions to mitigate local currency risk for PE investors. The cost to market participants (private-sector PE investors, fund managers) of using the proposed solution/mechanism. Also, the likelihood of generating impact at scale, across geographies and/or sectors.	30%
Capability of the organization and key personnel to deliver innovative solution/mechanism	The proponent's qualifications and experience to carry out the project, including the key individuals nominated to participate. Operational experience working with a variety of key market players, including institutional investors, fund managers, and development agencies across different geographies.	30%
Reasonability of proposed approach to design and develop innovative solution/mechanism	Coherence and credibility of the proponent's proposed approach to carry out the project, overcome obstacles and challenges, and achieve the desired results.	20%
Reasonability of fees and costs to producedesired results	Cost-effective use of resources in carrying out project activities and achieving results, as well as consideration of the funding amount requested to complete the work.	20%

6. In addition to the material presented herein, substantial data, analysis, scenarios, etc. were generated by the proponents and the project team and form part of the project files, but are not included in this report. Rather, this report describes and summarizes the project's key findings, judgments, conclusions and recommendations.

MFX Solutions – New Direct Currency Hedges

Exhibit 13: Potential product solutions compared – key parameters

	MFX Solutions		Validus Risk Management	Insurance Company
Product	**Covertures**	**Supported Range Forwards**	**Portfolio of Proxy Hedges**	**Insurance Policy**
Cost	3-12% p.a. (on notional, paid upfront) (potential for partial repayment of premium)	1% p.a. (on notional; requires Agency support for put)	1-3% p.a. (on investment value + return; also a mgmt fee of $100k p.a.)	2% p.a. (of invested amount)
1st Loss (for investor)	12% p.a.	7% p.a.	6-7% p.a.	5% p.a. (can be increased w/ Agency support as 2nd loss)
Coverage (after 1st loss)	100% p.a. (of notional)	100% p.a. (of notional; only available where options exist for tenor / currency required)	70% p.a. (of investment value + return)	5% p.a. (of portfolio)
Comments	• Covertures provide new market capacity for direct hedging in exotic currencies • Requires forward curve pricing by TCX • Investor is buying certainty of cover • No unforeseen financial obligation for purchaser • Requires agency support	• Substantially reduced cost • Buying certainty of cover • Only available where options are available • Requires agency support for provider	• Removes reliance on interest differential • Costs substantially reduced for amount of cover • Proxy correlations must hold/require rebalancing • Buying probability of cover (95% confidence level)	• Will require reinsurance • Over time, ability to lever amount of insurance vs 1st loss • Cost/cover ratio very narrow • May require agency support • Buying certainty of cover

Note:
- Indicated terms based on specific examples provided; terms will vary.
- Order of magnitude only
- Development ongoing

Background

MFX proposes two new innovative product approaches using existing direct hedging techniques to mitigate EM FX risk exposures:

(i) Covertures; and

(ii) Supported range forwards.

MFX also highlights there is an important opportunity to educate EM PE investors regarding capacity and solutions that are already available, and which can be applied in a cost-effective manner to achieve significant FX risk protection to deal with cash flow timing uncertainties.

See Exhibit 13 for a comparison of key parameters across the different product solutions. The direct hedging proposals by MFX are highlighted.

Covertures

A coverture is a financial instrument which allows a PE investor the right to acquire a specific amount of hard currency in the future for a specific amount of local currency, at an agreed-upon exchange rate, but – crucially – not the obligation to do so. Any depreciation of the local currency below the agreed-upon exchange rate is 100% covered. These instruments have already been used in Latin American markets.

The coverture functions like a hybrid between an FX option and an FX forward. It is option-like in that the purchaser has no obligation to exercise. It is forward-like in that in order to price the instrument, MFX requires forward rates – which can be obtained from TCX for a boad array of exotic currencies (see Exhibit 14). This is key to MFX's product idea: by drawing upon TCX's extensive range of FX forwards, MFX can make covertures available to investors in most traditional and

exotic EMs. This would include, for example, Nigeria, Niger, Zambia, and many others, for very long tenors – even up to 15 years.

Direct hedging products with optionality at these extended tenors for a wide array of EM currencies are not currently available in the market. New covertures, by providing 100% certainty of cover, with no delivery risks, in almost 90 EMs currently, represents a significant degree of innovation.

Indicative Example

In an example provided, a coverture for the Kenyan Shilling (KSH) to USD for 5 years was priced indicatively at a premium of 58% upfront – nominally equivalent to 12% per annum over 5 years for ease of comparison with the other product ideas. See Annex A.

This would give the investor 100% protection against the KSH depreciating against the USD beyond 58% from the current level. In other words, the investor is only covered for depreciation in excess of the 58% over 5 years (or 12% per annum) in this example. This 12% per annum is shown in Exhibit 13 as the "first loss" for the investor.

This product is expensive – as the investor must pay upfront the total cost of market-expected depreciation in the EM currency (based on interest rate differentials, and reflected in TCX forward contract pricing). However, a coverture could be helpful in situations

Exhibit 14: List of forwards currently provided by TCX in exotic currencies, and relevant tenors

Country		Max. Tenors	Country		Max. Tenors
Albania	ALL	10 yrs fixed	Kyrgyzstan	KGS	7.5 yrs fixed
Algeria	DZD	10 yrs fixed	Lebanon	LBP	7 yrs fixed
Angola	AOA	7.5 yrs fixed	Liberia	LRD	5 yrs fixed
Argentina	ARS	15 yrs fixed	Macedonia	MKD	5 yrs fixed
Armenia	AMD	15 yrs fixed	Madagascar	MGA	5 yrs fixed
Azerbaijan	AZN	5 yrs fixed	Malaysia	MYR	15 yrs fixed
Bangladesh	BDT	15 yrs fixed	Mali	XOF	15 yrs fixed
Belarus	BYR	5 yrs fixed	Mauritania	MRO	only floating
Benin	XOF	15 yrs fixed	Mauritius	MUR	15 yrs fixed
Bolivia	BOB	15 yrs fixed	Mexico	MXN	15 yrs fixed
Bosnia and Herzegovina	BAM	15 yrs fixed	Moldova	MDL	5 yrs fixed
Botswana	BWP	15 yrs fixed	Mongolia	MNT	5 yrs fixed
Brazil	BRL	15 yrs fixed	Morocco	MAD	15 yrs fixed
Burkina Faso	XOF	15 yrs fixed	Mozambique	MZN	5 yrs fixed
Burundi	BIF	only floating	Myanmar	MMK	5 yrs fixed
Cambodia	KHR	5 yrs fixed	Namibia	NAD	15 yrs fixed
Cameroon	XAF	15 yrs fixed	Nepal	NPR	15 yrs fixed
Central African Republic	XAF	15 yrs fixed	Nicaragua	NIO	15 yrs fixed
Chad	XAF	15 yrs fixed	Niger	XOF	15 yrs fixed
Chile	CLP	15 yrs fixed	Nigeria	NGN	15 yrs fixed
China	CNY	15 yrs fixed	Pakistan	PKR	15 yrs fixed
Colombia	COP	15 yrs fixed	Papua New Guinea	PGK	7.5 yrs fixed
Congo	XAF	15 yrs fixed	Paraguay	PYG	10 yrs fixed
Costa Rica	CRC	15 yrs fixed	Peru	PEN	15 yrs fixed
Cote d Ivoire	XOF	15 yrs fixed	Philippines	PHP	15 yrs fixed
Democratic Republic of the Congo	CDF	5 yrs fixed	Rwanda	RWF	5 yrs fixed
Dominican Republic	DOP	15 yrs fixed	Senegal	XOF	15 yrs fixed
Egypt	EGP	15 yrs fixed	Serbia	RSD	10 yrs fixed
Equatorial Guinea	XAF	15 yrs fixed	Sierra Leone	SLL	5 yrs fixed
Ethiopia	ETB	5 yrs fixed	Solomon Islands	SBD	only floating
Fiji	FJD	15 yrs fixed	South Africa	ZAR	15 yrs fixed
Gabon	XAF	15 yrs fixed	Sri Lanka	LKR	15 yrs fixed
Gambia	GMD	only floating	Tajikistan	TJS	5 yrs fixed
Georgia	GEL	15 yrs fixed	Tanzania	TZS	15 yrs fixed
Ghana	GHS	5 yrs fixed	Thailand	THB	15 yrs fixed
Guatemala	GTQ	15 yrs fixed	Togo	XOF	15 yrs fixed
Guinea-Bissau	XOF	15 yrs fixed	Tunisia	TND	15 yrs fixed
Haiti	HTG	5 yrs fixed	Turkey	TRY	15 yrs fixed
Honduras	HNL	10 yrs fixed	Uganda	UGX	15 yrs fixed
India	INR	15 yrs fixed	Ukraine	UAH	7.5 yrs fixed
Indonesia	IDR	15 yrs fixed	Uruguay	UYU	10 yrs fixed
Jamaica	JMD	15 yrs fixed	Uzbekistan	UZS	5 yrs fixed
Jordan	JOD	7.5 yrs fixed	Vietnam	VND	15 yrs fixed
Kazakhstan	KZT	15 yrs fixed	Zambia	ZMW	15 yrs fixed
Kenya	KES	15 yrs fixed			

Note: As at November 22, 2017 per www.tcxfund.com

where, for example, a EM PE fund manager has one or more investors that specifically request that a particular EM FX be 100% hedged.

Indeed, feedback from focus groups (see Section 7) indicates there may be PE investors with this type of goal and be willing to bear the costs, albeit in specific circumstances – for example, for some sub-Saharan African currencies. Moreover, this product is effectively market-ready and could be implemented very quickly.

Other Considerations

It is possible that a portion of the upfront premium could be repaid, at the end of the term, if the EM FX depreciates less than expected, and if arrangements for such a return were made. In the example provided, approximately 70% of the upfront premium could have been returned if the EM FX only depreciates 40%. Hence, Exhibit 13 indicates an effective upfront payment ranging from 3%-12% per annum, with the lower end of the cost reflecting a scenario where 70% of the premium is repaid to the investor. This partial repayment of upfront premium cannot be guaranteed due to various factors including the seller's risk management requirements.

If the EM FX depreciates beyond the agreed forward rate, the seller (i.e. MFX) would absorb the loss. However, the risk management required on MFX's part would likely require third-party (e.g., development agency) capital to make this approach work.

Finally, since a coverture is specific as to timing and amount, the investor or fund manager would need to be highly confident on cash flow timing and amounts expected from the local currency (i.e., the exit), which could be problematic as the coverture would expire at the end of its term if not exercised.

See Exhibit 15 for a summary of coverture indicative key parameters.

Exhibit 15: Covertures – details

Direct Currency Hedge Product Proposal Summary	
Covertures	
How does it work?	• Functions like a hybrid between a forward and an option. Full payment (premium) for all years is required upfront. There is no financial obligation at the end if not exercised.
What is the innovation?	• Creates new capacity for direct currency hedges with no financial obligation, where such hedges are not currently available, by using forward curve pricing information from TCX on exotic currencies.
What protection is provided?	• 100% cover against depreciation in a particular currency/amount beyond chosen strike price.
How much does it cost?	• Substantial upfront costs. Indicative range on specific example currencies indicated 3-12% on notional. If the protection is not exercised, at the end of the term, some of the upfront premium may be returned, depending on FX changes and MFX own risk management.
1st Loss (for investor)	• 12% p.a. (i.e., the premium)
Coverage (after 1st loss)	• 100% p.a. (of notional)
Advantages	• Would be available in almost all EM currencies – even very difficult ones – based on TCX extensive forwards • 100% cover once the protection kicks in • Protects against outlier FX depreciation • No financial obligations if not exercised for purchaser • Can be implemented today – already market ready • Would apply well in situations where an investor has a particular requirement to hedge a specific currency/amount with 100% certainty
Drawbacks	• Very costly upfront • Administrative burden • Would require agency support for MFX risk management

Note:
- Indicated terms based on specific examples provided; terms will vary.
- Order of magnitude only
- Development ongoing

Supported Range Forwards

MFX also proposed the use of FX options, where available, to establish a "supported range forward" hedge approach. See Exhibit 13 for summary comparison of parameters for this product idea.

The essence of the approach is to structure a band of protection by purchasing FX call options (and selling FX put options to offset the cost), whereby if the EM FX depreciates, then the call option positions would increase in value to offset the FX loss on the underlying investment. Protection would increase as FX depreciation increases. The "range forward" itself is not new; rather, what is new is the notion of having a third party (e.g., development agency) cover potential delivery risks on the put option.

Delivery risk can arise since, if the EM FX appreciates past the strike on the put option, then the PE investor would be exposed to owing cash equal to the value of the puts. This approach would require the availability of public sponsor or agency support to cover these potential delivery obligations (e.g., based on a public policy goal of facilitating FX hedging which enables growth of EM PE investing). It is this innovation which leads to substantial cost and risk reduction for the investor.

Indicative Example

In an example provided, a 7-year range forward for the Mexican Peso to USD was priced. The strike price on the FX call option was chosen such that the implied FX depreciation was approximately 50%. This means that beyond a Peso depreciation of 50% over 7 years (nominally equivalent to 7% per annum), the investor is covered 100% for further losses. Thus, the "first loss" for the investor is 7% per annum, with certainty of cover thereafter. See Annex B.

This product idea requires experience, expertise, systems, risk policies, legal capacity and active management not available in-house for most EM PE investors; though MFX itself could play this role. Even using outsourced services, there would need to be meaningful in-house capacity to negotiate, monitor, implement and maintain arrangements for such an effort.

Like the coverture, this strategy also requires specific amounts and tenors, with the complexity of possibly having to manage and roll FX option positions, depending on the desired and/or available timing for FX option exercise tenors. This may be problematic for PE investors who are not certain of exit timeframes or amounts, in the sense that FX protection expires at the end of the term of the FX option.

By using a supported range forward approach, MFX estimates a relatively low 1% per annum cost for the product in the example given, and, as noted above, assumes a 7% per annum equivalent "first loss" by the PE investor, based upon using suggested out-of-the money strike prices. The level of protection for any remaining exposure (beyond the strike price) would be 100%.

See Exhibit 16 for a detailed summary of the supported range forward approach.

Qualifications

These new direct FX hedging strategies are helpful in adding to existing market capacity, by providing certainty of protection for EM FX depreciation beyond a chosen risk threshold.

Photo: Riccardo Mayer

However, these approaches have challenges: (i) they require currency-by-currency hedges (as compared to a portfolio approach protecting multiple currencies via a single hedge); (ii) they may require availability of exisiting hedging instruments; (iii) they give rise to potentual delivery risks which point to the need for external (e.g., public agency) support; and (iv) they entail possible mismatched time horizons involving partial hedges being rolled to cover potentially much longer (and less predictable) PE investment horizons.

These product ideas could have niche appeal for PE investors in specific EMs that require certainty of protection beyond a given loss tolerance.

Conclusions

These proposed approaches are beneficial in that, where available, the products offer certainty of cover, and substantially increase market capacity for direct FX hedges in more exotic currencies.

The covertures may work especially well where an investor has a particular FX exposure that it wishes to be hedged with certainty. The supported range forwards would provide a better cost solution in the more advanced developing markets if agency support were available to help cover potential delivery exposures.

These approaches involve customized hedging, and require specialized expertise, process, systems and long-term support, where generally a PE investor or fund manager would need to rely on external services, as well as build and maintain meaningful in-house capacity to manage the effort.

Section 7 illustrates the potential positioning of these new product ideas in contrast to the two other approaches that were considered.

Exhibit 16: Supported range forwards – details

Direct Currency Hedge Product Proposal Summary	
Supported Range Forwards	
How does it work?	• Buying put and selling currency call options simultaneously to offer protection at a lower cost; with the potential financial obligation being covered by agency capital.
What is the innovation?	• Using existing techniques (buying/selling puts and calls) in a new way to reduce costs.
What protection is	• 100% cover against depreciation in a particular currency/amount beyond chosen strike price.
1st Loss (for investor)	• 7% (based on strike price selected in example given)
Coverage (after 1st loss)	• 100% p.a. (of notional)
How much does it cost?	• Comparatively low upfront cost for the purchaser as proposed. However, if the EM currency appreciates, there could be additional costs at the end of the term which would need to be absorbed by development agency backstop.
Advantages	• 100% cover once the protection kicks in • Protects against outlier FX depreciation • No financial obligations if not exercised for purchaser (but potentially for development agency) • Can be implemented today, if agency support forthcoming
Drawbacks	• Only available where long term currency options available • Administrative burden • Requires agency support – PE investors and managers would not want to assume the potential delivery obligation upon an appreciation event.

Note:
- Indicated terms based on specific examples provided; terms will vary.
- Order of magnitude only
- Development ongoing

Insurance Provider – Insurance

Exhibit 17: Potential product solutions compared – key parameters

	MFX Solutions		Validus Risk Management	Insurance Company
Product	**Covertures**	**Supported Range Forwards**	**Portfolio of Proxy Hedges**	**Insurance Policy**
Cost	3-12% p.a. (on notional, paid upfront) (potential for partial repayment of premium)	1% p.a. (on notional; requires Agency support for put)	1-3% p.a. (on investment value + return; also a mgmt fee of $100k p.a.)	2% p.a. (of invested amount)
1st Loss (for investor)	12% p.a.	7% p.a.	6-7% p.a.	5% p.a. (can be increased w/ Agency support as 2nd loss)
Coverage (after 1st loss)	100% p.a. (of notional)	100% p.a. (of notional; only available where options exist for tenor / currency required)	70% p.a. (of investment value + return)	5% p.a. (of portfolio)
Comments	• Covertures provide new market capacity for direct hedging in exotic currencies • Requires forward curve pricing by TCX • Investor is buying certainty of cover • No unforeseen financial obligation for purchaser • Requires agency support	• Substantially reduced cost • Buying certainty of cover • Only available where options are available • Requires agency support for provider	• Removes reliance on interest differential • Costs substantially reduced for amount of cover • Proxy correlations must hold/require rebalancing • Buying probability of cover (95% confidence level)	• Will require reinsurance • Over time, ability to lever amount of insurance vs 1st loss • Cost/cover ratio very narrow • May require agency support • Buying certainty of cover

Note:
- Indicated terms based on specific examples provided; terms will vary.
- Order of magnitude only
- Development ongoing

Background

The insurance company we worked with proposed a potential new insurance product combining its existing FX inconvertibility political risk insurance (PRI) with FX depreciation cover, for a portfolio of EM currencies.

Various combinations of possible product parameters were discussed, indicating a degree of potential flexibility in how this idea could be structured in practice. Key parameters of the early product idea are presented in Exhibit 17, on an indicative basis only.

By extending a traditional PRI policy to include FX depreciation, this new product would protect PE investors against repatriating dividends and liquidating funds from portfolio companies during periods of capital controls, while also compensating PE investors for a portion of losses arising from substantial EM FX declines on a portfolio basis.

Indicative Example

In indicative terms discussed, the cost (premium) of the insurance policy would be on the order of 2% per annum of the invested amount. The "first loss" (or deductible) that the investor would incur, before cover kicked in, would be on the order of 5% per annum (i.e., 25% over 5 years). After this, the cover provided by the insurance policy would be on the next 5% loss per annum (i.e., 25% over 5 years).

See Annex C for details.

The investor would thus be protected against up to 25% overall FX loss over the 5 years, after absorbing the first 25% depreciation.

This would, in the example provided, also cover any FX transfer/inconvertibility issues in the EM PE portfolio.

Discussions indicated some structuring flexibility in

the insurance approach, including tailoring levels of EM FX risk protection under a policy (e.g., setting a range of different trigger points where FX loss protection kicks in). Conceptually, this product could be designed with relative simplicity, where premium costs might be specified based on key parameters like tenor, FX and size of exposure, and where the complexity of behind-the-scenes FX hedging or off-loading of risk by the insurance provider would be hidden from the policyholder.

An insurance approach would likely benefit from economies of scale, as well as related FX and tenor diversification, and possible hedging at higher levels of net aggregated exposures. Such benefits might also lower overall product costs, and enable more cost-effective solutions. Further, the amount of FX protection provided by the insurance policy might be increased if development agencies (or other third parties) offered support, with a view to public policy efforts to encourage EM PE investing.

The company indicated that the FX inconvertibility cover component could be bundled, or potentially unbundled, from the FX depreciation cover component. Further, exploring ways of improving potential recoveries for insurers would be helpful in extending the level of coverage.

Additional Considerations

Conceptually, insurance as a product class appears well-positioned to address the EM PE industry goal of protecting against outlier/catastrophic FX risk, given the following factors:

- Insurance can be looked at as unfunded risk transfer, only paying out if a pre-defined loss occurs; by comparison, direct hedging is funded, and needs a cash outlay to create offset hedge positions on an ongoing basis.
- Insurance lends itself well to scaling, via reinsurance.
- Direct FX hedging is difficult in many developing countries, since it generally requires a liquid government bond market for the full term of the hedge. Insurance avoids this requirement – by contrast, it could use FX rates as a reference for an insurable trigger.
- Insurance lends itself well to blended finance approaches with complementary risk capacity (e.g., development agencies).
- There are recent parallels with other blended insurance mechanisms for development finance (e.g., Conflict-Affected and Fragile Economies Facility for political risk insurance, which combined development agency risk funding with insurance capacity from Multilateral Investment Guarantee Agency and private insurers).
- Insurance does not explicitly take into account FX volatility over time, but only whether an insurable event has been triggered.
- An insurer could pool risks and offer product pricing benefiting from scale and aggregated levels of diversification.

At present, while insurers are not covering FX risks outright as a first trigger, insurance policies do sometimes cover FX depreciation risk indirectly, as a second trigger. For example, in credit insurance for commodity contracts, if the buyer defaults, the insurer covers the buyer's non-payment – as such, losses from FX fluctuations during the insuring period may also be covered.

Qualifications

Market conditions - including reinsurance capacity – are generally favorable for considering novel insurance approaches. However, preliminary market soundings indicated little if any current interest from insurance and reinsurance companies for an insurance product covering FX depreciation risk.

This may be due to several factors, including:

- the considerable effort required to acquire exposure and loss data to assess and price FX depreciation risks using insurance techniques;
- the complexity and difficulty of assessing exposures and acquiring effective internal hedges, where expertise and systems capabilities may be limited, and where liquid, marketable and cost-effective financial hedging instruments are not widely available; and
- the existing FX exposures already on the balance sheets of insurance and reinsurance companies from their ongoing business activities.

While it is clear that many insurers/reinsurers are prepared to look at more exotic risks and exposures, at this time FX depreciation cover is not of sufficient

interest.

Other factors to consider in structuring and delivering such a product may include:

- To ensure regulatory compliance, FX risk protection must be structured as an "insurance product", and not a "banking product";
- The insured event must be an "insurance risk", not an "investment risk" (i.e., an insurer cannot simply "dress up" an FX swap or option to make it look/act like insurance);
- An insurance product requires a clear "trigger" event/hazard (i.e., something giving rise to a loss) that is fortuitous and unexpected.
- Simple FX depreciation is generally considered an "economic risk" and therefore more difficult to characterize for insurance; and,
- One must avoid possible moral hazard risks in any such approach – e.g., continuing to allow an FX situation to become worse, so that an insurance payout is triggered.

See Exhibit 18 for a detailed summary of the combined political risk/FX depreciation insurance approach.

Conclusions

While highly appealing in concept, substantial additional time and effort would be required to further develop this type of insurance.

The concept of FX depreciation insurance, in its simplicity and clarity, is well viewed amongst the EM PE investment community, so the idea has substantial merit for further pursuit. Indeed, it is instructive to note that PRI – now a broadly offered insurance product among private-sector insurers and reinsurers – owed its early development and growth to publicly-backed support.

Section 7 illustrates the positioning of FX depreciation insurance as a new product idea in contrast to the two other approaches that are considered.

Exhibit 18: Depreciation insurance – details

Insurance	
FX depreciation and political risk protection	
How does it work?	• Insurance policy providing protection against losses due to FX deprecation and specified political risks
What is the innovation?	• Novel product providing insurance against currency devaluation.
What protection is provided?	• Protection against a band of FX depreciation in a portfolio of currencies (e..g, protection only after the portfolio depreciates more than 25% over 5 years). Once protection kicks in, covered for a specified portion of further FX losses.
1st Loss (for investor)	• 5% p.a.
Coverage (after 1st loss)	• 5% p.a.
How much does it cost?	• 2% p.a. of invested amount
Advantages	• Protects against some FX depreciation • Insurance approach widely desired due to ease of understanding and administration • Potential for scalability, with sufficient reinsurance capacity
Drawbacks	• Requires reinsurance capacity; currently limited interest by industry • Relatively small band of cover for cost implied

Note:
- Indicated terms based on specific examples provided; terms will vary.
- Order of magnitude only
- Development ongoing

Validus Risk Management – Proxy Hedge

Exhibit 19: Potential product solutions compared – key parameters

	MFX Solutions		Validus Risk Management	Insurance Company
Product	**Covertures**	**Supported Range Forwards**	**Portfolio of Proxy Hedges**	**Insurance Policy**
Cost	3-12% p.a. (on notional, paid upfront) (potential for partial repayment of premium)	1% p.a. (on notional; requires Agency support for put)	1-3% p.a. (on investment value + return; also a mgmt fee of $100k p.a.)	2% p.a. (of invested amount)
1st Loss (for investor)	12% p.a.	7% p.a.	6-7% p.a.	5% p.a. (can be increased w/ Agency support as 2nd loss)
Coverage (after 1st loss)	100% p.a. (of notional)	100% p.a. (of notional; only available where options exist for tenor / currency required)	70% p.a. (of investment value + return)	5% p.a. (of portfolio)
Comments	• Covertures provide new market capacity for direct hedging in exotic currencies • Requires forward curve pricing by TCX • Investor is buying certainty of cover • No unforeseen financial obligation for purchaser • Requires agency support	• Substantially reduced cost • Buying certainty of cover • Only available where options are available • Requires agency support for provider	• Removes reliance on interest differential • Costs substantially reduced for amount of cover • Proxy correlations must hold/require rebalancing • Buying probability of cover (95% confidence level)	• Will require reinsurance • Over time, ability to lever amount of insurance vs 1st loss • Cost/cover ratio very narrow • May require agency support • Buying certainty of cover

Note:
- Indicated terms based on specific examples provided; terms will vary.
- Order of magnitude only
- Development ongoing

Background

Validus Risk Management (VRM) proposed the use of a "proxy portfolio" approach to hedge EM PE investment FX exposure. See Exhibit 19 for a high-level comparison with other product proposals.

Proxy Hedge Concept

With the proxy hedge approach, an EM PE investor acquires protection from FX depreciation by having a third party (e.g., VRM) develop and manage a customized portfolio (tailored specifically to the subject country risk profiles and excluding any financial instruments which could give rise to delivery obligations) composed of liquid, low-cost, marketable options whose value changes so as to offset EM FX depreciations.

The proxy portfolio in many ways acts like an insurance product, being designed to cover certain levels of risk (hedge ratios) for a desired level of cost. Like insurance, it protects against more severe FX depreciation/loss events, where the cost would typically be targeted at 1%-3% per annum of PE investment return, providing estimated coverage in the order of a 40% or more effective hedge ratio.

Unlike insurance, which provides certainty of coverage for clearly defined trigger events, the proxy hedge approach provides coverage on a probabilistic basis. There is no complete assurance of protection for specific FX depreciations, but rather substantial probability of protection, nearing an estimated 40% effective hedge ratio or higher over the life of the investment fund during simulation scenarios.

VRM's thorough and detailed analytics show that its proxy hedge approach has substantial expected hedge ratios and good applicability across a range of PE fund types.

In terms of indicative protection, VRM's analysis indicates

that a PE investor could expect to absorb the first 7% p.a. of annual FX depreciation losses on its PE investment portfolio, then have offsetting proxy returns kick in to compensate for up to the next 70% p.a. of FX losses, resulting in an overall effective hedge ratio of 40% or more (within designated confidence levels).

See Annex D for detailed proposed structure.

EM PE Investor Risk Tolerance, Objectives and Impact on Hedge Approach

For a PE investor, the cost of a proxy hedge could be viewed similar to insurance. Conceptually, the cost is for protection covering severe adverse FX events, and should be absorbed by the investment yield as a cost of doing business. The proxy portfolio is constructed in a way that eliminates downside cost or exposure on the proxy itself, other than the cost of its construction and management. It can also be designed to minimize administration and management complexity, relating to monitoring, collateral and cash management, depending on proxy portfolio composition.

Unlike insurance, there is a possibility to benefit from both covering hedging costs and making gains on the proxy portfolio, while also providing important levels of protection on severe FX depreciation events.

Moreover, there is flexibility and control available to the PE investor, that may wish to "play the odds" and benefit from cashing out on "in-the-money" proxy hedge positions from time to time, although reducing protection in the process.

EM PE investor risk tolerance, hedging objectives and expectations play an important role in the selection and design of a proxy hedging approach. The probabilistic nature, flexibility and potential benefits discussed above may appeal to some, but not to others, who may have quite different risk tolerance levels.

It is important to differentiate where a proxy approach of this type might be used in this regard. If the primary objective is immediate, short-term hedging effectiveness closely tracking EM FX depreciations, as might be desired for quarterly balance sheet management and mitigation of quarterly volatility, then a proxy approach is likely not the best fit.

By comparison, if there is tolerance to absorb short-term volatility (i.e. "normal" EM FX depreciation), and to have reasonable protection in place to absorb more severe or unexpected FX loss, then a proxy approach could be attractive. The proxy hedge is beneficial in protecting against adverse EM FX movements, while enabling a PE investor to benefit from strengthening EM currencies, and also offering the possibility of upside gain on the proxy portfolio's assets over the life of the hedge. All the while, the growth in the value of the proxy portfolio itself may help offset the cost of the hedge.

What is Involved?

A proxy portfolio is carefully constructed based on the specific composition of the EM PE investments, including detailed analysis and design elements considering the level of existing investment portfolio FX diversification, the nature of the underlying EMs' economic factors, investment characteristics, export composition, FX regime (e.g., float, pegged, managed band), size and tenor, and the desired levels of cost and protection.

A proxy portfolio typically would include various types of marketable, liquid options on carefully selected underlying products, such as oil, gold, wheat, interest rates and equity indices, designed to provide value gains to offset material depreciations in EM currencies impacting PE investment portfolio returns.

This approach requires identifying and acquiring options that exhibit the desired correlations with the portfolio's basket of currencies, and to determine, monitor and adjust positions as necessary if and as correlations change.

The methodology reviewed during the Proof-of-Concept stage involved in-depth consideration of EM countries' economic situations (including exports, imports, financing, debt levels, currency regime and prognosis, purchasing power parity assessments, and political status) within the process to identify and establish proxy hedge components. It also employed extensive time series of countries' historical economic, FX and other financial data (pricing on commodities and various financial instruments) along with advanced statistical modelling techniques to derive hedging parameters (and behaviors over varying time periods) necessary to determine appropriate hedge instrument candidates and selections. This was subsequently used to conduct extensive back-testing to assess performance impacts of selected proxy portfolios on two actual EM PE sample investment portfolios (see Section 8).

A proxy hedge approach requires regular monitoring and

varying degrees of management to rebalance positions as necessary to ensure that the offsetting behavior effectively functions. This strategy avoids direct hedging issues that characterize EM currencies. Costs are kept low by using liquid, marketable options and forwards, and pricing of strikes away from "at the market", to customize protection to focus on more severe adverse FX events.

This approach also avoids the use of FX forwards, or other types of instruments requiring more complex cash and collateral management, and can take advantage of American-style options, in order to provide the flexibility needed for uncertain EM PE investment exit tenors, and avoid the challenges of dealing with cash flow administration and management associated with more complex instruments.

With this approach, the PE investor must absorb a certain level of FX risk that cannot be mitigated via proxy hedging. This reflects uncontrollable aspects of proxy hedging, where for example correlations may change and rebalancing may not be effective; further, there are economic events that cannot be incorporated "a priori" in the methodology, such as sovereign economic policy decisions which may impact FX rates.

EM countries conducting their FX management through "pegged" regimes, where local currencies are explicitly tied to a hard currency (typically the U.S. dollar), pose a unique problem. To the degree that such pegs hold throughout the life of an investment, there is in effect no impact in terms of adverse EM FX effects. A proxy portfolio hedge would have no impact in this event, and in theory would not be needed. However, in reality, pegs are uncertain to hold during EM PE investment time horizons. VRM provided some background on this, suggesting that there may be up to a 20% effective hedge ratio achievable through a proxy hedge, although generally pegged currencies are not prime candidates for a proxy hedge approach.

Qualifications

A proxy portfolio overlay approach to hedging is not a new concept. One can find negative financial media coverage on failed efforts, where proxy hedge efforts have disappointed users with lack of performance, including unexpected downside losses. VRM recognizes past proxy hedging concerns, noting that it is not uncommon for investors to be apprehensive of proxy hedging due to some negative precedents.

However, VRM's approach addresses the risks that led to dire consequences in the past. In particular:

- Delivery and liquidity risk: proxy hedging should only be implemented with options, or instruments that do not create a liability. Effectively this means that in the worst-case scenario, the proxy hedge will not provide perfect protection, and option premiums will be a sunk cost – but no additional liquidity or settlement requirements will arise.
- Break down of correlations: since the basis risk exists and correlations may break down, the proxy hedge focuses on fundamental driving factors. For example, even if high correlations are observed between EM FX and random factors, these would not be included in the proxy portfolio unless there is a solid fundamental reason to do so. Furthermore, the risk of correlation break-down is minimised via continuous monitoring.

Overall, VRM's approach is to ensure that a proxy hedge is expected to protect, but is guaranteed not to create additional financial liabilities.

This approach requires expertise, experience, specialized analytical skills and systems capacity, and a need for long-term continuity of effort and infrastructure support not normally available within the EM PE investment community. Even larger financial organizations are typically limited in such capacity.

It is likely that EM PE success with this approach would be closely tied to acquiring services of a specialized organization engaged in this business, such as VRM. Key support functions would include: identification of FX risk exposures; establishment of key performance metrics and hedge objectives; design and implementation of proxy hedge solutions, incorporating active or passive management; and provision of systems support offering real-time position and performance monitoring, administration and control. Fee structures can vary, but should ensure that the structure would not be open-ended, or incent increases in hedging costs.

Conclusions

VRM's use of a specialized proxy portfolio strategy was found to be an innovative, promising product idea, worthy of consideration in protecting EM PE investors against severe losses associated with material adverse FX depreciations. The approach offers good potential for obtaining a level of FX protection similar to insurance,

offering reasonable protection against severe EM FX depreciation events, although varying in certainty of coverage.

VRM concludes that a proxy hedge solution with appropriate design would ensure a hedge ratio of approximately 40% or more for a cost of 1.0%–3.0% per annum. The protection is particularly effective in the event of extreme market movement (greater than 6-7% per year FX depreciation) and for particular regional currency exposures (e.g., Africa). Other benefits include limited (potentially zero) liquidity risk and full participation in underlying FX appreciation.

VRM's proxy portfolio can be designed to reflect the constraints, concerns and objectives of interest to EM PE investors, enabling cost-effective, partial protection (on a probabilistic basis) for severe FX impacts throughout the life of an investment.

Traditional critiques of this approach, including delivery obligations and liquidity risk, and break-down of correlations, should be mitigated – though not entirely eliminated – through VRM's proxy hedge design, by limiting the use of hedge instruments to options (or other instruments that would not create a liability), and focusing on fundamental factors driving EM FX movements.

Section 7 illustrates the positioning of this approach in contrast to two other approaches that were considered for this report. Annex D provides more detail on this product's potential positioning.

See Exhibit 20 for detailed summary of indicative terms for a tailored proxy portfolio approach.

Due to its flexibility and capacity to be applied cost-effectively based on liquid, marketable longer-term options, VRM's proxy hedge product idea was advanced for additional analysis and back-testing using actual EM PE investment portfolios. Section 8 describes the methodology and results of this back-testing exercise.

Photo: USAID

Exhibit 20: Proxy portfolio – details

Proxy Hedge	
Indirect Hedge – Portfolio of Options	
How does it work?	• A shadow portfolio of options (and *only* options in this case) is created to offset currency losses on an investment portfolio. Specific and unique parameters are applied.
What is the innovation?	• Creating new capacity by de-linking from direct FX hedges in exotic currencies, and by crafting unique parameters for country risk to include in the proxy portfolio.
What protection is provided?	• Protection against severe FX depreciation in a portfolio (protection only after the investment portfolio depreciates more than say 35% over 5 years). Once protection kicks in, likely covered for a very significant portion of any further FX losses (based on confidence intervals provided).
1st Loss (for investor)	• 6-7% p.a.
Coverage (after 1st loss)	• 50-70% p.a. (invested value + return)
How much does it cost?	• 1-3% p.a. • (+ assume a fixed yearly amount for management, e.g., $100K p.a.)
Advantages	• Expected to protect in most cases against extreme outlier depreciation • Covers equity portfolio notional amounts plus a compounded return • Not penalized if equity investment portfolio appreciates due to local currency strengthening (unlike forwards, for example) • No financial obligations upon expiry of options – no penalizing • Minimal cost/premium that will often pay for itself – while providing substantial insurance-like protection, albeit probabilistic in nature (95% confidence levels)
Drawbacks	• Complexity – requires regular management and potential rebalancing of proxy portfolio • Protection amount is not certain – it is probabilistic in nature – though confidence levels are robust

Note:
- Indicated terms based on specific examples provided; terms will vary.
- Order of magnitude only
- Development ongoing

Photo: Sarine Arslanian Kigali, Rwanda

7. Results of Industry Focus Groups and Product Positioning

The One-Minute Read

The three product ideas were market-tested via a series of focus groups involving numerous EM PE institutional investors and fund managers, including global, regional and country-focussed entities.

Helpful views and insights were expressed by focus group participants, resulting in suggested changes to product ideas and broader insights into possible product positioning in the EM PE market.

While interest in the two direct hedging solutions was moderate and investment-specific, participants overall preferred products offering a portfolio-wide approach.

Covertures were viewed as useful for the riskiest countries where an investor might want a specific currency covered; however, product cost was a concern. Supported range forwards were seen as potentially helpful in more developed markets, but a requirement for agency support posed challenges.

The proxy hedge approach generated substantial interest given its attractive cost/protection relationship, although concerns arose over its complexity, as well as the risk of correlations not holding.

The insurance concept was perhaps the most well received in terms of simplicity and ease of use; however, concerns were expressed regarding the relatively low level of FX protection given the cost.

Scope and Approach

In advancing FX risk mitigation product ideas along solution pathways, the views and insights of EM PE market players are essential. Care must be taken to develop approaches and product parameters that address key needs and preferences of PE institutional investors and fund managers.

Earlier in the project process, the EMPEA member survey provided important and detailed guideposts in helping identify high-potential solution pathways and shape the development of "Proof of Concept" product ideas: covertures/supported range forwards, proxy hedges, and insurance. Once these product ideas had sufficiently advanced, but prior to promoting one or more ideas to a formal "Pilot" stage, a series of focus groups were convened to present these "Proof of Concept" ideas to the PE investment community, and solicit their views, insights and feedback.

Focus group meetings and conference calls were completed involving 12 institutional investors and fund managers (Exhibit 21 below). Recognizing the importance of achieving a broad mix of views and feedback, participants were included with operations in North America, Latin America, Africa, Central & Eastern Europe, the Middle East, and Asia, comprising global, regional and country-focused PE investment. The participant mix included both larger entities (World Bank Pension Fund, The Carlyle Group) and smaller entities (MicroVest, Kandeo), as well as entities with various degrees of FX risk management knowledge and capacity. In each focus group, every effort was made to obtain clear and detailed reactions, views and feedback on preferences, strengths, weaknesses, and potential uptake.

Exhibit 21: Focus groups held

USAID FX Project -- Focus Group Participants		
Firm	Firm Type	Region / Country
Baring Private Equity Asia	Fund Manager	Emerging Asia
The Carlyle Group	Fund Manager	Global
Kandeo	Fund Manager	Latin America
Guardian Life Insurance	Institutional Investor	N/A
World Bank Pension	Institutional Investor	N/A
Microvest	Fund Manager	Pan-EM
AfricInvest	Fund Manager	Africa
Linzor Capital	Fund Manager	Latin America
Capital Group Private Markets	Fund Manager	Pan-EM
Emerging Capital Partners	Fund Manager	Africa
EBRD	Institutional Investor	C&EE, A&ME
Sarona Asset Management	Fund-of-Funds Manager	Pan-EM

Key Observations and Conclusions

Detailed discussions with the focus groups helped generate insights on three levels: (i) feedback per product idea; (ii) thematic comments; and (iii) potential product positioning.

Feedback per Product Idea

Exhibit 22 provides a summary of product-specific feedback from the focus groups. While there was diverse feedback, some over-arching conclusions can be drawn. First and foremost, there was no outright "winner" among the three product ideas presented – different entities preferred different product ideas for different reasons. Nevertheless, some significant preferences (and aversions) were expressed.

For covertures and supported range forwards, there was general appreciation of creating new FX risk mitigation capacity in difficult markets (covertures) and using familiar products in new ways (supported range forwards). However, these were both solutions specific to a single currency/investment only, rather than a portfolio of currencies/investments. Further, concerns were expressed in the areas of cost, complexity and counterparty risk. Lastly, this solution requires undetermined amounts of agency support. It was agreed that the coverture approach could be very useful if an investor specifically requires a particular asset be protected from FX declines (e.g., Nigeria).

For the proxy hedge, the general consensus was "intriguing though complicated". Concerns were expressed on whether the correlations would hold between the proxy portfolio and EM currencies of the underlying investment portfolio, the certainty of protection, and the overall complexity ("Would I be able to explain this to my Investment Committee?"). An important advantage was that the proxy hedge appeared to work particularly well (i.e., correlations held better between the proxy portfolio and the investment portfolio EM currencies) in less developed markets where other FX hedging products may not be available. Also, the product pricing, versus the FX protection obtained, was considered attractive.

For insurance, there was a strong consensus that this product could be attractive, particularly in terms of being easy to understand and simple to administer. However, this product idea, in its early indicative terms, offered limited FX risk protection – much less than the similarly-priced proxy hedge product. There was considerable discussion on whether such insurance cover could be structured on a "tiered" basis in order to provide a broader range of FX protection for users. Also, it was recognized that this product idea was the furthest from becoming market-ready, given the lack of reinsurance interest at this time.

Exhibit 22: Summary of focus group feedback

	MFX Solutions		Validus Risk Management	Insurance Company
	Covertures	**Supported Range Forwards**	**Portfolio of Proxy Hedges**	**Insurance Policy**
Strengths	• Certainty of cover • Creates risk capacity in very difficult markets	• Certainty of cover • Familiar product • Low price	• Works well in variety of markets including less developed markets where other FX risk products are less available	• Straightforward, easy to administer and understand
Weaknesses	• High cost, complexity, counterparty risk, currency-specific need for development agency support	• Complexity, counterparty risk (MFX), currency-specific need for development agency support	• Concern over correlations holding, complexity, requires rebalancing, certainty of cover, upfront work required	• Coverage not deep enough (given the cost), longest time to market (requirement for reinsurance capacity)
Other		• Optic of development agency eating the loss on FX option when LP/GP benefits from FX upside	• Would there be investments in proxy portfolio that would not be permitted under fund governance documents	• Desire to unbundle FX risk cover from FX convertibility cover • Questions on mechanics - when to activate policy, etc. • Tiered indemnity may work better to increase cover span • Concern that policy may not be rolled over if FX risks • increase
Overall	• Some interest in specific markets, but cost is very high	• Some interest but considered complex and difficult to manage; likelihood of agency support	• Intriguing but complicated and concerns over correlations holding • Cost vs cover attractive	• Very interesting, but limited coverage and longest product to market • Limited interest from reinsurers at this time

Thematic Comments

A number of cross-cutting themes also arose from the focus groups discussions. Not surprisingly, these themes echo and reinforce many of the insights and preferences arising from the EMPEA survey of PE institutional investors and fund managers. These themes included the following:

- A portfolio hedging approach tends to be preferred over single-currency solutions.
- Certainty of risk protection is generally preferred if possible, as historical correlations may not hold in the future.
- The risk/return trade-off needs to strike the right balance.
- Having to pay premia upfront impacts returns.
- Catastrophic FX cover is important; 100% cover is not always required.
- A low maintenance/low administration solution is generally preferred.


Photo: Pierre-Yves Babylon Sambava, Madagascar

Potential Product Positioning

Feedback from the focus groups helped to distill a fundamental principle in developing FX risk mitigation product ideas for the PE investment community: different products work better in different situations.

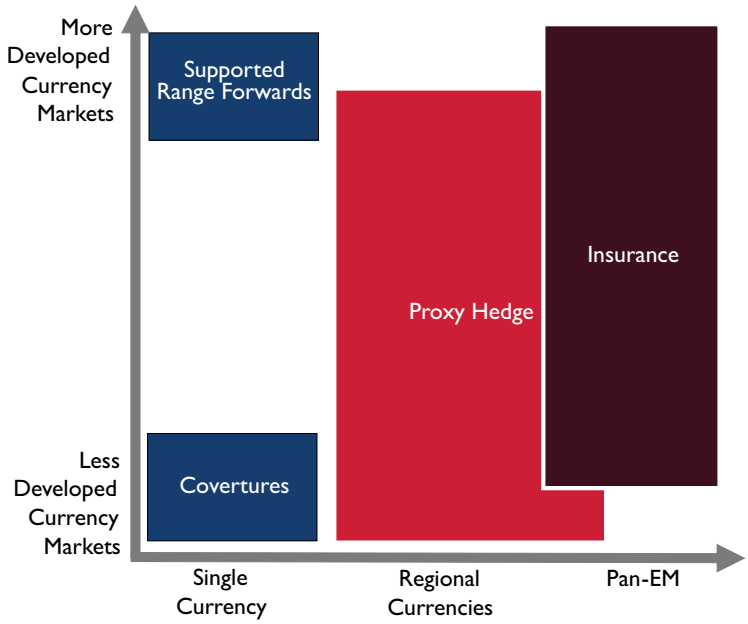
Exhibit 23 highlights the differentiated potential product positioning in various PE market contexts.

Both covertures and supported range forwards may provide certain protection in single-currency scenarios. However, covertures can be offered in the riskiest markets where FX options do not exist. By comparison, supported range forwards apply in more developed markets where FX options are available.

Proxy hedging appears to deliver good protection for both regional and global portfolios, as opposed to single-currency portfolios. That said, the product may work best in less developed economies where there are no pegs: since these economies tend to be less diversified economically (e.g., reliance on major commodities like oil, gold, or wheat), it is easier to structure proxy portfolios with greater likelihood of correlation to the underlying investment portfolio.

Insurance is likely to work best in pan-EM scenarios. A broad mix of currencies and countries would optimize diversification and lower overall FX-related risks, thereby enabling more cost-effective insurance cover.

Exhibit 23: Product positioning for 3 identified potential solutions



Covertures	Hedging individual currencies in markets where currency options are not available (requires agency support)
Supported Range Forwards	Hedging individual currencies in markets where currency options are available – but at lower cost (requires agency support)
Proxy Hedging	Regional to pan-EM currency markets May work especially well in riskiest countries in which currencies are not pegged
Insurance	Broadest possible range of currencies to optimize risk diversification, but product idea very early; insufficient reinsurance interest

8. Pilot Results – Proxy Hedge

The One-Minute Read

Based on the Proof of Concept results, VRM's proxy hedge product idea was advanced to a more formal "Pilot" stage, in order to refine the approach and back-test it against two actual EM PE investment portfolios and assess the product's functionality for users and efficacy for FX risk mitigation.

The two funds were: (i) an Africa-focused PE fund that was fully completed; and (ii) a global PE fund-of-funds currently in process – Sarona Frontier Markets Fund 2 (SFMF2). In each case, fund portfolio data were back-tested against four major FX stress events over 20 years.

For the Africa-focused PE fund, the proxy hedge did not show a significant IRR benefit for the time periods assessed. However, this was not surprising, as most of the fund's cash flow derived from African currencies that were pegged to hard currencies – which pegs largely remained intact during the crisis periods tested. The proxy hedge approach is not considered well-positioned at this point for countries in which currencies are successfully pegged.

For SFMF2, the results were more promising. The proxy hedge provided substantial protection during two major stress events (providing FX protection of approximately 8% per annum). For the other two stress periods, the proxy hedge provided some protection, equivalent to approximately 1%-2% per annum of overall fund returns. Further, the proxy hedge was cost-effective: the financial returns generated from the proxy portfolio were sufficient to cover its costs. Notwithstanding these positive results, more work is needed to refine the product approach for PE investors and fund managers, including its mechanics, cost and coverage.

The results of the "Proof of Concept" work indicated that the proxy hedge product idea holds significant promise to mitigate FX risks at scale for EM PE in a way that addresses many important needs and concerns expressed by the investment community via the EMPEA survey, industry focus groups, and other consultations.

The earlier Proof of Concept stage was designed as a desk-top exercise to provide only indicative results on key product parameters including cost, protection, first loss, etc. This approach was intentional, in order to flesh out product ideas sufficiently within the limited project timelines and budget. Based on the Proof of Concept results, VRM's proxy hedge product idea was advanced to a more formal "Pilot" stage. The objective of the Pilot stage was to further refine the proxy hedge approach and back-test it against actual EM PE investment portfolios over historical periods of time to assess the product's functionality for users and efficacy for FX risk mitigation.[7]

Back Testing – Approach

The proxy hedge was piloted – via simulated back-testing - using two actual EM PE investment portfolios:

- An Africa-focused PE fund that was fully completed; and,
- A global PE fund-of-funds launched in 2013 and currently in process – Sarona Frontier Markets Fund 2 (SFMF2).

In each case, fund portfolio data were back-tested against four major FX stress events over the past 20 years:

- The 1998 Asia/Russia financial crisis;
- The 2008 global financial crisis;
- The 2012-2015 commodity decline; and,
- The 2013-2016 period of EM FX turbulence.

In each case, VRM analyzed the investment portfolios and country-specific financial and economic dynamics,

7. This included historically tracking and reporting on the periodic value of the proxy hedge versus quarterly investment fund financial reports to monitor and assess reporting requirements, and impact on overall fund performance.

and constructed proxy hedge portfolios combining an optimal mix of instruments (including options on oil, gold and emerging-market stock indices). VRM then conducted extensive scenario analysis to determine the cost and effectiveness of the proxy hedge's FX protection on each investment portfolio over the different time periods/stress events.

VRM's proxy hedge approach in general involves complex and sophisticated analytics and algorithms, including understanding the country-specific characteristics (internal and external factors) underpinning FX movements, selection of relevant proxy instruments by way of multiple regression and historical analysis, identifying appropriate deltas and option strike prices, the use of stimulation techniques and periodic rebalancing of proxy portfolio components based on ongoing monitoring.

Throughout this process, the project team provided oversight and guidance to ensure clear and rigorous Pilot results, including regular progress reports and conference calls, as well as in-person meetings.

Back Testing – Results

Africa-Focused PE Fund

The proxy hedge did not show a significant IRR benefit in this fund for the time periods assessed. However, this was not surprising, because the majority of the fund's cash flow derived from African currencies that were pegged to hard currencies (either U.S. dollar or Euro) – which pegs largely remained intact during the crisis periods tested. In such situations, the pegs themselves act as effectives hedges, unless the pegs are abandoned. Where the pegs remained in place, the proxy hedge had the effect of reducing performance simply by the amount of its cost. However, this does not account for the "potential" insurance-like value still inherent in the proxy portfolio which could very well provide future untested benefits.

As shown in Exhibit 24, back-testing the proxy hedging approach on this portfolio (using three approaches – pooled, extended and basic) resulted in a reduced performance when compared to leaving the portfolio unhedged, effectively due to the cost of the proxy.

While the performance of the proxy hedge was effective over the final two years of the analysis, the performance of the proxy over the entire period, did not add value to the IRR. However, as noted above, the proxy hedge still had substantial potential protection embedded in it - which could have been useful in the future.

Nonetheless, since inconclusive, the proxy hedge approach is not considered well-positioned at this point for countries in which currencies are successfully pegged.

Photo: Nataly Reinch – Accra, Ghana

Exhibit 24: Performance of hedge on Africa-based fund

Exhibit 25: Proxy hedge protection for SFMF2

Global PE Fund-of-Funds (SFMF2)

For SFMF2, the results of proxy hedge back-testing were promising and demonstrated effectiveness. More work is needed in assessing performance, presenting results, and confirming functionality in a way that is understandable and appealing to the PE investment community.

As shown in Exhibit 25, the proxy hedge provided substantial protection during the two more extreme stress events. During both the 2008 financial crisis and the 2012-2015 commodity decline, back-testing results suggests that the proxy hedge would have provided FX protection equivalent to approximately 8% per annum of overall fund returns. Meanwhile, during the 1998 global financial crisis and the 2013-2016 period of EM FX instability, the proxy hedge would have provided some protection, equivalent to approximately 1%-2% per annum of overall fund returns.

Another important conclusion from the back-testing simulation is that the proxy hedge was cost-effective: the financial returns generated from the proxy portfolio were sufficient to cover its costs.[8]

Overall, the SFMF2 Pilot showed that, for this portfolio, the hedge paid for itself and provided FX downside protection – similar to insurance, but probabilistic.

While the Pilot yielded positive results, the analysis and presentation were complex. More work is needed to refine and simplify the product approach and value proposition for PE institutional investors and fund managers, including its mechanics, cost and coverage, as well as to identify more precisely situations where its use is most (and least) helpful.

Back Testing – Overall Conclusions

The main conclusion that can be drawn from the Pilot (back-testing) is that the proxy approach is effective at managing FX risk during severe downturns, and can be thought of in a manner similar to insurance, albeit on a probabilistic basis. Some caveats apply, and there is a need for further refining of mechanics.

In particular, the proxy portfolio performed very well in the two most severe of the four crisis periods for the SFMF2 portfolio; and paid for itself in all four crisis periods. The proxy performance was inconclusive with respect to the African portfolio; mainly because the majority of the currencies remained "pegged" during crisis periods.

In general, the proxy approach is expected to work best in the riskiest and least developed economies, and where the currency regime is not pegged. This is because in these economies, the sensitivity of the proxy instruments is better aligned to offset FX movements. This has very important implications for the application of the proxy approach in countries where there may be no alternative hedging instruments available; and where hedging is needed most.

Regarding countries with pegged FX rates, as long as the peg holds there is no FX risk. Choosing proxy instruments that would respond to a de-pegging, especially a disorderly breakdown of a peg, is not straightforward. Thus, it is not clear that a proxy approach would work for PE investments involving pegged FX regimes. (However, while the proxy hedge was inconclusive where pegs held, there was still

8. The net cost of protection paid by the fund was 1.8% p.a., which was made up for by the value of the proxy hedge for a cost-neutral to slightly positive overall result.

potential insurance-like protection that the proxy portfolio was providing, which may have helped mitigate future losses.)

The Pilot back-testing approach had limitations, in terms of understanding how the proxy hedge could perform in real-time market scenarios, and the analysis and results were complex. This is a practical reality of the stage of development of this product idea, including applying the proxy hedge via complex scenario analysis, and presenting results in a way that is meaningful and appealing to the PE investment community.

Recognizing these constraints and challenges, a real-time demonstration would be a helpful next step to make this product idea more market-ready for commercial uptake by PE investors and fund managers.

Photo: Adriana Mahodlova Korr, North Kenya

Annexes

Photo: Sarine Arslanian Kigali, Rwanda

Annex A: Landscape schematic

PE INVESTOR CURRENCY CONCERNS IN EMERGING MARKETS

- Currency depreciation severely impacts returns and keeps investor capital on sidelines
- Entry and Exit periods can be hedged relatively effectively with current product offerings
- Holding Period cannot be hedged effectively with current product offereing due to factors including: uncertain timing, amounts, costs, liquidity, liabilities, collateral requirements, internal risk limits, etc.

GROUP 1 - Upper middle income countries SAMPLE (GNI $4,036-$12,475)	GROUP 2 - Lower middle income countries SAMPLE (GNI $1,026-$3,045)	GROUP 3 - Lower income countries SAMPLE (GNI $1,025 or less)
DZD Algerian Dinar	BDT Bangladesh Taka	XOF Burkina Faso West African Franc
AOA Angolan Kwanza	KHR Cambodia Riel	ETB Ethiopian Birr
BRL Brazilian Real	EGP Egyptian Pound	GNF Guinea Franc
CNY Chinese Yuan	TND Tunisian Dinar	HTG Hatian Gourde
COP Colombian Peso	IDR Indonesian Rupiah	MGA Madagascar-Malagasy Ariary
USD Ecuador	KES Kenyan Shilling	MWK Malawi Kawcha
KZT Kazakhstan Tenge	MRO Mauritanian Ouguiya	MZN Mozambique Metical
LYD Libyan Dinar	MAD Moroccan Dirham	NPR Nepalese Rupee
MYR Malaysian Ringgit	PKR Pakistan Rupee	RWF Rwandan Franc
MUR Mauritian Rupee	NGN Nigerian Naira	XOF Senegal West African Franc
MXN Mexican Peso	UAH Ukraine Hryvnia	SOS Somali Shilling
PYG Paraguayan Guarani	DND Vietnamese Dong	TZS Tanzanian Shilling
PEN Peru Sol	PHP Philippines Peso	UGX Uganda Shilling
RUB Russian Ruble	XAF Cameroon Central African Franc	ZWD Zimbabwe Dollar
ZAR South African Rand	GHS Ghanian Cedi	
THB Thailand Baht	XOF Cote D'Ivoire West African Franc	
TRY Turkish Lira	USD El Salvador USD	

Also a Least Developed Country (LDC)

EXISTING CURRENCY MITIGATION APPROACHES IN EMERGING MARKETS

Only for those in red italics are generally used for the investor's PE asset; and only during the limited entry and exit periods; almost none are being used in the holding period. They are mostly suited for debt products.

PRIVATE SECTOR Examples:

- Swaps
- Futures
- Forwards *(including deal-contingent forwards)*
- *Forward swaps*
- Collars
- *Options (puts/calls/caps/collars/floors etc)*
- Overlay strategies
- Synthetics
- Structured notes
- Other

MULTILATERAL BACKED Examples:

EBRD local currency facility

GCMC

Guarantco

CGIF

PUBLIC SECTOR Examples:

Grants

Contributions

Gtees/Loans

Indemnities

INVESTEE STRATEGIES

- Currency swaps (for loans, select currencies & tenors)
- Natural FX hedges, e.g. foreign currency earnings
- Diversify export earnings
  Large alpha returns

NEW IDEAS

PRIVATE SECTOR SOLUTIONS?

- Rolling forwards? Rolling swaps? Rolling collars or other options?
- Synthetic product? Structured note?
- Reserve currency/local or regional currency x-correlations?
- Portfolio structured product?
- Customized proxy?
- Insurance?
- Asset matching/offset?
- Other?

BLENDED FINANCE SOLUTIONS?

- Blended trust fund with 1st or 2nd loss protection provided by development agency? Catalytic funds to be used to defray risks and bring in private sector capital?
- Blended product providing sinking fund or protection for insurance losses?
- Cost or risk sharing for synthetic (marked to market) vs. asset backed FX protection

PUBLIC SECTOR SOLUTIONS?

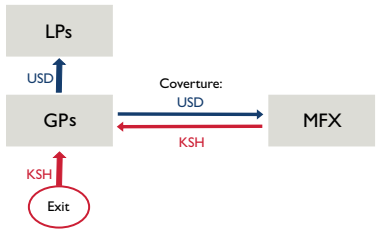
- Multi or single donor trust fund or other vehicle established to cover FX losses on designated types of private equity portfolios, for designated currencies

Annex B: MFX – Indicative pricing and structure for covertures and supported range forwards

Coverture
Pricing Example:
Kenyan Shilling/USD
5 Years
Current Spot: 103.6
5 year NDF: 163.8
Spread: 58%

- At the end of the term (5 years) the buyer of the coverture has the right - but not the obligation - to buy USD vs KES at a strike of 163.8 regardless of then currency spot
- GP has locked in a forward rate but as an option; has covered his downside risk beyond, in this case 58% devaluation, or 12% deval/year
- The coverture functions like an option
- MFX can use forward curves for any currency from TCX to provide new capacity
- Provides new capacity
- Very expensive, and paid all upfront

- A coverture is a financial agreement offering protection to the PE investor against depreciation of an EM currency against a DM currency.
- The buyer of the coverture is paying an up front cost on the notional PE investment and earnings amounts that covers the value of the interest rate differentials that exist going out over the long term between the EM and DM currencies. The coverture buyer is in effect paying up front for the impact on the investment of the market-expected depreciation of the EM currency against the DM currency.
- The coverture has a precise term, and offers payment for depreciation risk past an agreed upon forward exchange rate. If the EM currency depreciates beyond what was expected in the initial costing, the purchaser will be reimbursed in DM currency for any loss associated with the unexpected depreciation.
- The coverture could be srtuctured suchthat the buyer could receive some reimbursement of cost back, if the path of EM currency depreciation does not exceed that which was expected by the market when the coverture was initially priced.

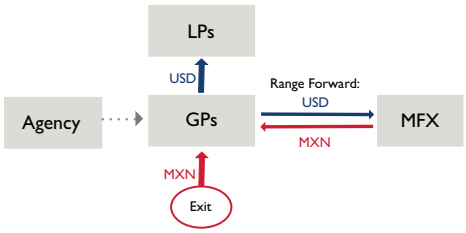


Range Forward
Pricing Example:
Mexican Peso/USD
Current Spot: 18.03
7 year USD call vs MXN
Strike: 27.01
Implied depr'n: 49.76%
Premium: 8.90%

MXN 7 year USD Put vs MXN
Strike: 18.03
Implied depr'n: 0%
Premium: 1.56%

- At the end of 5 years the buyer of the call has the right - but not the obligation - to buy USD vs MXN at a strike of 27.01 regardless of how high the current spot goes
- GP has locked in an exchange rate; has covered his downside risk beyond the 50% or 7% p.a.
- BUT: to get the lower pricing, the seller of the put must sell USD if required - this will only happen if the MXN appreciates beyond the strike price. Agency support is requested for this side of the trade to remove delivery obligation. Note that in a MXN appreciation environment, equity returns are likely to be better. Thus Agency may only need to take a portion of the put risk.

- For Ems with available option market liquidity, there is the possibility of structuring the use of European style call and put currency options to result in compensation to the PE investor when the EM currency depreciates against the DM currency.
- The cost of the call options protection may be offset by selling put options to create a range within which currency protection exists. The investor may be exposed to additional costs if the EM DM exchange rate moves such that the puts gain value and get exercised.
- There is typically limited availability for long dated EM currency options, where liquidity may make pricing prohibitively expensive.

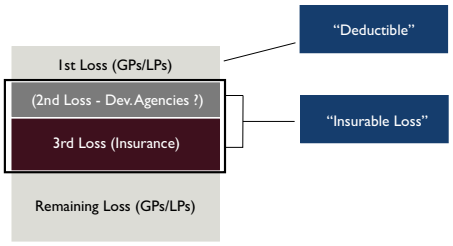


Annex C: Insurance company – indicative/early proposed terms and structure

Insurance Structure

- Proposed insurance product would cover both political risks and devaluation risks
- The range of devaluation cover is still TBD
- Reinsurance capacity is key to the potential implementation of this product
- Levels could be expanded by Agency risk capacity

- An insurance approach could tailor protection against unacceptable loss. The approach requires establishing trigger point(s) where loss protection kicks in.
- This approach involves insurance companies using their capital and capacity to re-insure, as well as their capacity to lay risk off in the capital markets.
- Insurance companies have access to resources to assess and price EM currency depreciation risk.
- Involvement of other important agency participants (e.g. Donors) to take on risks could bolster the approach and encourage more PE investing in EMs

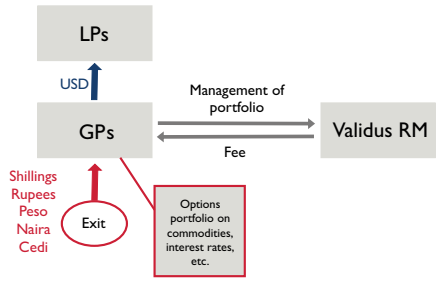


Annex D: Validus Risk Management – tailored proxy portfolio – indicative details and proposed structure

Proxy Portfolio Structure

- Annual fee from GP used to purchase a tailored proxy portfolio of options, which are chosen based on specific countries involved to move in the inverse way that the local currencies move
- Adjusted on a periodic (e.g., annual) basis as trailing correlations are reported
- Involves detailed analysis of country economics and quantitative models

- The PE investor may acquire protection from EM currency depreciation by establishing a portfolio of options and/or forward positions on liquid, marketable underlying assets whose value changes such as to offset the depreciation (in this case, only options are purchased).
- This approach requires identifying hedge elements having the desired behaviour, based on statistical techniques. Such a portfolio would require monitoring and active management to rebalance positions as necessary to ensure the offsetting behaviour effectively functions.
- This approach avoids direct hedging issues that characterize EM currencies. Costs are kept low due to use of liquid, marketable options.
- This approach involves the investor absorbing a certain level of risk that cannot be diversified away through the use of proxy hedging. The level of cost and protection can also be adjusted by altering the degree of protection by adjusting option strike prices.
- This approach avoids the use of forwards, and could take advantage of American style options, in order to provide flexibility needed for uncertain E investment exit tenors.



Annex E: List of Acronymns

DFI - Development Finance Institution

EM - Emerging Market

GP - General Partner

IFC - International Finance Corporation

IRR - Internal Rate of Return

LC - Local Currency

LP - Limited Partner

MDB - Multilateral Development Bank

OECD - Organization for Economic Cooperation and Development

PE - Private Equity

PRI - Political Risk Insurance

RFP - Request for Proposal

TCX - The Currency Exchange Fund

VRM - Validus Risk Management

Photo: Anton Ivanov Inle Lake, Myanmar

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