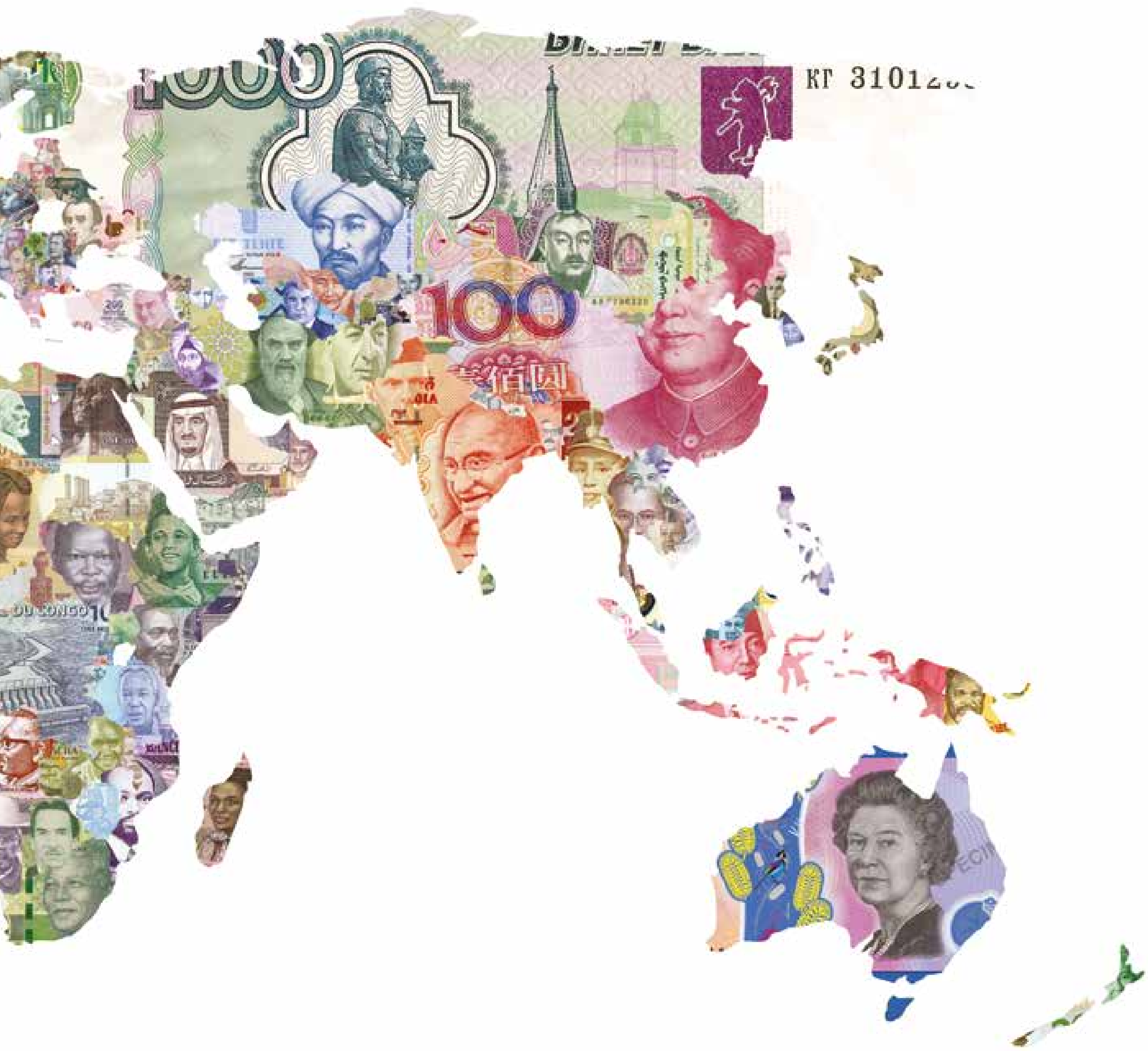
The development impact of local currency solutions

An evaluation of 10 years TCX



TCX

CARNEGIE CONSULT

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“Impact of the depreciation for the bank’s clients was severe.
Thousands of micro and small enterprises ran into financial distress as nearly all dollar-borrowing clients defaulted on their loans.”

“MFIs were able to on-lend their international borrowings in local currency to their clients. The sharp depreciation was absorbed by TCX and did not affect the end-borrowers. No increase in credit defaults was observed for these MFIs.”

About Carnegie Consult

Carnegie Consult is a Netherlands based specialised development finance consultancy. Our team offers fully independent advisory services to (semi-) public organisations, financial institutions and donors. Carnegie focuses on advising at the intersection between the private and public funding markets. Our clientele consists of a wide range of international development finance institutions as well as governmental bodies, semi-public entities and also private funds. We have significant experience in setting up and consulting on innovative financial structures and also in the evaluation of public investments in the private sector in developing countries.

Introduction

In 2017 TCX celebrates its 10th year of operation. To highlight this occasion and to report to the donors on the use of their funding, TCX has commissioned Carnegie Consult to conduct an evaluation of this period. While the periodic financial and impact reports of TCX contain ample information on the volumes, breadth and relevance of TCX's activities, this evaluation provides an independent in-depth assessment of the added value of those activities. This report will demonstrate the impact of TCX's interventions on the direct and indirect recipients of development finance provided in local currency with support from TCX. These are the entrepreneurs and financial institutions and their borrowing clients in developing countries.

This report summarizes the findings of the full evaluation that was conducted, which is available upon request from TCX. The conclusions presented to you are based on academic literature on currency risk in developing markets and its consequences, on our own analysis of various independent data sources, and on three field missions, to Azerbaijan, Kenya, and Ghana. This approach has allowed us to verify theory with practical examples and to combine a top-down portfolio approach with a local assessment of the manner in which TCX has made end beneficiaries more resilient to currency depreciations.

We would like to thank Prof. Dr. Brown and Dr. Gietzen of the University of St. Gallen for their valuable contributions to our evaluation.

The risk of currency shocks in developing countries is high. Yet, most development finance is still provided in dollars. This evaluation shows that the impact of currency depreciations on borrowers in developing countries is much smaller for those who have financed themselves in their own currency. Although financial institutions generally match their currency positions, this is often achieved by passing on the risk to their borrowers. These enterprises and households face significant challenges in meeting their debt obligations after depreciations. This results in higher credit risk for the financial institutions as default rates increase significantly among dollar borrowers after a depreciation. The development finance loans that were hedged by TCX have reduced the financial risk for developing country borrowers, thereby making them more resilient to currency shocks.

We sincerely hope you will enjoy reading this report.

Carnegie Consult

Alwin de Haas
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About TCX

The objective of The Currency Exchange Fund (TCX) is to promote local currency financing to reduce the currency risk that arises when international investors provide debt to borrowers in developing countries. This currency risk arises if the investors can only provide hard currency loans while the developing country borrowers generate cash flows - and therewith debt servicing capacity - in local currency.

TCX supports development finance (i.e. long term international funding as a necessary supplement to domestic funding) by providing currency hedging instruments that absorb this currency mismatch. These instruments enable development finance institutions to provide their borrowers with finance in their own currency. As it is generally the entrepreneurs in the developing markets that would otherwise bear the currency risk, TCX, by eliminating this risk, contributes to more sustainable development in those countries.

TCX was founded in 2007 by a group of development finance institutions (DFIs), specialized microfinance investment vehicles (MIVs) and donors to offer a solution to manage this currency risk that did not broadly exist until then. The current investors in TCX are 22 multi-lateral and bilateral DFIs and MIVs, and the Dutch and German governments. TCX focuses on providing currency solutions for its investors. These have accounted for over 90% of the volumes transacted by TCX to date. The remainder is primarily provided through commercial banks to make local currency finance available to their borrowing clients in developing countries.

TCX operates on the basis of the following principles

- additionality: provide solutions where markets are thin or inexistent;
- risk-reflective pricing: price in accordance with prevailing market rates and methodologies;
- non-speculation: only hedge actual underlying exposure to the real economy.

TCX acts as a market-maker in currencies and maturities not covered by commercial banks or other providers, notably where there are no offshore hedge markets, no long-term hedging products, or, in extreme cases, no hedge markets at all. This implies generally that TCX itself cannot hedge the currency risk that it assumes and must bear and manage the open positions that it takes. The fundamental risk management tool that TCX deploys is diversification of its portfolio over a large number of currencies worldwide. Because TCX pools the currency risk related to the lending activities of multiple institutions that are active globally, it can achieve diversification levels that no institution can achieve on its own. This diversification model is backed -up by a strong capital base provided by the investors.

TCX's activity has gradually increased over the first 10 years of operations and currently spans nearly 70 currencies in Sub-Saharan Africa, Eastern Europe and Central Asia, the Middle East & North Africa, Asia, and Latin America.

10 years TCX

USD 4 billion
of development finance loans converted into local currency

54 currencies
across five regions globally

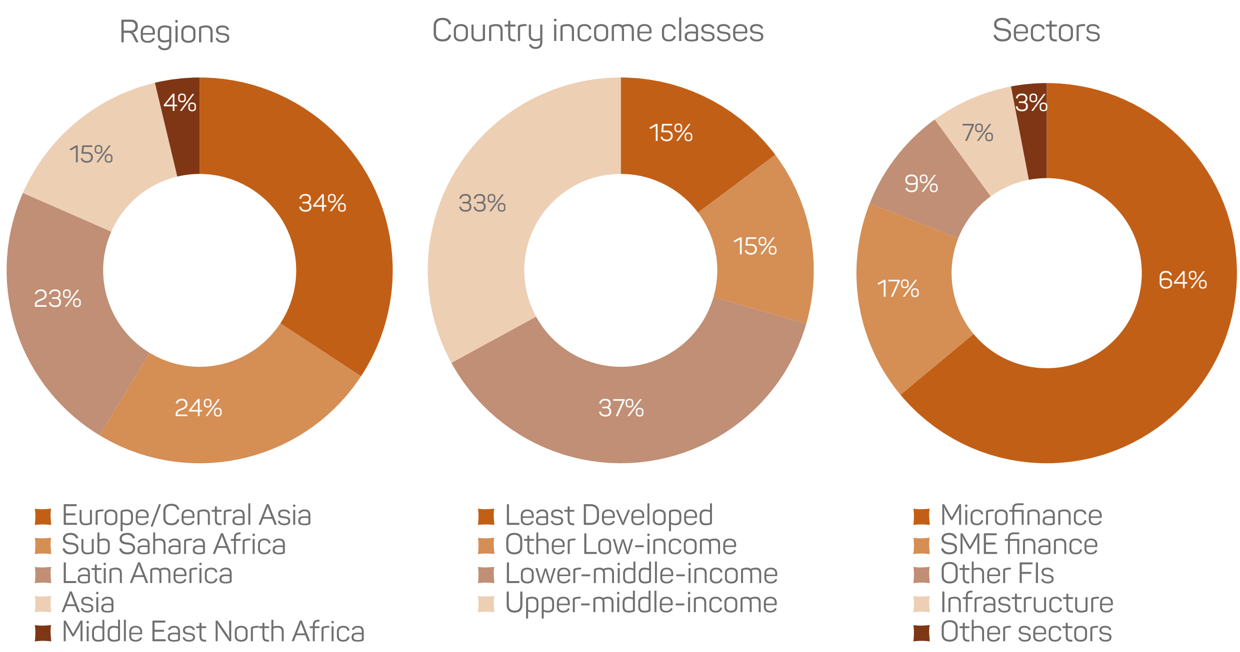
3 widespread emerging market currency crises absorbed

more than a million
loans to local enterprises and households shielded from currency volatility

an estimated **one million**
jobs created by development finance loans made more resilient

whilst operating on a self-sustainable basis and preserving its capital base

Breakdown of development finance loans hedged by TCX since inception



The relevance of currency risk

Currency volatility in developing countries is high, both in expected and unexpected terms

With what frequency can investors, financial institutions and entrepreneurs in developing countries expect to be confronted with high or unexpected currency volatility? An analysis of low and middle-income countries since the end of the Bretton Woods system in 1971 is displayed in the chart on the next page. Out of the 95 currencies included, nearly two-thirds experienced at least one year with over 50% depreciation, while nearly all currencies had at least one year with over 20% depreciation. In terms of overall frequency, one out of every eight developing currencies showed a drop of 20% or more in any given year, whilst one out of every twenty developing currencies dropped by more than 50% versus the dollar in any given year.

Economic theory states that for any two currencies an expected change in the future exchange rate leads to an equal relative difference in the opposite direction between their respective nominal interest rates. Based on this theory, it could be argued that a

Currency volatility in developing countries is high, both in expected and unexpected terms.

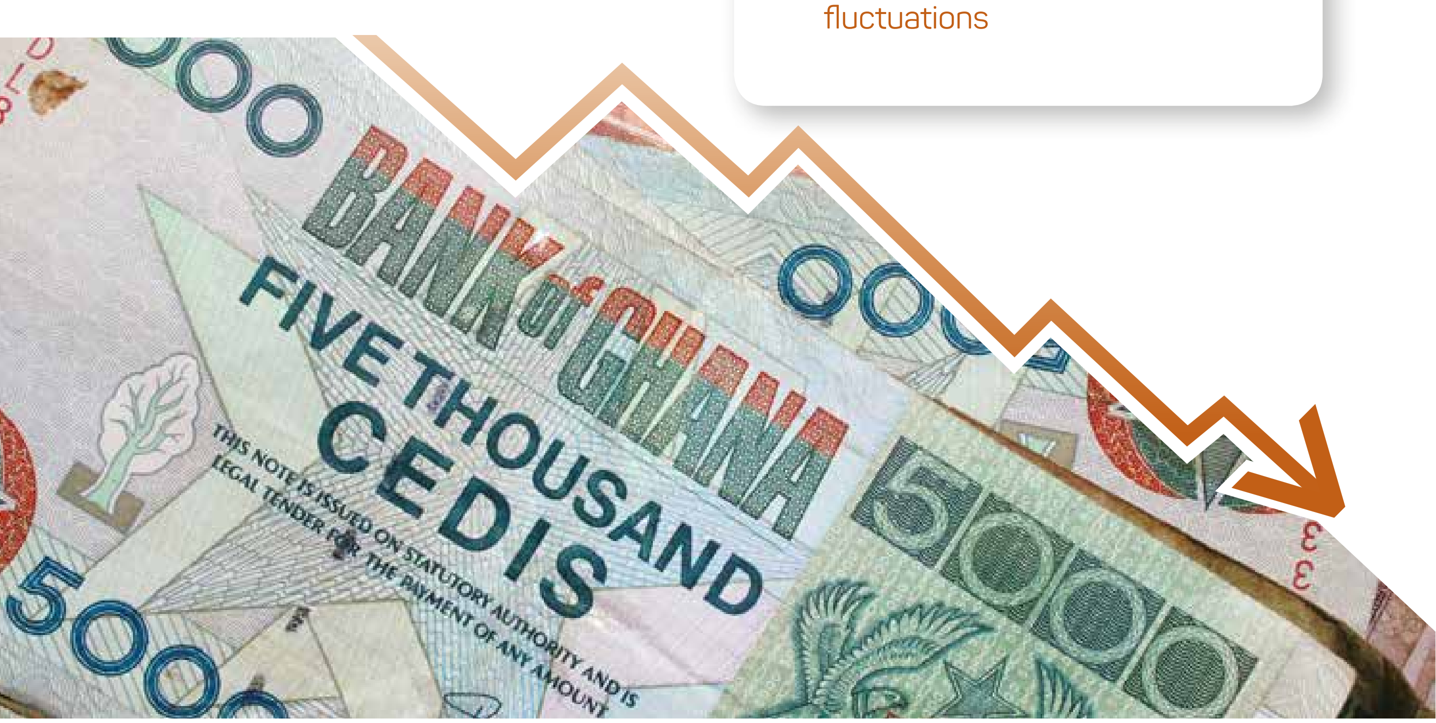
- History shows that every year, one out of eight developing countries experiences an absolute depreciation of over 20% and one out of twenty countries sees its currency drop by more than 50%
- When correcting for expected depreciations, still a significant unexpected volatility remains

Development finance is predominantly provided in dollars

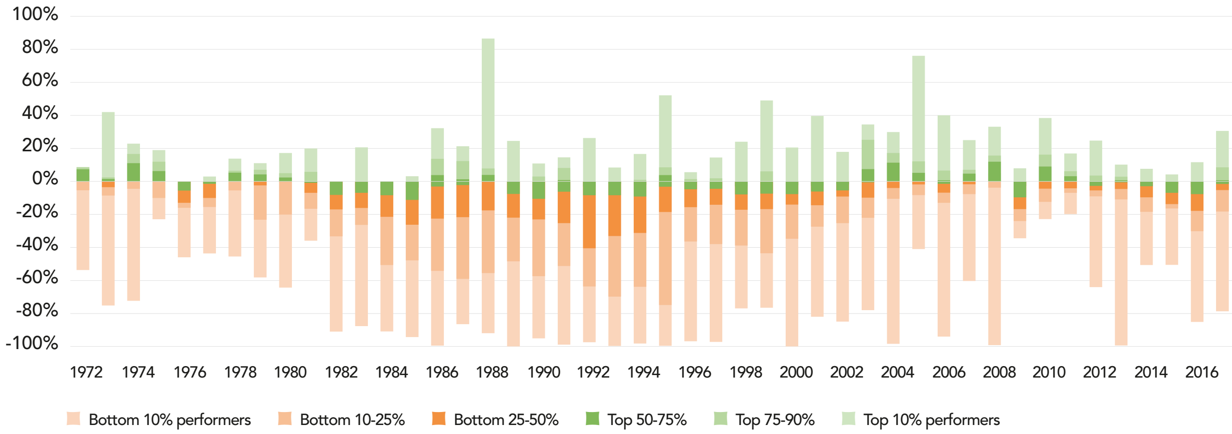
- Even to the microfinance sector 65-85% of lending is still done in dollars
- Financial institutions do not retain this currency risk, but match it with dollar on-lending

Currency mismatches result in higher borrower defaults and financial sector instability

- Foreign currency lending results in higher credit defaults after exchange rate fluctuations



Annual fluctuation of 95 developing country currencies



developing country borrower who takes on a dollar loan can at least protect himself against "expected currency volatility" by setting aside the corresponding difference between the interest rates in dollars and in local currency. This would leave him exposed to the "unexpected currency volatility" only. When correcting for expected volatility for a subset of 66 currencies over a twenty-year period, the overall frequency of high (>20%) or severe (>50%) depreciations reduces by only 3.5 and 0.5 percentage points respectively. Thus a significant unexpected volatility remains that can have an adverse impact on borrowers.

Development finance is predominantly provided in hard currency

Development finance plays a crucial role in providing long-term funding to the productive sectors of developing countries to fuel sustainable economic growth, thereby creating jobs that lift people out of poverty. Today the aggregate assets held by the ten largest Multilateral Development Banks amount to over a trillion dollars, and these are still primarily provided in dollars to developing countries. For the more developed emerging markets, the currency risk can often be hedged with commercial banks. Where this is not possible, TCX can provide a solution. And in some cases, also internal mechanisms have been developed to absorb currency risk. Still, local currency financing accounts for only a minor portion of the investment flows.

Zooming-in on the microfinance segment in particular, various studies estimate that 65-85% of cross-border debt from DFIs and MIVs to microfinance institutions is still provided in hard currency. Recent research by Dr. Gietzen from KfW Development Bank's Evaluation Department on the exposure of MFIs to foreign exchange-, liquidity- and interest rate risk provides insight into the consequences. MFIs on average are faced with close to 30% of their liabilities in foreign currency, ranging from as low as 5% in Africa to over 40% in Eastern Europe and Central Asia.

MFIs counterbalance these liabilities with an equal level of foreign currency assets. Although this results in a very limited open currency position for the MFI directly, the currency risk is shifted further down the chain. This pattern was consistently found across regions, and even for the banking sector in general.

Currency mismatches result in higher borrower defaults and financial sector instability

This has been the consistent conclusion across studies researching different time periods, countries, and types of borrowers. Foreign currency lending results in financial distress and higher corporate credit defaults after exchange rate fluctuations, implying that corporates do not adequately mitigate the exchange rate risk themselves when borrowing in foreign currency. Similarly, households are found to not properly hedge themselves when borrowing in foreign currency. For financial institutions with a large share of foreign currency loan portfolios, this currency-induced credit risk then spills over to a bank crisis, or even a financial sector crisis for countries where foreign currency lending has been common practice among multiple banks.

Theory of Change

The primary objective of TCX is to remove the currency risk that can arise in the development finance chain. This evaluation focuses on the development impact of this primary activity. In addition, TCX conducts a range of ancillary activities to promote local currency finance for developing countries, and the market-making role of TCX also has secondary benefits. The additional impact of such activities or second order effects are not in scope of this report, and the development impact that is assessed herein is limited to the primary objective of TCX.

Currency risk can arise in the development finance chain due to a difference in the currency of the loan that the DFI/MIV can provide and the earning currency of the end-borrower. We distinguish two channels in this financing chain. Most transactions that TCX has hedged so far, take place through the "indirect channel" whereby DFIs or MIVs extend funding to a local financial institution that on-lends the funds to an end-borrower. Alternatively, DFIs can extend loans directly to local businesses or projects, which constitutes the "direct channel". Without TCX and in the absence of alternative hedging solutions, one of the parties in the chain is facing the currency risk.

The Theory of Change shows step-by-step how TCX adds value by taking this currency risk out of this chain. Before defining this theory of change, two critical abstractions are made about the loans that are extended by counterparties of TCX to developing country borrowers (the "underlying loans"):

- Abstraction 1: The underlying loans have a positive development impact.
- Abstraction 2: The underlying loans will take place, whether TCX provides hedge instruments or not. As TCX is virtually the only party providing these hedges, the loan would otherwise have been provided in hard currency.

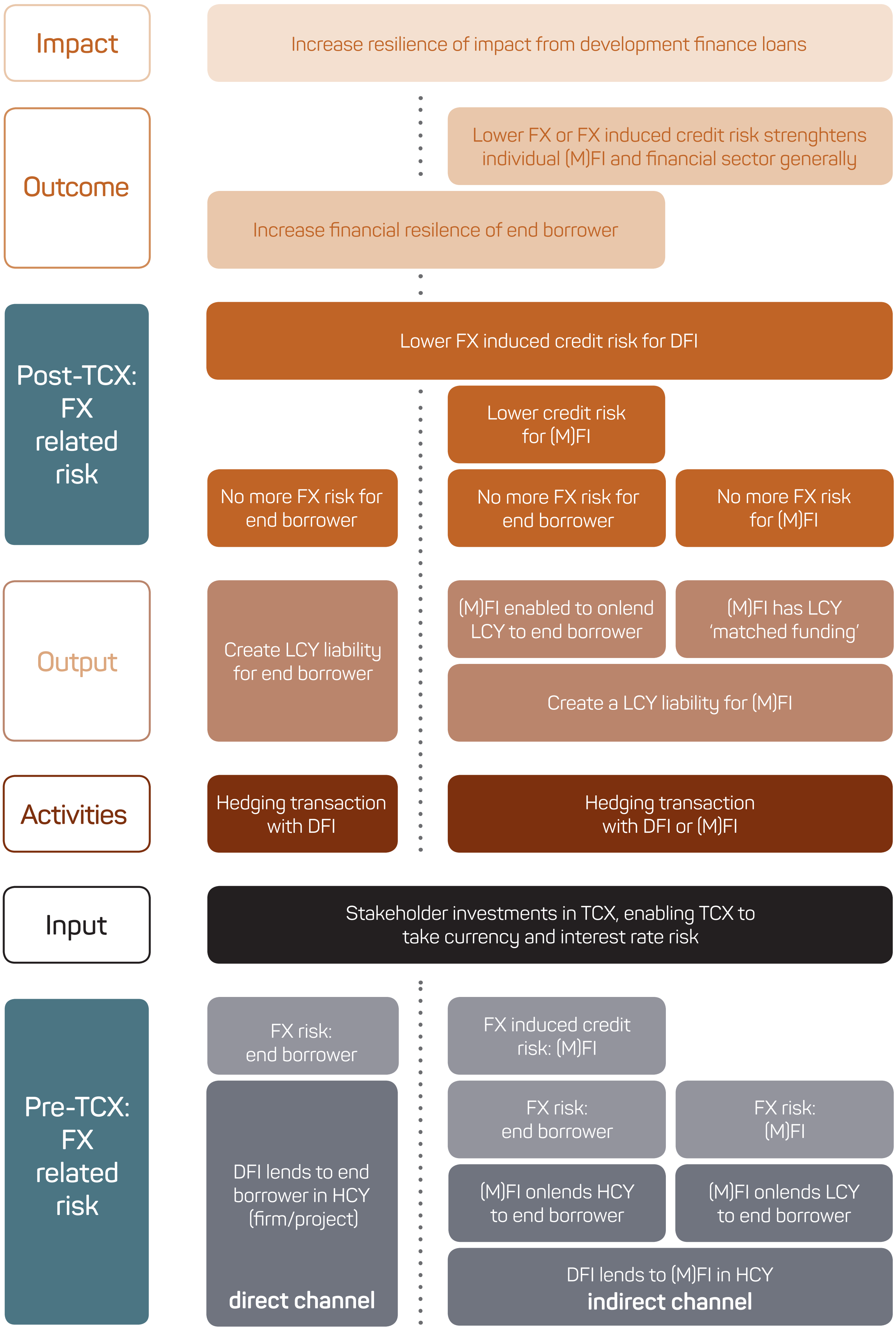
These abstractions enable us to describe the impact of TCX in a clean fashion. The first abstraction means that we do not have to allocate the development impact between the lender and TCX. The second abstraction means that we will not conduct an analysis to determine whether the existence of TCX leads to more lending to developing country borrowers. While this may be the case in some instances, this is not the main premise behind TCX. The main development impact premise of TCX is the positive effect of de-risking developing country borrowers by removing currency volatility.

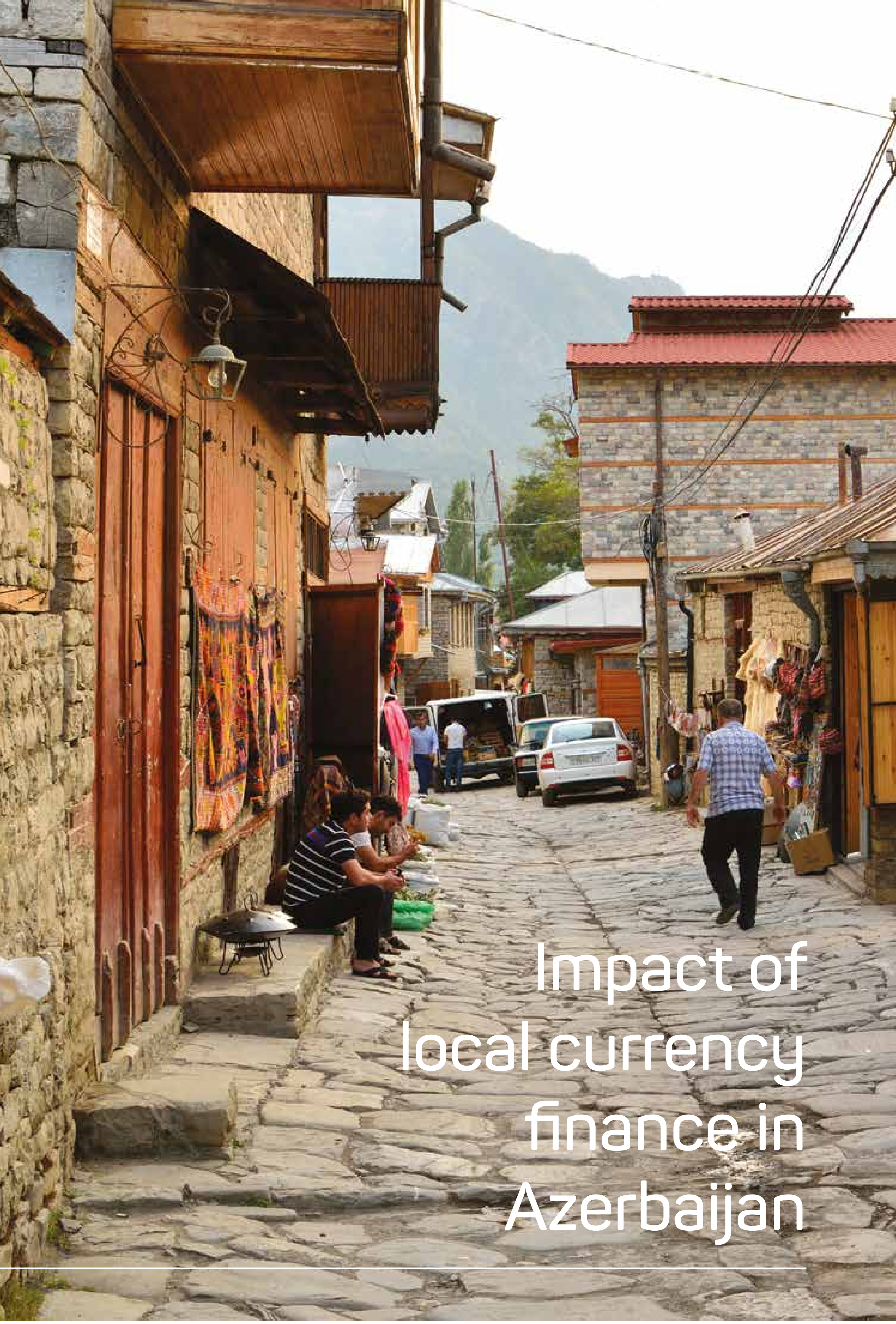
The Theory of Change shows how the currency risk mitigation provided by TCX enables financing in local currency throughout the financing chain. The benefits of this intervention are highlighted in the orange boxes in the chart on the next page

- No more currency mismatch for end-borrowers
- De-risking local enterprises and consumers
  - de-risking local financial institutions due to lower end-borrower defaults
- No more currency mismatch for local financial institutions
  - de-risking (M)FIs by providing them with a tool to achieve "matched funding"
- De-risking end-borrowers and (M)FIs lowers credit risk for DFI and MIV shareholders of TCX

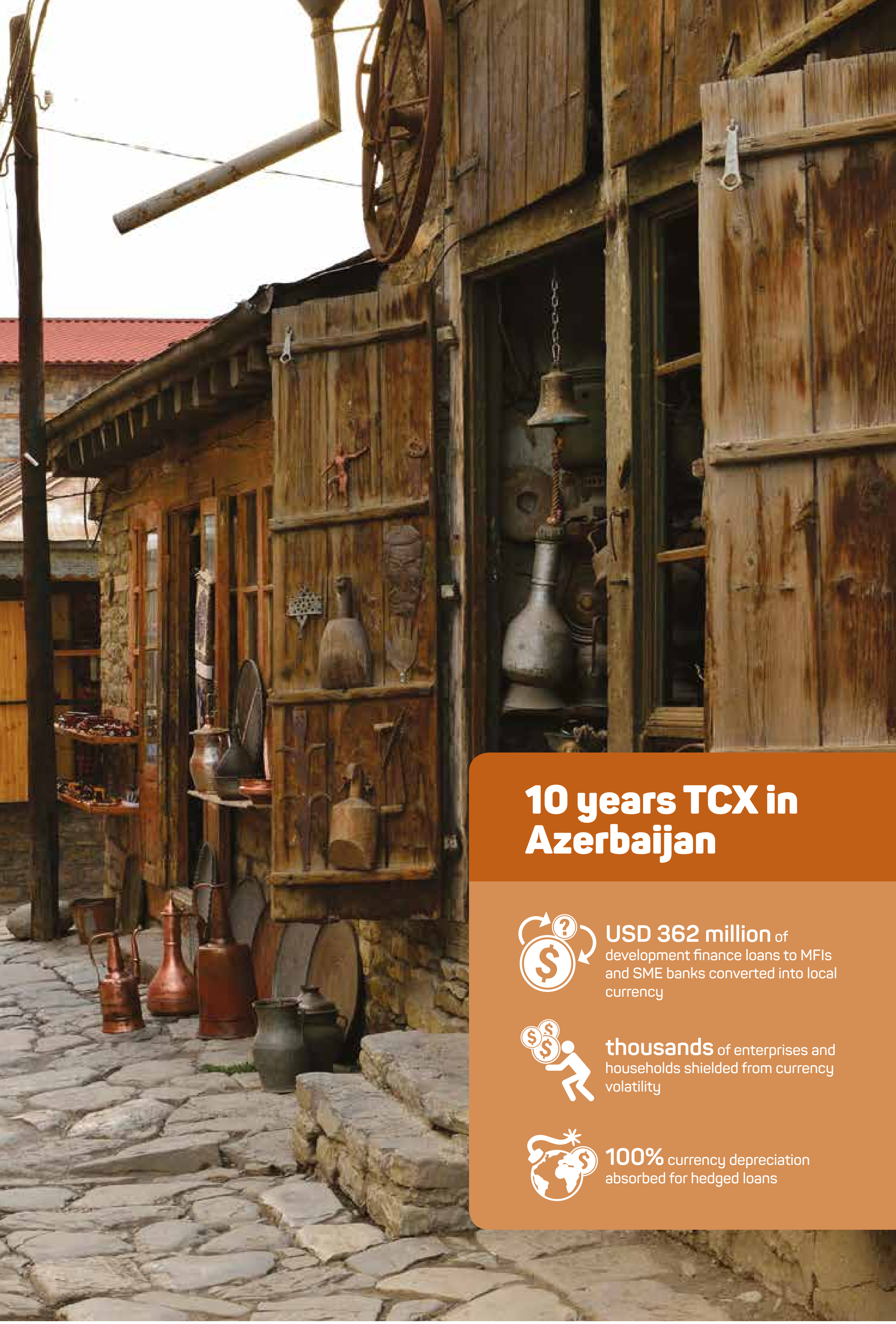
With the liability of the borrower in local currency, the currency risk is eliminated and the borrower becomes resilient to currency shocks. In addition, for the lender (being the local financial institution or ultimately the MIV/DFI) the currency-induced credit risk is reduced. Currency shocks will no longer have a direct negative effect on local entrepreneurs and financial institutions, which contributes to a healthier economy and stronger financial sector. The loans that are hedged by TCX, are intended to have a positive development impact. A more resilient borrower will therefore also mean that the development impact generated by the borrower will not be undone by the negative effects of currency volatility. Growth of enterprises and jobs created will remain in place through periods of currency volatility.

TCX Theory of Change





Impact of local currency finance in Azerbaijan



10 years TCX in Azerbaijan

USD 362 million of development finance loans to MFIs and SME banks converted into local currency

thousands of enterprises and households shielded from currency volatility

100% currency depreciation absorbed for hedged loans

Azerbaijan: a stable middle-income oil-driven economy

- 15 years of increasing oil prices and high economic growth
- A stable pegged exchange rate that led to high levels of dollar lending

Until in 2014 oil crisis becomes currency crisis

- Sharp decline in global oil prices since 2014 disrupts economy
- Ultimately leading to release of the peg and doubling of the exchange rate

And currency crisis becomes financial sector crisis

- Borrower defaults surged, especially on dollar loans
- Leading to large credit losses and currency exposure for banks
- Eventually becoming a capital and liquidity crisis for the financial institutions

While local currency borrowers and lenders were better able to sustain the downturn

- Default rate on dollar loans was more than double that on manat loans
- Banks with the lowest levels of dollarization were better able to sustain and recover

Economic and currency developments

With a population of nearly 10 million, Azerbaijan is the largest country in the Caucasus. The land-locked country has a resource-driven economy, with oil and gas activities accounting for up to 60% of GDP, 75% of government income and 90% of exports during peak years. After 15 years of high economic growth driven by increasing oil prices, the country climbed up from a Low-income country to an Upper-middle-income country with a GDP per capita of USD 8,000 in 2014. This also allowed the country to maintain a strong peg of its currency, the manat, to the dollar, such that fluctuations did not exceed 5% since 2000. The concept of currency risk faded away in peoples' minds.

The lower oil prices since the second half of 2014 had a strong negative effect on the economy of Azerbaijan. Lower oil revenues erased the current account surplus. Regional growth was also weak and the currency depreciations of its trading partners depressed exports. Ultimately, this also affected the currency as the historical pegged level could no longer be sustained. Two large depreciations took place in 2015 that in total led to a 100% depreciation of the manat versus the dollar, after which the peg was abolished. The government publicly reassured its commitment to the peg until the day before the first depreciation. Confidence in the peg therefore was high and the economy was taken by full surprise.

Consequences for financial institutions and their borrowers

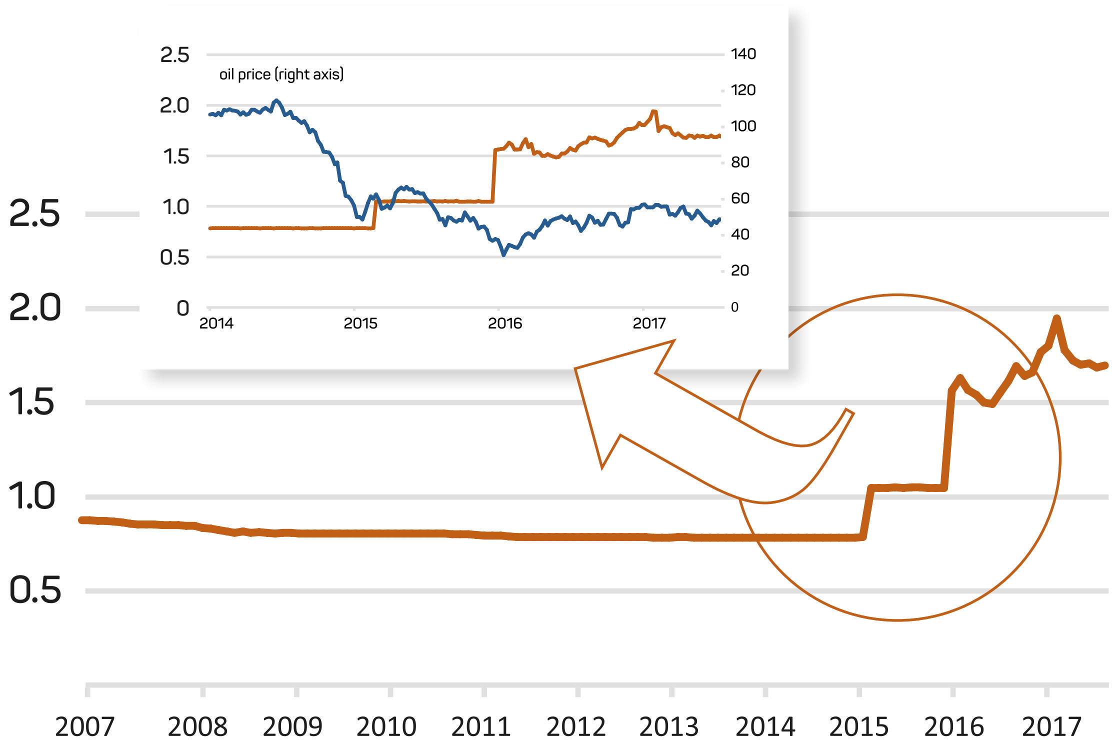
The savings culture in Azerbaijan was characterized by a high level of dollarization, with an estimated 50% of deposits denominated in dollars prior to the release of the peg. Many financial institutions were also used to lend to their clients in dollars, which represented 30% of loans for the banking sector on average, though differences between institutions were substantial.

Dollar borrowing also prevailed among households and small enterprises, despite having their income stream in manat. There are various reasons that led to such high levels of currency risk tolerance prior to the depreciation. On the supply side, high dollar funding rates and lack of regulation made financial institutions willing to provide dollar loans. On the demand side, high confidence in the peg and insufficient awareness that they were effectively borrowing in dollars made borrowers willing to accept the risk. These reasons are explained below.

- High dollar funding rate: Most depositors prefer to hold their savings in dollars, and not all international financiers are able to provide local currency. As the financial institutions prefer to match their currency exposure, this resulted in a high degree of dollar lending.
- Lack of regulation: Only after the crisis, regulation was introduced to limit mismatches at financial institutions and their borrowers. The open currency position for financial institutions is now capped, and financial institutions have been made responsible to ensure that loans are provided in the functional/operational currency of the borrower.
- High confidence in the peg: Strengthened by the strong track record of the peg and vocal commitment to preserve it, borrowers perceived the currency risk as non-existent. In that case the lower interest rates in dollars is perceived as the better alternative economically.

- Insufficient awareness of the dollar risk: Especially in the microfinance segment, dollar-linked loans in manat were common. This made people unaware of the fact they were borrowing in dollars, because they received manat when taking the loan and repaid in manat thereafter. They were thus taking on currency risk without ever having to touch a dollar.

Evolution of Azerbaijan manat per US dollar exchange rate over time

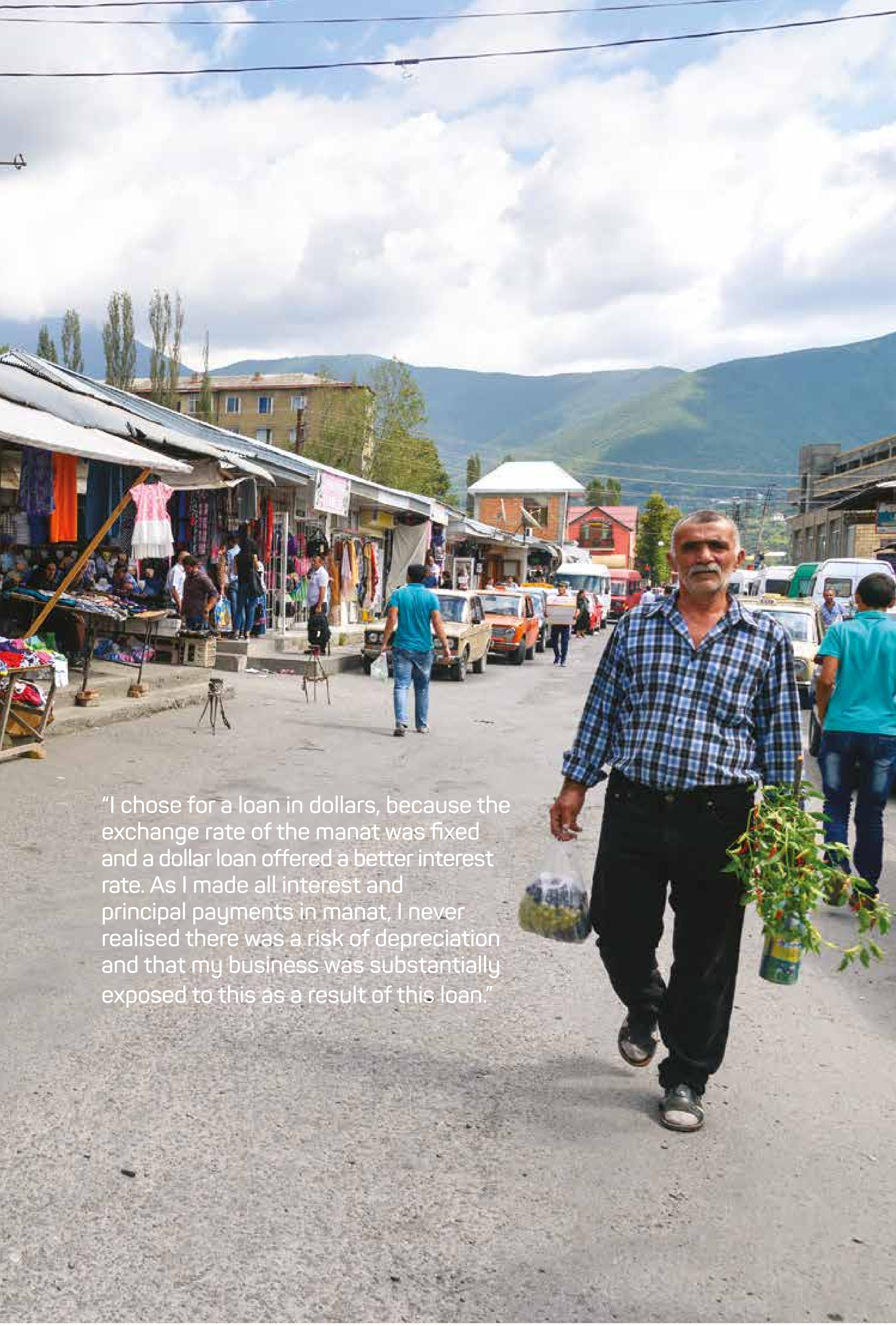


The high confidence in the peg and low awareness of the dollar liability also led to a low level of preparedness for currency volatility, and borrowers had no fall-back.

Over the course of 2015, a total depreciation of 100% suddenly hit Azerbaijan. The consequences of this sharp and sudden depreciation were severe for financial institutions and their borrowers. Households and enterprises with dollar loans saw their financing obligation more than double, leading to financial distress and default. Apart from the financial aspects, it also had a psychological effect on especially the smaller borrowers. As they were not fully aware of the risk, they felt unfairly treated and stopped repaying their loans. This led to a national debate, with the Courts eventually ruling that the dollar loans were legitimate. Although obliged to repay, most borrowers were financially not able to service their obligations on dollar or dollar-linked loans, and defaults on dollar loan portfolios reached levels of 70%-100% for various institutions.

Even financial institutions with a large portion of dollar lending that was matched with a similar level of dollar funding were still severely affected by the depreciation. The immediate effect was pressure on their capitalization, as their dollar portfolio expressed in manat inflated whilst their capital remained equal in manat terms. Simultaneously the loan loss provisions on the existing dollar portfolio became insufficient because of the portfolio inflation in manat terms, and the additional loss provisions further reduced capital. In the weeks or months thereafter, the consequences of the currency-induced credit risk materialized as borrowers of dollar loans started to default quickly and in large quantities. Financial institutions had to provide for these loan losses, thereby further reducing their capital buffer. Gradually, the financial institutions found themselves in a capital crisis, leading to a liquidity crisis and in some cases even default.

The currency crisis turned into a financial sector crisis. Banks had to halt new lending. A number of banks had to be rescued, restructured or even closed, endangering depositors. These effects further fueled the economic downturn of the country. At the same time, end-borrowers with manat loans and financial institutions with limited dollar loan portfolios, proved to be far more resilient to the effects of the depreciation. Credit defaults on manat loan portfolios were substantially lower, and financial institutions providing these loans were able to sustain the macroeconomic crisis faster and better than their peers.



"I chose for a loan in dollars, because the exchange rate of the manat was fixed and a dollar loan offered a better interest rate. As I made all interest and principal payments in manat, I never realised there was a risk of depreciation and that my business was substantially exposed to this as a result of this loan."

The interventions of TCX in Azerbaijan thus had a positive development impact, by absorbing the currency shocks on USD 93 million of outstanding development finance loans at the moment of the first depreciation, which increased to USD 145 million when the second depreciation occurred. This made the financial institutions and end-borrowers better able to sustain the crisis. The interventions of TCX were insufficient to prevent the large-scale credit defaults and financial sector crisis that followed from the depreciation. Despite Azerbaijan being a top-three country for TCX over the past ten years, usage of TCX has been small compared to the USD 20 billion banking sector in Azerbaijan with large parts of its deposit and international funding in dollars.

The impact of local currency financing in Azerbaijan

The sector-wide observations described above are now illustrated with case studies of individual financial institutions and end-borrowers. To demonstrate the difference that local currency financing has made for financial institutions and their borrowers in Azerbaijan, both institutions that received local currency financing (hedged with TCX) and institutions with predominantly dollar funding and lending are included.

The benefits of local currency financing for a mid-sized universal bank

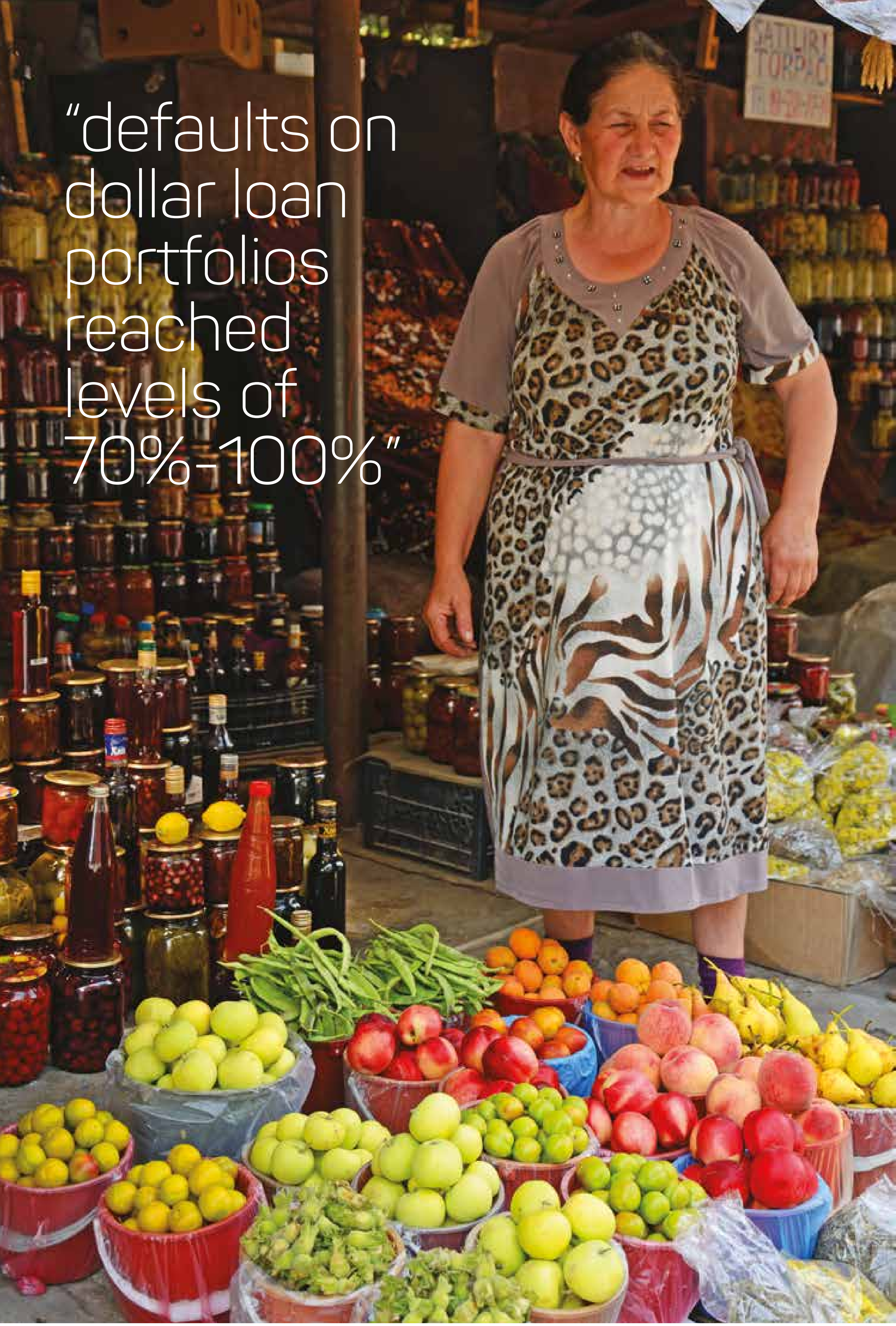
The bank offers typical universal banking services to individuals, SMEs and corporates throughout Azerbaijan. The bank had a solid financial position prior to the depreciation in terms of capital, liquidity and currency mismatches. Their dollar-based lending activity was relatively low – in the context of Azerbaijan – representing about a third of the total portfolio. There were no specific restrictions on dollar lending, and all customer types could be eligible. Customer deposits were the main source of funding, both in manat and in dollars. Debt from international financiers represented 5% of the bank's funding and was obtained in dollars.

Following the depreciation, the bank saw the credit quality of both the manat and the dollar portfolio deteriorate due to the economic slowdown, although deterioration among dollar loans was faster and far more severe, with non-performing loans being twice as high compared to manat loans. During and after the crisis, dollar lending decreased further, in part because the bank started to convert dollar loans into manat after the first depreciation. Subsequently, the institution also converted one of its DFI loans to manat to match its funding with its increasing manat portfolio. As a consequence of the crisis, the bank also faced a significant loss. The bank has been able to recoup from that loss and is currently in a position to resume lending again, far earlier than most of its competitors.

The disruptive effects of dollar lending for a mid-sized MSME bank

The bank offers loans, deposits and other financial services to micro, small and medium-sized enterprises in Azerbaijan. The main segments of their lending activities were microloans, SME loans and mortgages. The bank was adequately capitalized prior to the downturn. It predominantly provided loans in dollars, which accounted for over 70% of its loan portfolio. Dollar loans were offered across all products, to enterprises as well as households. Its funding mix consisted half of deposits and half of borrowings, whereby the borrowings were split equally between local and international investors. The international financiers primarily provided dollar funding, with one exception where the loan was provided in manat and hedged by the lender with TCX.

Impact of the depreciation for the bank's clients was severe, as these were almost without exception Azeri businesses. Thousands of micro and small enterprises ran into financial distress as nearly all dollar-borrowing clients defaulted on their loans. Manat borrowers also suffered, though not as significantly. In some cases defaults on the manat loans were caused by borrowers that simultaneously had dollar loans outstanding with other financial institutions. The resulting loan losses caused the bank to undergo a major restructuring.



"defaults on dollar loan portfolios reached levels of 70%-100%"

The unintended consequences of dollar funding to a small MFI

The MFI offers unsecured consumer loans, mortgage loans and small business loans up to USD 300,000. Loans are offered in manat and in dollars and the portfolio is spread in equal proportions. International lenders are an important source of funding for the MFI, which obtained all its borrowings in dollars. Loan documentation would even explicitly require the MFI to on-lend the funds in dollars to its clients, limiting a mismatch at the level of the MFI whilst forwarding the currency risk to its individual and small business borrowers.

The MFI did not perceive its practice as a problem, as it relied on the peg and did not expect a depreciation to occur. When it came, the dollar borrowers were severely impacted and the default rate surged to 80% on the dollar loan portfolio. Although manat-borrowers were also impacted by the macroeconomic situation, this was far less severe and defaults stayed within a 10-15% range. The MFI prudently protected itself against credit risk by issuing well collateralised loans, for a large part mortgages on private homes. Recoveries are therefore expected to be relatively high, although this may again push the problem down the chain, as individuals and families may lose their homes.

The impact of regulation for a leading microfinance institution

The MFI provides socially responsible financial services to low-income individuals and micro-entrepreneurs outside of the capital Baku. The institution primarily conducted its lending activities in manat and funded this in local currency to avoid currency exposure. The international borrowings it obtained were mainly provided in manat, with the support of TCX. The institution thus seemed adequately positioned for the depreciation.

However, one of the measures taken by the regulator after the depreciation was the introduction of an interest rate cap on manat loans, that was only marginally above the average level of its manat funding costs. The remaining spread was insufficient to cover all operational and risk costs, hampering profitability on top of the other effects from the economic slowdown and depreciation.

The impact on Azeri enterprises

The owner of a small clothing store in Azerbaijan had built a successful business. Early in 2015 the entrepreneur sought a loan from an MFI to finance his business growth. Since he sells his merchandise in manat to the local population, he preferred to borrow in manat. However, at that time the MFI was short in manat liquidity and could only offer him a loan in dollars. Since he needed to fund his business, he decided to take the dollar loan. One week later, the first depreciation took place and he faced a 35% increase in the interest and repayments on his loan. To be able to service his loan, he had to abandon his plans for opening a new store and let go of one of his employees. He went to the MFI and was able to restructure his loan into a manat loan. Although this did not solve the 35% increase that he faced from the first depreciation, it did protect his business from the second depreciation later that year. That could have caused another 50% increase in his repayments, but due to his conversion into a manat loan his business felt no further consequences.

The owner of a small jewellery store in Baku finances his business with loans from MFIs. Since he never expected the depreciation or the consequences it would have for his business, he always obtained his finance in dollars. In 2015 he was surprised with the two depreciations and the sudden impact of his borrowing behaviour on his business. His debt obligations had doubled, and he had to scale down his inventory and the square meters of his store space. Two years later, he is still repaying the loan.

A clothing importing and retailing business with 16 stores in Greater Baku was seeking to expand his business. The owner obtained two dollar loans in 2014 for a total amount of USD 116,000 with a tenor of 2 years. The proceeds were used to invest in the opening of two new stores and purchase the necessary inventory. A year later he was caught unaware by the depreciation, especially since all his payments on the loans had taken place in manat. The interest and repayments that he needed to make on his loans, had now doubled. He went to his lender to seek a solution, who was only willing to give him a small compensation for the loss. As a result he had to sell 8 stores to be able to repay his debt. Under protest he continued to fulfil his obligations because the MFI had a mortgage on his home.

Impact of local currency finance in Ghana and Kenya

10 years TCX in Ghana and Kenya

Ghana	Kenya
USD 74 million of loans to MSME financiers converted into local currency	**USD 146 million** of loans to MSME financiers converted into local currency
thousands of enterprises and households shielded from currency volatility	**thousands** of enterprises and households shielded from currency volatility
291% currency depreciation absorbed for hedged loans	**63%** currency depreciation absorbed for hedged loans

Dollar borrowing is practically non-existent among households and small enterprises

- General level of dollarization is modest
- In Ghana this is further enforced by regulation on dollar-lending

Microfinance institutions in general strongly prefer funding in their own currency

- Their loan portfolios are in their own currency
- and they are reluctant to take a currency mismatch on their own balance sheet

The loans from DFIs/MIVs that were hedged by TCX, would not have been accepted by the local financial institutions without a currency risk solution

Economic and currency developments in Ghana

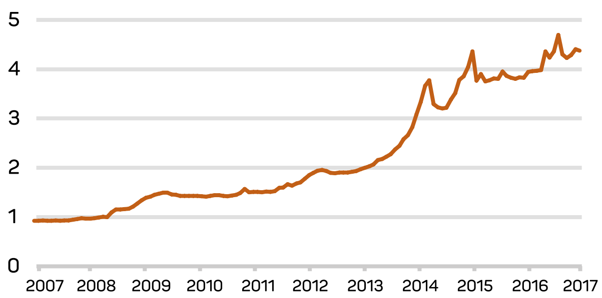
Located in West-Africa, Ghana has a population of approximately 28 million inhabitants. After three decades of solid economic growth, Ghana became a Lower-middle-income country in 2014 and GDP per capital today reaches nearly USD 1,500. The economy is driven by a mixture of natural resources and agriculture which employs more than half of the workforce.

The government followed a floating exchange rate regime since the mid-1980s and the Ghanaian cedi experienced occasional periods of high volatility since then. Dollar lending and funding in the financial sector represent 25-30% throughout the years. Demand for dollar loans among households and small enterprises is limited, whilst in certain corporate sectors dollar funding is more common and (at least partially) in line with their dollar earnings.

The cedi came under pressure in 2012 and depreciated even more steeply in 2014 and 2015 with a 60% depreciation over this two-year period. In response, the Central Bank introduced several measures. Banks were forbidden to grant foreign currency loans to non-foreign currency earning customers. Financial institutions were banned from issuing cheques on foreign currency accounts. And all undrawn foreign currency-denominated facilities should be converted into local currency-denominated facilities. This increased the Central Bank's grip on the availability of foreign currency within Ghana and re-established the cedi as core currency.

Especially in the microfinance sector, dollar borrowing is practically non-existent. Borrowers are provided with cedi loans, in line with their cedi earnings and as further enforced by regulation. MFIs in general only accept funding in cedi, to match their lending activities. In some cases, this is further enforced by internal policy, regulatory restrictions or requirements by the funder. Given those circumstances, the USD 74 million in loans provided to the microfinance sector in Ghana that were hedged by TCX, could not have been provided in the absence of a solution to absorb the currency risk.

Evolution of Ghanaian cedi per US dollar exchange rate over time



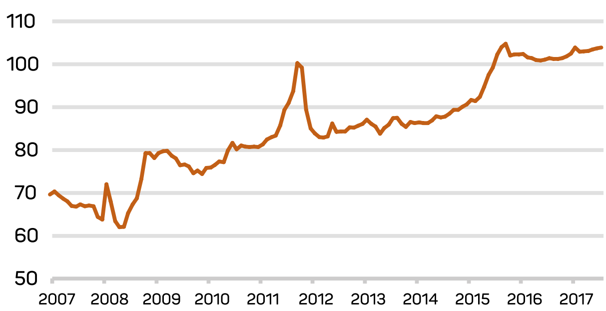
Economic and currency developments in Kenya

Kenya, with nearly 50 million inhabitants and a diverse economy, is the largest economy in East Africa. The economy is driven by agriculture (tea and horticulture) and tourism. After nearly four decades of volatile but positive economic growth, GDP per capita reached USD 1,500 and the country reached the status of Lower-middle-income country in 2016.

A floating exchange rate regime was adopted for the Kenya shilling in 1990, and the currency has followed a gradual path of depreciation with some periods of increased volatility. Dollarization in the financial sector was low 10 years ago, when only 15% of lending was done in foreign currency and has gradually increased to the current level of 25%. Regulation on currency

"The depreciations were absorbed by TCX and did not affect the end-borrowers" exposure is limited to the level of financial institutions, for which the permissible currency mismatch on its own balance sheet is capped. There is no specific regulation concerning mismatches at end-borrower level, though the financial sector normally only offers dollar loans to dollar-earning customers as part of their internal risk management. Lending to households and small enterprises is therefore predominantly done in shillings.

Evolution of Kenyan shilling per US dollar exchange rate over time



The impact of local currency financing in Ghana and Kenya

The development finance loans that TCX hedged in Ghana and Kenya all supported micro and SME financiers, for a large part coming from MIVs. The case studies below focus on the impact of local currency financing in the microfinance sector. Beyond microfinance, the large development finance flows into the countries are primarily provided in dollars. It was not in the scope of this evaluation to assess for those sectors whether and where in the value chain currency risk may occur, and to what extent these actors are able to absorb that risk.

Expansion of microfinance lending supported by TCX

To obtain a sample of the beneficiaries of loans hedged with TCX in the microfinance sector, two MFIs in Ghana and four MFIs in Kenya were visited. This includes deposit taking and non-deposit taking institutions of various sizes, all servicing micro, small and medium sized enterprises and households in urban and rural areas. Some MFIs specifically target rural farmers, others provide educational loans, or focus on women-owned businesses only.

The common denominator among these MFIs is that they only provide loans in Ghanaian cedi or Kenyan shilling to their clients. These loans are all funded with cedi and shilling liabilities, originated from local deposits and international borrowings that were hedged with TCX. Only one MFI, the largest in the sample, also attracted part of its international funding in foreign currency, though keeping the exposure small relative to its size to manage the risk. It keeps the dollar funds for liquidity purposes and does not on-lend it to its clients. Apart from this, all institutions visited accept only funding in local currency as a matter of policy. This applied to MFIs that were largely funded by deposits as well as to those relying mainly on international borrowings.

These MFIs were thus able to on-lend their international borrowings in local currency to their individual and business clients. The 73% shock depreciation in 2014-15 in Ghana and the gradual depreciation in Kenya were absorbed by TCX and did not affect the end-borrowers. The cedi or shilling amount they had to repay on their loans remained equal. No increase in credit defaults was observed for these MFIs over the period of sharp depreciation. Since the MFIs themselves were also not exposed to currency risk, they had the same neutral experience during these periods of currency depreciation as their borrowers.

The impact on African enterprises

Bob Aluminium is a small aluminium processor in Ghana with 9 employees and has been in business for well over 15 years. The owner travels to China several times per year to inspect and purchase new aluminium products and related materials. Thereafter the goods are put on transit for six weeks before arriving in the port of Accra. As a commodity, the price for aluminium is set globally in dollars and fluctuations are filtered through to the Ghanaian market. The price for the company's end-product in cedi fluctuates with the aluminium price. Bob's income stream is in cedi and so are all its other costs. In other words, while Bob may be naturally hedged against aluminium price volatility, he has no natural hedge against Cedi volatility. The owner for that reason elected to borrow from his MFI in cedi. As a result of that decision, the business was largely insulated against the effects of the 2014-15 depreciation.

Managing currency risk in renewable energy

Distributed energy services companies (DESCOs) operate at the intersection of the microfinance and renewable energy markets. One such DESCO sells solar home systems in Kenya, Tanzania, and Uganda. The starter package includes a phone charger, a radio, a torch and light bulbs. These sustainable off-grid energy solutions more than offset fossil fuels and batteries. Customers pay an initial deposit upon receipt of their home solar system and thereafter make a daily payment for a one to two year period, after which they own the solar system.

The company is backed by a group of international funders, providing a strong capital base. This enabled the company to also attract debt to fund its growth. Part of this debt was provided in shilling, including through international financiers that hedged the currency risk with TCX. This still left the company exposed to currency risk on the dollar portion of its debt, because all revenues and operating expenses are in shillings. Currency risk is accepted to a limited degree, because the company can absorb the risk with its strong capital base, sufficient margins, or ultimately by increasing the price of the solar home systems for new clients. Now that the DESCO has built an existing client-base and track-record, it is able to refinance the remaining dollar funding in shillings with local banks. Together with the international funding provided in shillings, this eliminates the currency risk for the company.

Catalyzing local capital markets by supporting bond issues

The bond markets in Ghana and Kenya are very thin, with only a limited number of issues and small volumes. The African Local Currency Bond Fund (ALCBF) contributes to bond market development and liquidity by promoting and supporting bond issues in Africa. It acts as an anchor investor and provides technical assistance for local currency bond issuances by financial service providers and companies operating in developmental sectors. These includes financial inclusion, agriculture, housing, education, and renewable energy. ALCBF has facilitated and operated as anchor investor in bond issues by three institutions in Ghana and two financial institutions in Kenya. These bonds are in local currency while ALCBF is a dollar fund and ultimately has to generate a dollar return for its investors. ALCBF uses TCX hedges to eliminate the currency risk resulting from the investments.

One of the institutions that successfully issued a bond with the support from ALCBF is a consumer finance institution in Ghana that provides unsecured loans throughout the country with an average loan size of 5,000 dollars. In earlier years, this institution had obtained dollar funding from its (foreign) parent company. Due to a long preceding period of exchange rate stability, the resulting currency risk was at that time not perceived to be high and the institution retained the risk on its own balance sheet. The significant depreciation in 2014 caused financial stress for the institution and the loan had to be restructured into equity. The institution has since revised its policy to only accept cedi funding.

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‘The risk of currency shocks in developing countries is high. Yet, most development finance is still provided in dollars. This evaluation by Carnegie Consult shows that the impact of currency depreciations on borrowers in developing countries is much smaller for those who have financed themselves in their own currency.’