Invesco

# Central bank foreign currency reserves management
## Balancing stability and return



02

In our second whitepaper, we explore how central banks are struggling to meet their capital preservation objectives with todays' low yields on highly rated government bonds. Meanwhile potential liquidity requirements have reduced in many emerging markets. This has led to a number of central banks diversifying reserve assets into investment tranches.

This paper builds on empirical research underlying the IMF's Reserves Adequacy Metric (RAM) to provide a framework for linking a country's external risk profile to its strategic asset allocation (SAA). By doing so we propose that emerging market countries with ample reserves coverage can invest more efficiently to achieve the portfolio objectives of capital preservation, liquidity and return.

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**Executive summary**

- Central bank reserves are held both as a store of value and for precautionary purposes. In portfolio terms, this means seeking to generate a positive real rate of return to achieve capital preservation, while maintaining sufficient liquidity to meet unpredictable future drawdowns.
- The proportion of precautionary reserves, typically held in the form of high quality government bills, is the key driver of portfolio risk and return: the higher the level of short-term, high quality liquidity, the lower the expected portfolio risk and return.
- In today's world, the risk/return trade-off has been accentuated by low yields on highly rated government bonds, which reduces the chance of capital preservation in both real and nominal terms and undermines central bank income.
- Meanwhile, the potential liquidity needs for emerging market central banks to defend their currency have evolved. Shifts in FX and monetary policies have reduced the likelihood and scale of reserve drawdowns during crisis periods, with implications for the appropriate size of short term liquidity.
- For emerging market countries, the appropriate risk profile of the foreign currency reserves should be related to the country's external vulnerability. The greater its external vulnerability, the greater the potential need for short-term liquidity.
- Conversely, emerging market countries with ample reserves, have the resources to build a diversified investment tranche for the purpose of capital preservation and strengthening reserves through investment return during good times

  This paper builds on empirical research underlying the IMF's Reserves Adequacy Metric (RAM) to provide a framework for linking a country's external risk profile to its strategic asset allocation (SAA). By doing so, emerging market countries with ample reserves coverage can invest more efficiently to achieve the portfolio objectives of capital preservation, liquidity and return.

**Contents**

**Part I**
The evolution and current status of foreign currency reserves portfolios

**Part II**
Recent and current foreign currency reserves management practices

**Part III**
Linking reserves adequacy to the strategic asset allocation

**Part IV**
Dynamic rebalancing of liquidity and investment tranches based on forward looking analysis

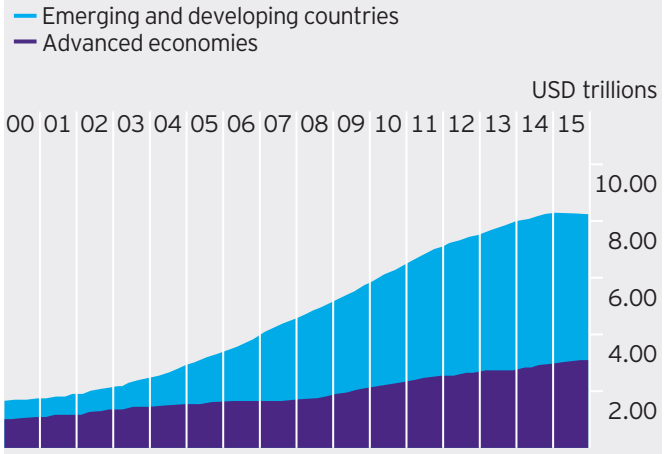
**Part V: Appendix**
Trends in Central Bank reserves management: 2016 Invesco Global Sovereign Asset Management study (IGSAMS)

# Part I
## The evolution and current status of foreign currency reserves portfolios

**01**
In emerging market countries (EMs), foreign currency reserves are both a country's war chest for unforeseeable events and a liquidity buffer for smoothing market instability during periods of domestic or global crisis. As EMs expanded their role in global trade and cross-border capital flows, their demand for reserves increased dramatically, as can be seen in Figure 1. In many EMs, central bank foreign exchange reserves represent the largest financial portfolios in the country. With a median size equal to 15% of GDP, the investment profile of the reserves can move the needle both with respect to GDP growth as well as public finances.

**02**
Advanced market (AM) central banks retained relatively low levels of reserves based on the presumption that governments and private sector players had virtually unlimited access to USD liquidity within the global foreign exchange market. This proved not to be true during the Global Financial Crisis (GFC) when large financial intermediaries in advanced economies were shut out of USD funding markets. As can be seen in Figure 1, AM central banks responded by deliberately building up their foreign currency reserves, which nearly doubled between 2008 and 2015.

**Figure I: Central bank reserves (ex gold and SDR)**
2000-2015




Source: IMF International Financial Statistics (IFS), 31 December 1999 to 31 December 2015.

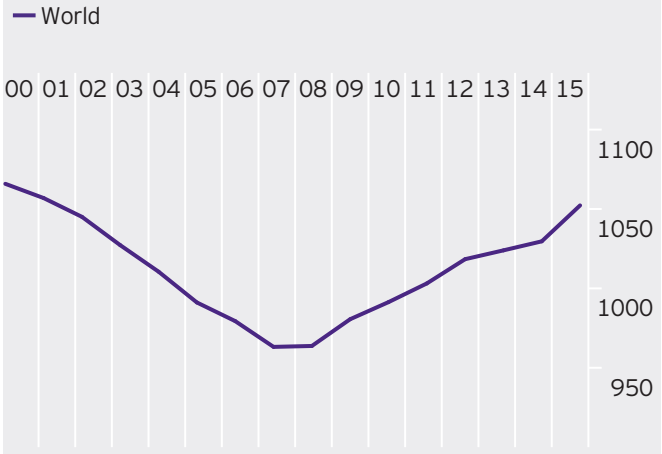
**03**
The portfolio composition of reserves has been inextricably linked to the evolution of the international monetary system. Under both the pre-World War 1 classical gold standard and inter-war gold-exchange standard, central banks held the largest share of reserves in gold to back their currency. During the Bretton-Woods gold-dollar exchange standard, the USD became the de facto reserve currency, taking over from sterling. Reserves were invested mainly in Treasury bills as the dominant reserve asset, though regional reserve assets persisted in sterling, Deutsche marks and French franc areas. Exchange rate and interest rate risk were relatively modest given the prevalence of capital controls and the fixed parity of the dollar to gold, and the fixed (if adjustable) parities of regional reserve currencies to the dollar. These arrangements enabled intervention to defend pegs at a time when terms of trade shocks were the main risk.

**04**
After the suspension of the Bretton Woods system of fixed exchange rates, both domestic capital markets and exchange controls were liberalized, combining a fiat currency system with increasingly integrated and sophisticated global capital markets. Deregulation and integration went hand in hand first in AMs starting in the 1970s and 1980s, then spreading to EMs in the 1990s-2000s. Looser currency arrangements from free floats to currency managed against a basket gave rise to moderate currency diversification mainly to EUR, replacing legacy DEM, FRF and other pre-euro assets, GBP and JPY and to a lesser degree CHF.

**05**
The Global Financial Crisis and the ensuing Eurozone and US fiscal crises, however, triggered a partial shift back into gold due to a loss of confidence in the US financial system and concerns about the fiat-currency based global monetary system, including: the impact of quantitative easing on government bond yields fears of ensuing high inflation; the emergence of unprecedented peacetime fiscal deficits in the US and Europe; and political polarization in the US resulting in gamesmanship around raising of the US debt ceiling. Furthermore, the collapse of several Eurozone banks, Brexit and political threats to the integration of the Eurozone have reduced confidence in EUR and GBP as fiat-currency alternatives to the USD

**06**
Since the surge in China's global economic weight and, in November 2016, the IMF's inclusion of the RMB in SDR basket, central banks are increasingly accepting the RMB as a reserve currency. The RMB's current SDR basket weight of 11% comes mainly at the expense of sterling and yen, pointing toward a three-currency global reserve currency system with substantial shares for the US, EUR and China. Going forward, three fiat reserve currencies should be expected to co-exist and hold the lion's share of global FX reserves; to do so with distinct, independent monetary policies; and with exchange rates floating against each other. This multiplicity of reserve assets and currencies, reacting to distinct monetary policies and growth/inflation trajectories, also points to greater variability in reserve portfolios going forward.

**Figure 2: Central bank holdings of gold (millions troy oz)**
2000-2015

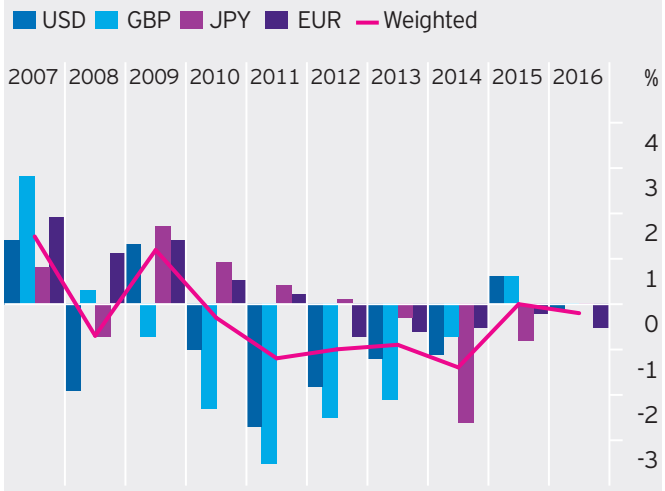



Source: IFS; 31 December 1999 to 31 December 2015

# Part II
## Recent and current foreign currency reserves management practices

**07**
Until 2010 central bank reserves were generally invested in a barbell strategy with a small percentage of gold as a store of value and the bulk in short term liquid assets. As USD reserves accumulated, central banks adopted a portfolio management approach to the investment of financial assets and were able to achieve both liquidity and preservation of value by extending duration of the fixed income portfolio, taking advantage of the most recent leg of the 30 year bull market in fixed income assets. As seen in Figure 3, the efficacy of this investment strategy came to an end in 2009 when real yields on traditional reserve assets turned negative and government bonds could no longer meet the objective of capital preservation, absent deflation.

**Figure 3: Real yields on short duration government bonds**
Composite weighted by 2016 global currency composition




Sources: Bank of America Merrill Lynch Indices: 1-3 year government yields of US, German, UK and Japanese government bond indices; 31 October 2016.
IMF Currency Composition of Official Foreign Exchange Reserves, 2016

**08**
As discussed in the 2016 Invesco Global Sovereign Asset Management Study (see Appendix), central banks have begun and are accelerating diversification, where possible, within an investment tranche. Over the past five years, concerns over reputational risks appear to have been overtaken by concerns over financial risks both to central bank income and the public purse. Moreover, the increased stability of reserves and, in some cases, ample reserves adequacy have given emerging market central banks more degrees of freedom in defining a liquidity tranche to meet precautionary purposes and an investment tranche for preservation of value and return. While the Invesco study showed a clear trend towards diversification of assets amongst emerging market central banks, the interviews revealed some lack of clarity with respect to the relative sizing of the two tranches, risk profile of the investment tranche and asset allocation.

**09**
In principle, the liquidity tranche should be sized to meet both contractual near term payments and potential drawdowns during crisis periods. The latter, however, requires a framework for estimating the potential likelihood and size of such drawdowns based on a country's unique risk factors. Traditionally, central banks have not been well equipped to forecast the potential call on reserves. First, under a fixed rate peg, central banks had no discretion with respect to the timing and size of intervention. Second, assessing reserves adequacy was in a fairly primitive state with single rules of thumb applied to all countries regardless of their economic circumstances.

**10**
Two recent changes represent a break with the past, enabling self-assessments of potential liquidity requirements and tranching for investment purposes. First, central banks assumed responsibility for financial stability following the GFC. Over the interim years, they have built up institutional capacity to assess financial vulnerability, and thus potential future calls on reserves. Second, following four years' of empirical research, the International Monetary Fund (IMF) released new Guidance[1] for assessing reserves adequacy (ARA) based on a country's unique risk factors and made available online through the ARA model and database. For emerging market economies, this may provide a missing link in relating the strategic asset allocation and structure of a country's reserves to its external risk profile.

[1] For the IMF Guidance Note policy papers and Reserves Adequacy Metric template, see www.imf.org/external/np/spr/ara.

# Part III
## Linking reserves adequacy to the strategic asset allocation

**11**
The irony inherent in the build up of reserves is that the higher the reserves, relative to country risk factors, the lower the likelihood that they will be used. After all, private economic agents with relatively atomized balance sheets and finite investment horizons are less likely to test a central bank, which can mobilize a substantial share of resources. As illustrated by the IMF in "Assessing Reserves Adequacy (2013)", other things being equal, a higher level of reserves adequacy reduces vulnerability and the probability of crisis[2]. And, reserves adequacy has been increasing for many emerging market countries over the last decade alongside the general build-up in reserves.

[2] "Assessing Reserves Adequacy, Further Considerations", 13 November, 2013, p 8.

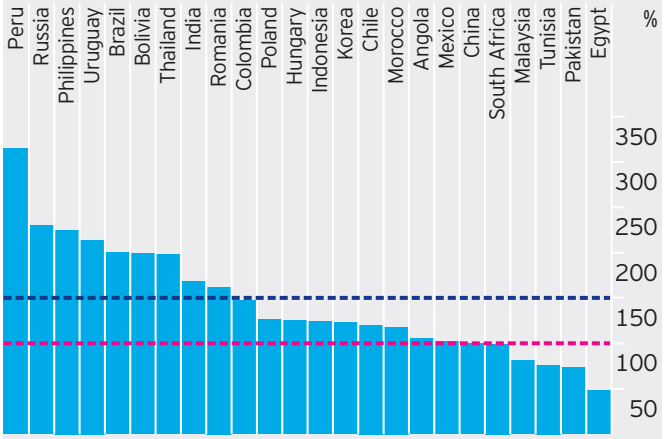
**12**
Even so, central banks have generally expressed a preference for the most liquid and, conversely, lowest yielding securities independent of absolute reserves levels or reserves adequacy. In the absence of a clear framework for determining the appropriate risk profile for the reserves, the default position was simply to invest the bulk of reserves in high-grade government securities and cash equivalents and define the acceptable level of risk in annual accounting terms.

**13**
For the past 25 years, the world relied on two simple rules of thumb to assess reserves adequacy across countries with vastly different macroeconomic and financial conditions. In a world of restricted access to external financing, three months import coverage was deemed a sufficient level of reserves to smooth domestic spending during crises. The 1997-98 emerging market crisis starkly revealed the extent of large short-term foreign borrowings, and policy makers responded by introducing a second metric of 12 months short-term debt coverage. Both metrics are one-size-fits-all, and crucially assume that domestic absorption is linked through the balance of payments only to external financing of imports and foreign debt repayments. Neither provided a safety margin for capital flight, whether by residents or foreign investors, nor reversal of portfolio capital flows in from domestic bond and equity markets.

**14**
In June 2016, the IMF issued new guidance for assessing reserves adequacy (ARA) based on specific risk factors underpinning countries' demand for reserves.[3] This guidance differentiates between advanced market, emerging market and low income countries (LIC)[4] , reflecting their different rationales for holding reserves. It also applies different risk weights depending on the exchange rate regime, economic reliance on commodity exports, the openness of the economy both with respect to trade and capital flows and the size of the national financial system. The ARA framework, does not lend itself to general rules of thumb. Rather it is based on an online analytical tool and the database populated with individual country's risk factors. The tool can be used as a model with standard risk weights, based on empirical research, or customized as desired to account for particular country-specific factors not fully captured in the standard metric. Figure 4 illustrates a cross-country comparison of reserves adequacy as measured by the IMF's Reserves Adequacy Metric (RAM). The estimated optimal level for RAM is in the range of 100% and 150% coverages, as indicated in Figure 4.

[3] IMF, "Guidance Note on the Assessment of Reserves Adequacy and Related Considerations", 2 June, 2016, pp 13-16; Available at www.imf.org/external/np/pp/eng/2016/060316.pdf

**Figure 4: Assessing Reserves Adequacy (ARA)**
Reserves coverage of the ARA metric




Sources: IFS, World Economic Outlook (WEO). Data as of 31 March 2016. Calculations based on the IMF's ARA Template at http://www.imf.org/external/np/spr/ara/index.htm

### Assessing liquidity requirements during crisis periods

**15**
What a central bank may need in reserves liquidity differs from its reserves adequacy position. In fact, for emerging market economies, the two are conversely related: the higher the level of reserves adequacy, other things being equal, the lower the crisis potential and likely need for immediate liquidity. Generally speaking, the most liquid and highest quality fixed income investments are also the most expensive or lowest yielding. It thus behooves central bank reserves managers to relate the level of high quality liquidity, or the size of the liquidity tranche, to the size and likelihood of potential drawdowns.

**16**
In order to assess how much liquidity is actually required, one can start by looking back at the empirical evidence of worst-case reserves drawdowns during periods of global crisis and financial stress.[5] Over the past twenty years, three periods of heightened systemic risk stand out. The 1997-98 emerging market crisis hurt not only EMs with fundamental imbalances but spread to others through financial contagion, the actions of hedge funds and reversals of portfolio flows. In the 2007-08 global financial crisis, some advanced market central banks drew on their USD reserves to provide liquidity to an overextended banking sector shut out of overseas funding markets. And, while not the source of imbalances, emerging markets again suffered as investors exited in a general flight to safety. And, finally, the 2014-15 period of slow growth hit many EMs through a sharp decline in the terms of trade, collapse of exports and a record reversal of portfolio capital flows. During all of these periods, most central banks were forced or elected to intervene by selling reserves either to maintain fixed exchange rate pegs or manage undesirable volatility in the exchange rate.

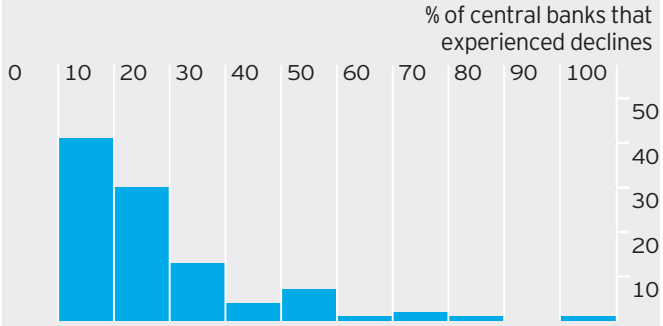
[4] IMF Policy Paper, "Proposed new grouping in WEO country classifications: Low income developing countries", 4 June, 2014, pp 3; Available at www.imf.org/external/np/pp/eng/2014/060314.pdf

[5] For a more complete discussion, see Invesco: Central Bank Reserves Management, Opportunities to Expand Investment Horizons, April 2016.

# Part III
## Linking reserves adequacy to the strategic asset allocation

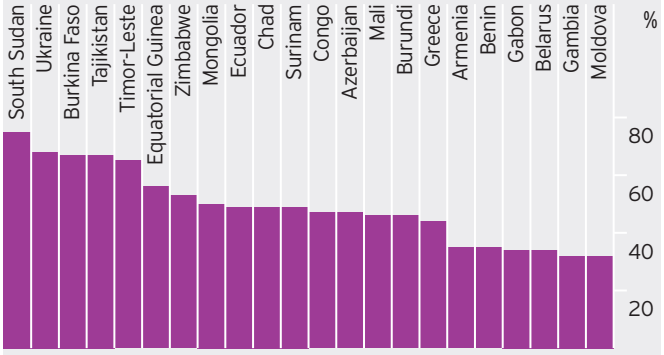
**17**
During the most recent period of global stress from 2014-2015, most central bank reserves declined and the scale of the worst case foreign currency losses can be seen in Figure 5. Of those central banks experiencing drawdowns, the median worst case decline was 17%. Only 13% of central banks exhibited extreme declines of greater than 30%. Of these outliers, shown in Figure 6, the large drawdowns can to a great extent be explained because of the economy's dependence on commodity exports, and/or a fixed exchange rate. In the ARA model, both of these factors empirically contribute to greater volatility and thus the need for higher reserves, which would be captured by the ARA framework.

**Figure 5: Worst case declines in foreign currency reserves**
(% loss of reserves) 2014 to Q3 2015



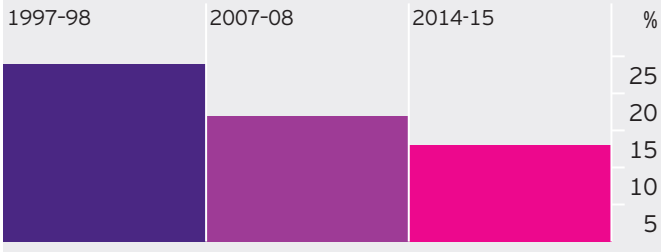

Source: IFS; Internal calculations as of 31 December 2015
Central bank universe represents central banks that had foreign currency reserves greater than $250m (164 central banks) and that experienced a decline in reserves over this period.

**Figure 6: Outlier countries exhibiting interim peak to trough foreign currency losses greater than 30%: 2014-2015**




Source: IFS; Internal calculations as of 31 December 2015

**Figure 7: Reserves drawdowns of more than 30% during crisis periods**
Percentage of all central banks with reserves > $250m



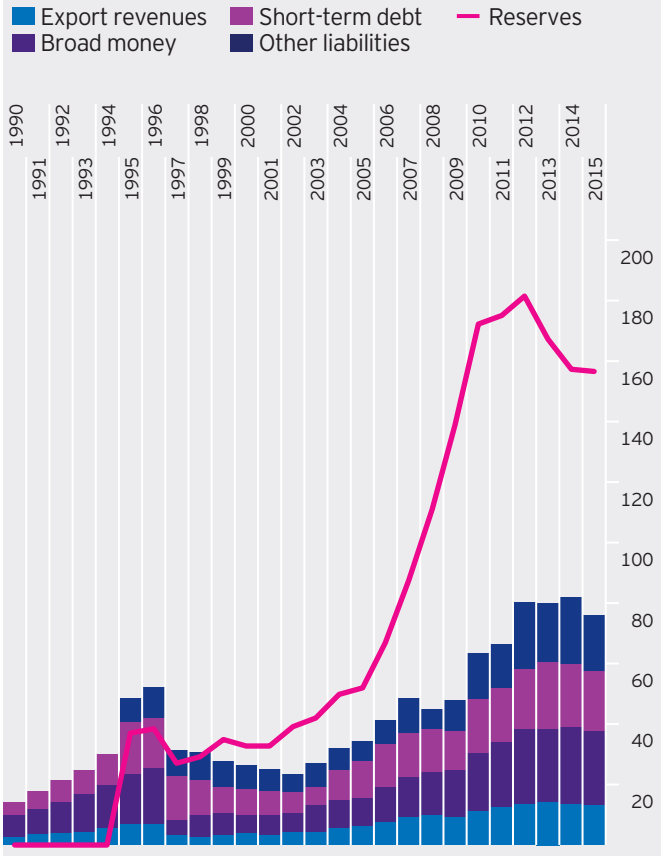

Source: IFS; Internal calculations; crisis periods are 31 December 1996 to 31 December 1998; 31 December 2006 to 31 December 2008 and 31 December 2013 to 31 December 2015.

**18**
Looking back over the last three periods of global financial stress, there appears also to be a trend towards greater stability of reserves as seen in Figure 7. In the emerging market crisis of 1997-98, nearly a quarter of all central banks lost reserves in excess of 30%. This share declined to 17% during the GFC (2007-2008). And, most recently to 13% during the 2014-2015 crisis, where the exchange rate rather than the level of reserves tended to take the brunt of balance of payments pressures due to slow growth and the collapse in commodity prices.

**19**
The lower actual use of reserves may be attributable to stronger reserves adequacy, a related trend from fixed to managed and floating exchange rate arrangements and better policy frameworks generally, as well as secular structural improvements such as development of deeper domestic bond markets and more successful monetary policy outcomes through inflation targeting. Looking back one can thus conclude that many central banks held substantially greater liquidity than required by actual drawdowns.

**20**
The IMF's reserves adequacy metric (RAM) quantifies the drivers of reserve demand relative to the actual level. Figure 8 provides a backwards-looking example. In Thailand, the drivers of the demand exceeded the actual level of reserves prior to the emerging market crisis of 1997-98 due to excessively high foreign imbalances. Since then, however, reserves adequacy improved as reserves increased faster than the underlying factors driving reserves demand. By periodically reviewing the strategic asset allocation, central banks can rebalance the portfolio to reflect changes in external vulnerability.

**Figure 8: Thailand: evolution of foreign currency reserves vs the components of the reserves adequacy metric (USD bn)**




Source: IMF: ARA Template, 31 March 2016.

# Part IV
## Dynamic rebalancing of liquidity and investment tranches based on forward looking analysis

**21**
As discussed earlier, central banks often separate reserves into a high quality liquidity and investment tranche. The former is invested in cash equivalents to meet potential drawdowns while the investment tranche is typically more diversified to provide investment return potential. In many cases, however, the liquidity tranche dominates the portfolio (See Figure 15 in the Appendix). In the absence of an analytical framework to link the strategic asset allocation of the portfolio to country risk, most central banks defaulted to the most conservative stance, with the risk profile of the reserves driven by accounting considerations rather than the risk profile of the country. As can been seen by Figure 8, such a stance significantly overestimated the actual level of liquidity needed during crisis periods over the last twenty years.

**22**
The size of the liquidity tranche drives the risk and thus the expected return of the portfolio: Increasing the size of the liquidity tranche will "derisk" the portfolio and ratchet down the expected return; decrease its size and the expected return increases, as does the volatility of return. Figure 9 illustrates the past risk and return of a model liquidity tranche comprising US Treasuries with a portfolio duration of around 1.3 years and a model investment tranche comprising 70% USD hedged global investment grade fixed income securities and 30% equities of advanced economies. The portfolio with the relatively larger investment tranche exhibited comparatively higher average returns over time, and in 95% of observations, exhibits positive annual returns and no worse than -1.1% in monthly investment decline. These measurements illustrate relative risks based on every 12 month period over the past 20 years but are not a predictor of future performance.

**Figure 9: Model liquidity and investment tranches %**
Risk/return profile over rolling 12 month periods (1995-2016)

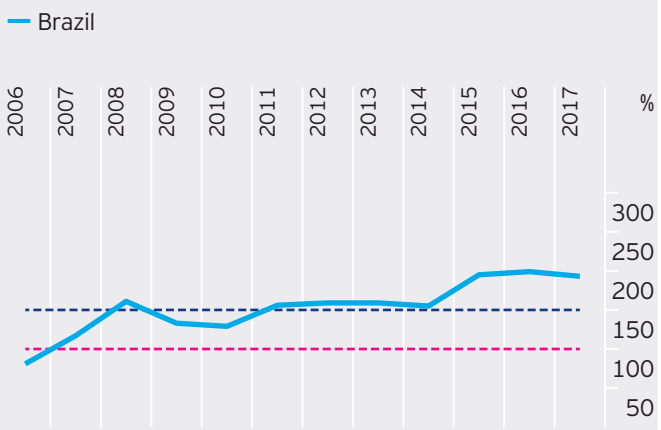
| 1995-2016 | Liquidity tranche | Investment tranche | 90% Liquidity: 10% Investment | 40% Liquidity: 60% Investment |
|---|---|---|---|---|
| Average annual total return (USD) | 3.52 | 6.56 | 3.83 | 5.36 |
| Volatility | 1.18 | 4.87 | 1.20 | 3.00 |
| Worst monthly return (95% confidence interval) | -0.16 | -1.86 | -0.21 | -1.09 |
| Worst yearly return (95% confidence interval) | 0.34 | -1.92 | 0.84 | 0.49 |

Source: Liquidity tranche: BofA Merrill Lynch 0-3 Year US Treasury Index; Investment Tranche: 70% Barclays/Bloomberg Global Aggregate Bond Index Return Hedged to USD; 30% MSCI World Equities Index; Internal monthly calculations. From 31 December 1994 to 31 December 2015

**23**
As a country's external risk evolves over time, so should the relative sizes of the liquidity and investment tranche. The IMF's ARA tool describes the evolution of the macroeconomic drivers of reserves demand over time. Importantly, central banks can use this framework to conduct a forward-looking analysis using World Economic Outlook (WEO) projections. It is thus a useful analytical tool to inform a periodic review of the reserves portfolio structure. While the tool is not intended to be applied in a mechanical fashion, it does provide insight into balance of payments dynamics that affect the future probability of reserves drawdowns.

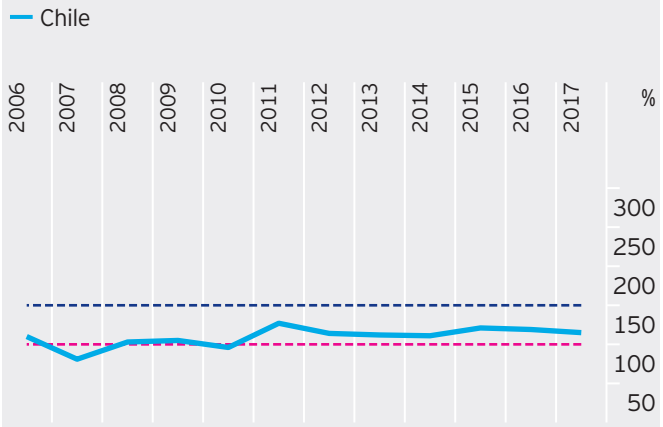
**24**
In figures 10 to 12, we provide examples of the evolution of reserves adequacy for three countries reflecting different paths relative to the IMF's estimated optimal range for the Reserves Adequacy Metric (RAM). These examples illustrate the changes that can occur within a ten year period, which should be factored into periodic reviews of the strategic asset allocation and the portfolio structure. The size of the investment tranche could be periodically increased for central banks where reserves adequacy is strong and improving while the converse could be the case for countries with declining reserves coverage of the ARA metric. When reviews are carried out periodically, rebalancing can be carried out during normal market conditions rather than those of crisis when market dislocations impede liquidity of higher risk assets. The estimated optimal level for RAM is in the range of 100% and 150% coverage.

**Figure 10: Reserves adequacy over time: coverage of the reserves adequacy metric**
Improving reserves coverage: Brazil 2006 to 2017 (projected)



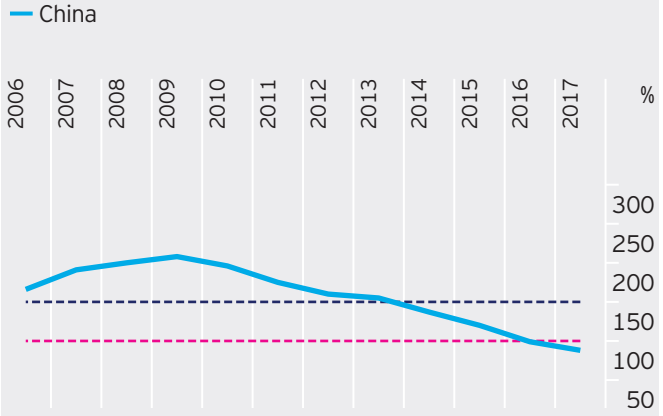

Source: IFS. Date as at 31 March 2016. Calculations based on the ARA EM tool at http://www.imf.org/external/np/spr/ara/index.htm

**Figure 11: Reserves adequacy over time: coverage of the reserves adequacy metric**
Stable reserves coverage: Chile 2006 to 2017 (projected)




Source: IFS. Date as at 31 March 2016. Calculations based on the ARA EM tool at http://www.imf.org/external/np/spr/ara/index.htm

**Figure 12: Reserves adequacy over time: coverage of the reserves adequacy metric**
Declining Reserves Coverage: China 2006 to 2017 (projected)




Source: IFS. Data as at 31 March 2016. Calculations based on the ARA EM tool at http://www.imf.org/external/np/spr/ara/index.htm

## Institutional considerations

**25**
While central banks have made considerable advances in assessing financial stability and vulnerability, in many cases this analysis still does not drive the strategic asset allocation or portfolio structure of the foreign currency reserves. In part this is due to historical antecedents as well as concerns over reputational risk in the absence of a macroeconomic framework to inform the strategic asset allocation. To some extent, the vertical silos existing in the organization of central bank functions may also impede linkages between reserves adequacy and reserves strategy. In many cases, foreign currency reserves management is within the financial management services of the central bank, along with payments and accounting; while financial vulnerability and assessing reserves adequacy is grouped with macroeconomic research and statistics. To the extent that the head of financial stability participates in investment committee meetings, these two perspectives - external country risk and the risk profile of the reserves – can be integrated.

**26**
With the development of the Fund's ARA tool, central banks have the capacity to reframe the strategic asset allocation with respect to both the rationale for holding reserves and, in the case of emerging markets, its reserve adequacy assessment. For those countries with ample reserves, this can unlock their earnings potential and help to build higher levels of reserves during good times to minimize risks during bad.

# Part V: Appendix
## Trends in Central Bank reserves management: 2016 Invesco Global Sovereign Asset Management Study[6]

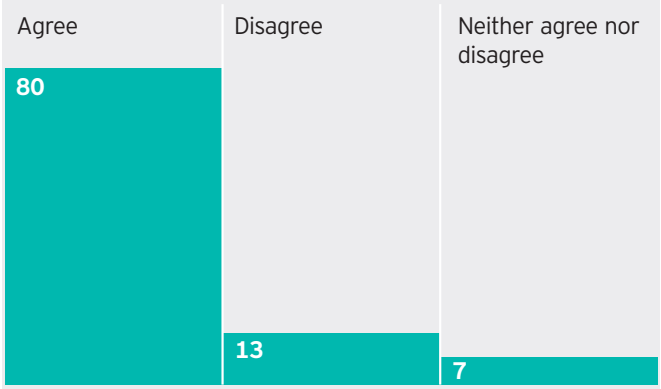
**27**
In June 2016, Invesco released the results of its latest study of investment practices of official institutions - sovereign wealth funds, central banks and other official investors. The survey, which was conducted by a third-party independent consulting firm based on a confidential questionnaire and face-to-face interviews, sampled 18 central banks from all geographic areas with total foreign currency reserves of $2.1 trillion. The 2016 study confirmed the investment challenges facing central banks to enhance income and the trend towards diversification within an investment tranche. The main findings of the study and central bank responses to the questionnaire follow below.

**"Central banks are struggling to meet their capital preservation objectives"**

As central bank reserve adequacy positions improved, central banks have become more confident in their ability to meet stabilisation objectives. However, central banks are struggling to meet their capital preservation objectives in the current low return environment. In figure 13, for example, 80% of central banks agree that low returns on traditional government bonds are a key driver of increasing diversification into other assets. Given the current negative yields on certain Eurozone government bonds this challenge is particularly acute for central banks where the currency composition of reserves is heavily weighted towards the Euro. Where central banks measure capital preservation in real terms, the hurdle is even higher given the negative real returns on US$ and Euro government debt.

[6] To download the full Invesco Global Sovereign Asset Management Study please visit www.igsams.invesco.com or speak with your usual Invesco representative.

**Figure 13: Low government bond returns are driving diversification of central bank portfolios**
(% of central bank citations), Q1 2016



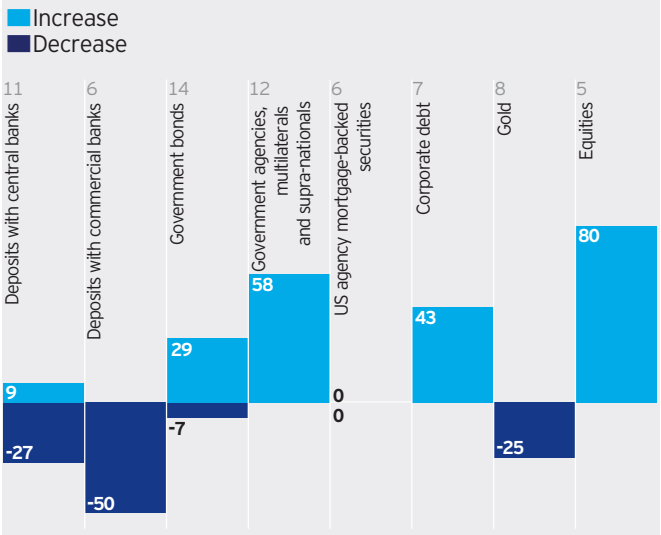

Sample: 15. Sample comprises of central banks only.

Capital preservation was a major challenge for central banks in emerging markets managing a currency peg because of the higher level of short-term liquidity required to meet intervention requirements. [For oil-exporting countries], the combination of the US dollar's strength and the negative outlook for oil placed a strain on the currency pegs, forcing intervention to maintain the value of the currency within the bands of the peg. The high level of liquidity negatively affected their ability to meet capital preservation objectives.

**Capital preservation challenges increase the importance of investment return**

Central banks are increasing [the importance of] investment return objectives to ensure they meet and exceed their capital preservation objectives. Central banks explained that the rationale for promoting investment return objectives were twofold: first to deliver on investment return objectives and second to minimise volatility through diversification into new asset classes. Many central banks focused more on diversification and reduced volatility than on investment returns and yields. The desire to diversify and seek higher returns is illustrated in figure 14 by a number of central banks expecting to shift assets from low yielding deposits to increased allocations to corporate debt and equities in the future. In some cases, central banks explained that they are continuing to sell off gold reserves and these assets would be redeployed into higher risk fixed income and equity investment.

**Figure 14: Central bank views on future change in asset allocation** (% of central bank citations), Q1 2016



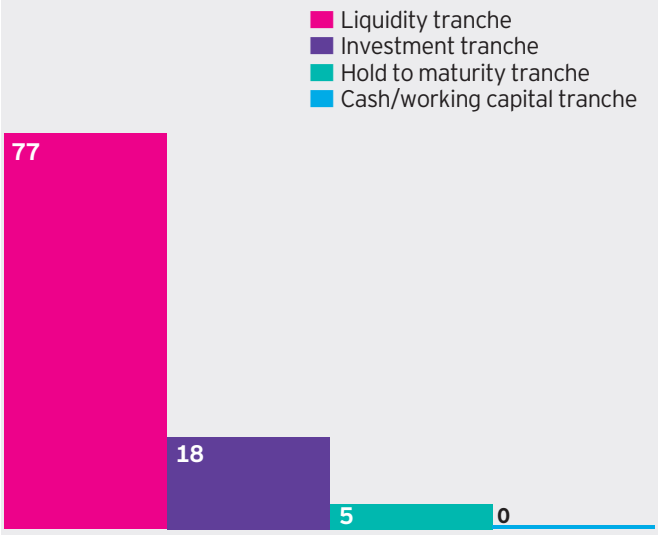

Sample comprises of central banks only. Sample size shown in grey.

**The development of investment tranches within central bank portfolios**

Allocations to new asset classes have forced central banks to reconsider the structure of their reserves. Central banks now manage multiple objectives and there is clearly scope for conflict between stabilisation and investment return objectives. As a result central banks have split reserves into tranches. Figure 15 shows that central banks in our study operate up to four tranches: liquidity tranche, hold to maturity tranche, cash or working capital tranche and investment tranche. This dynamic is very different to other sovereign investors who do not generally split their portfolio into formal tranches with different objectives.

# Part V: Appendix
## Trends in central bank reserves management: 2016 Invesco Global Sovereign Asset Management Study

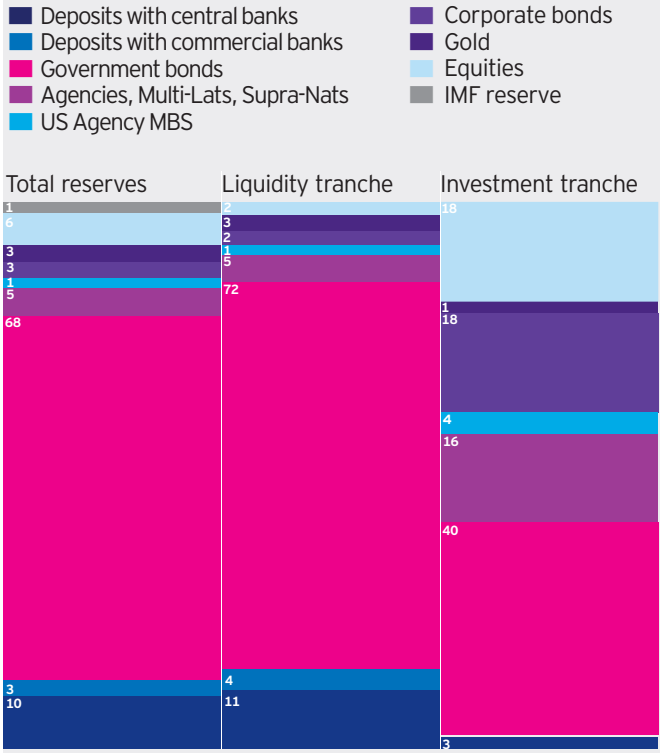
**Figure 15: Central bank views on future change in asset allocation**
(% of central bank citations), Q1 2016




Sample: 13. Sample comprises of central banks only. Data is not weighted by AUM.

The liquidity tranche is typically the largest tranche of reserves, comprised of low risk assets (typically AAA-rated, short duration government bonds) and primarily responsible for stabilisation objectives. The hold to maturity tranche is a tranche of longer term fixed income which is held to maturity with an objective of generating return and guaranteeing capital preservation. The cash or working capital tranche represents cash balances required for operational purposes. The investment tranche tends to hold riskier assets such as corporate bonds and equities. The investment tranche is typically smaller than the liquidity tranche with a primary objective of investment return. The differences in asset allocation for liquidity and investment tranches are set out in figure 16. While there are higher allocations to corporate bonds (18%) and equities (18%) in the investment tranche we note that a significant percentage of these assets remain allocated to sovereign debt.

**Figure 16: Central bank allocations by tranche**
(% of central bank assets), full year 2015




Sample: 15. IMF = International Monetary Fund, MBS = Mortgage-backed securities, Multi-lats = Multi-laterals, Supra-nats = Supra-nationals, CBs = central banks. Sample comprises of central banks only. Data is not weighted by AUM.

### Uncertainty over size and asset allocation within the investment tranche

While every central bank in our study had an investment tranche, the creation of these tranches is a relatively new phenomenon. Many interviewees were in the process of designing or testing their allocations and there was no clear consensus on the target size for the investment tranche or the underlying asset allocation. Furthermore, there was also a lack of clarity on how these allocations related to risk-adjusted returns and volatility. Many respondents emphasised that this was an experimental stage. Limited allocations to corporate bonds and equities were frequently attributed to inexperience rather than an evidence-based view of strategic asset allocation.

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