

Assessing Reserve Adequacy

Koc University
April, 2011

Outline

- Main messages
- Crisis experience and focus
- Reserves trends
- Review of existing approaches
- Proposed new approach and metric
- Cost of reserves
- Reserve alternatives
- Conclusions

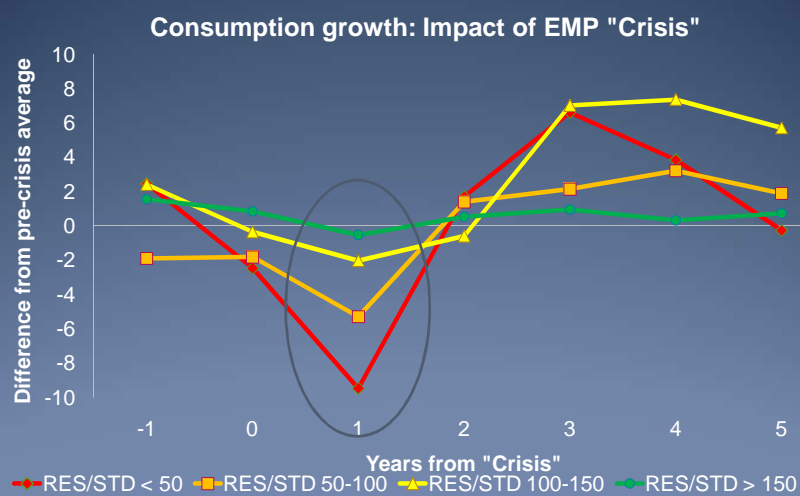
Main messages

- Crisis reinforces message that reserves matter, ... but with diminishing returns
- However, clear guidance is lacking on how much are needed
 - Traditional metrics and newer approaches give wide range of answers
- Proposed hybrid approach and new "risk-weighted" metric may be a (modest) improvement
- But reserves are only part of the story

Main Messages

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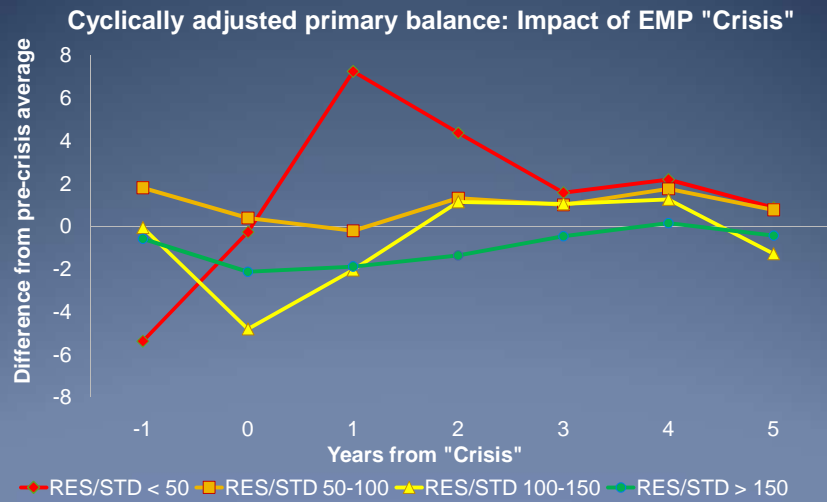
Reserves have mattered in past crises, ...



Crisis Experience and Focus

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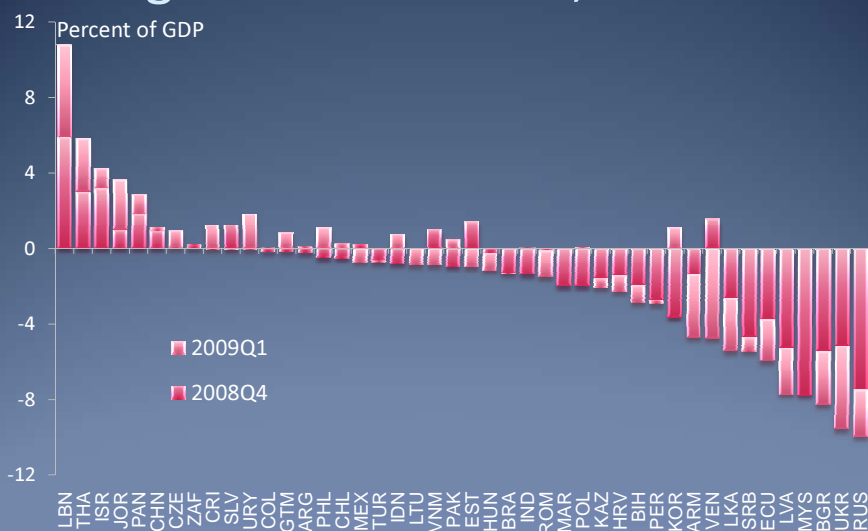
... in part due to the fiscal space they provided.



Crisis Experience and Focus

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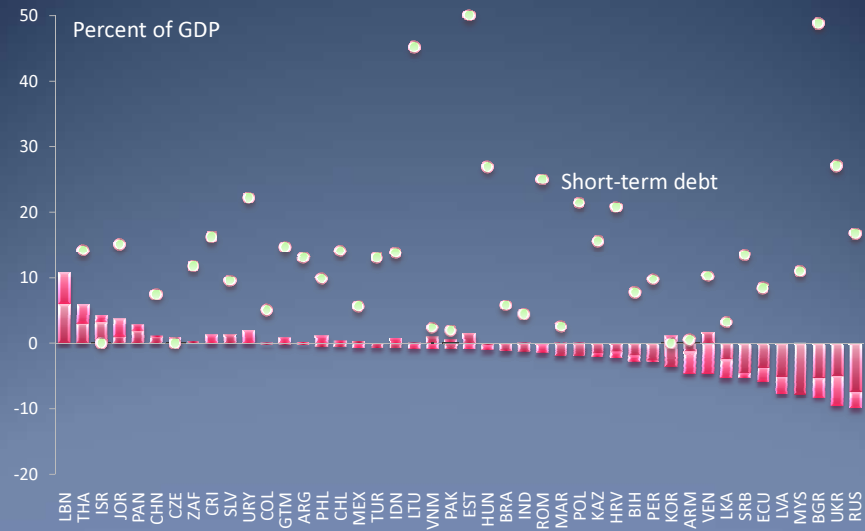
Reserve loss varied considerably during the recent crisis, ...



Crisis Experience and Focus

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... but short-term debt was not a good predictor.



Crisis Experience and Focus

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We focus on precautionary reserves

- How much reserves should emerging market countries hold for *precautionary* reasons?
 - Crisis prevention
 - Crisis mitigation
- Not directly discussing non-precautionary motivations
 - Intergenerational savings
 - Exchange rate policy
 - Externalities arising from reserves/NFA accumulation
- Reserves concern *liquidity*

} about NFA,
not reserves

Crisis Experience and Focus

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Why do countries hold reserves?

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IMF Survey on Reserve Adequacy

Please send the completed survey to SPRRAMSURVEY@IMF.org by Friday, November 12.

1. For what purposes does your institution hold reserves? Please check all that apply.

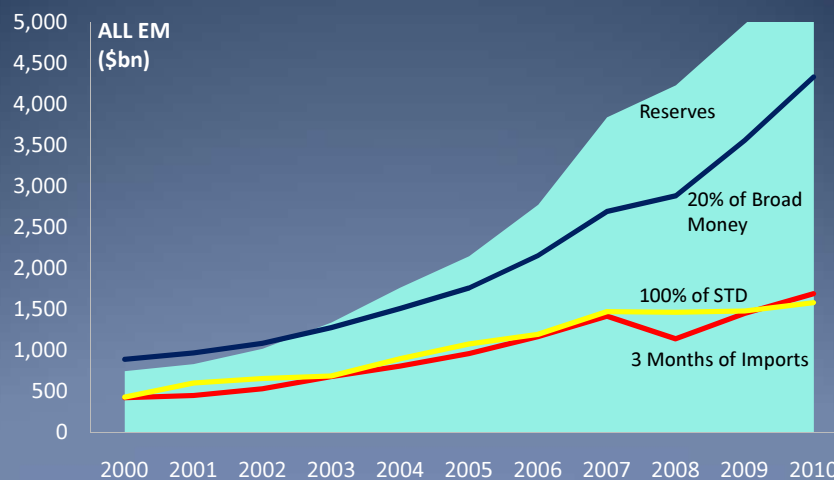
(a) Precautionary buffers for liquidity needs	<input checked="" type="checkbox"/> 81%
(b) Precautionary savings against income/commodity price shocks	<input checked="" type="checkbox"/> 15%
(c) Savings for future generations	<input checked="" type="checkbox"/> 12%
(d) Management of exchange rate level	<input checked="" type="checkbox"/> 31%
(e) Smoothing of exchange rate volatility	<input checked="" type="checkbox"/> 62%
(f) Bank recapitalization costs	<input checked="" type="checkbox"/> 8%
(g) Other (please specify below)	<input checked="" type="checkbox"/> 19%

Which institutions are involved in determining the appropriate level of reserves? Please check all that apply.

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Reserve Trends

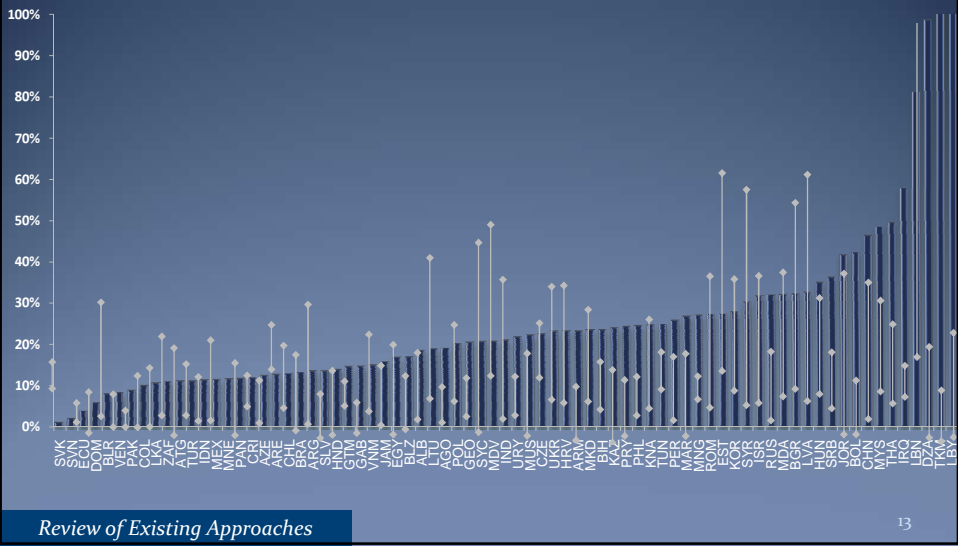
Reserves growth has outpaced traditional metrics ...



Reserve Trends

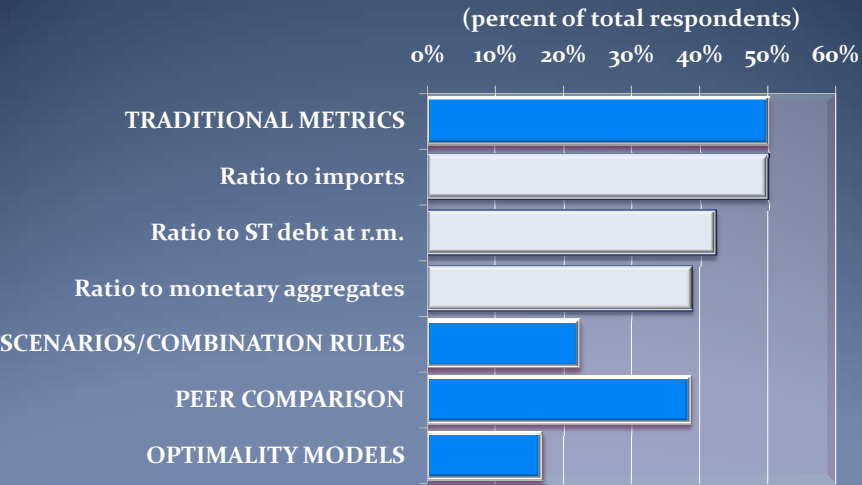
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2010 ranges for selected metrics



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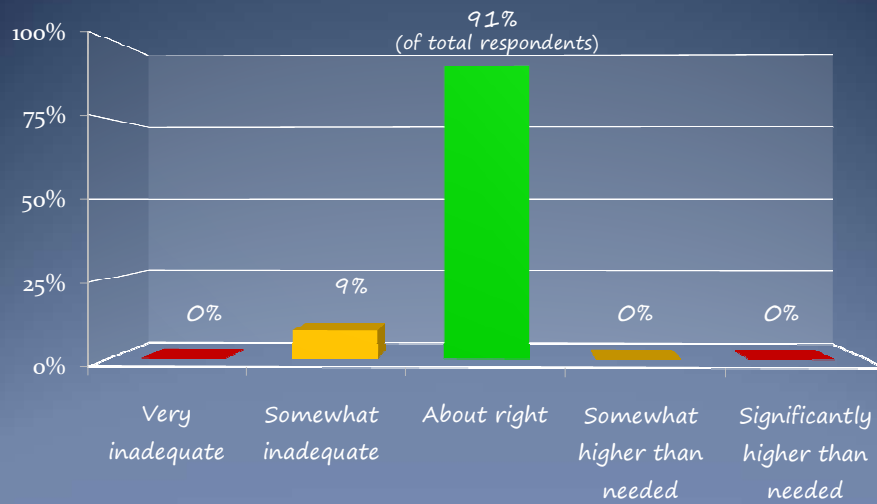
What approaches are used?



Review of Existing Approaches

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Are country reserves adequate?



Review of Existing Approaches

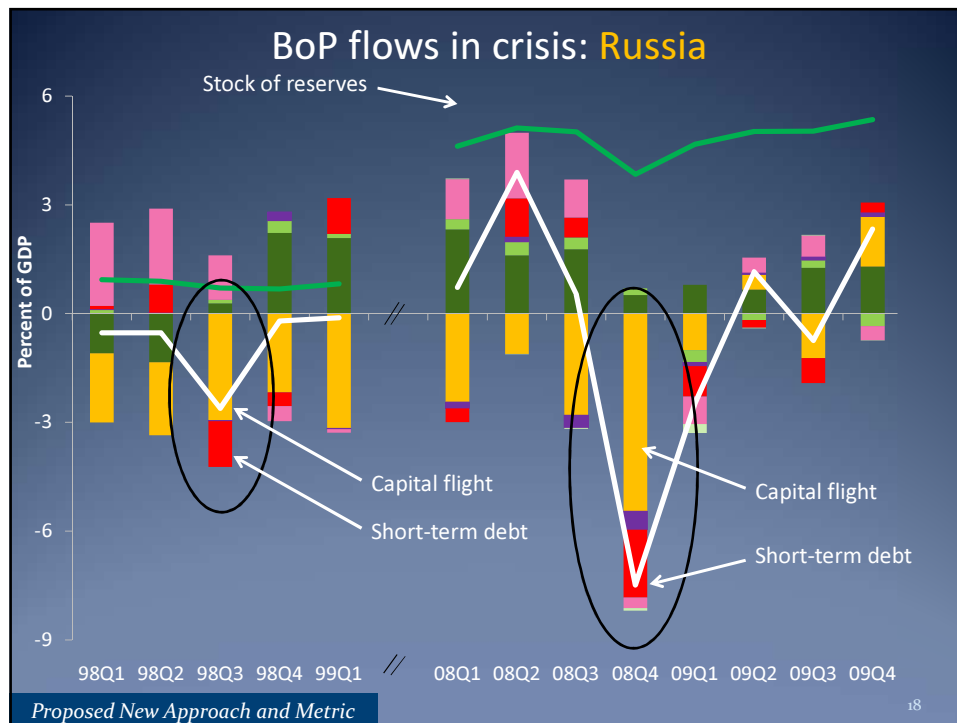
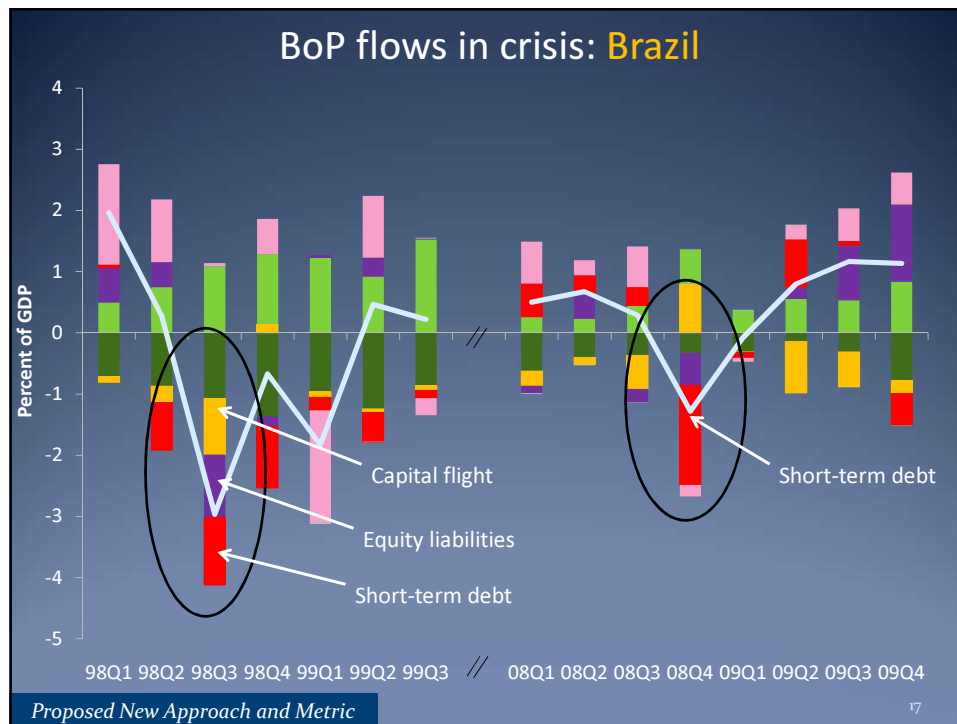
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Possible new approach

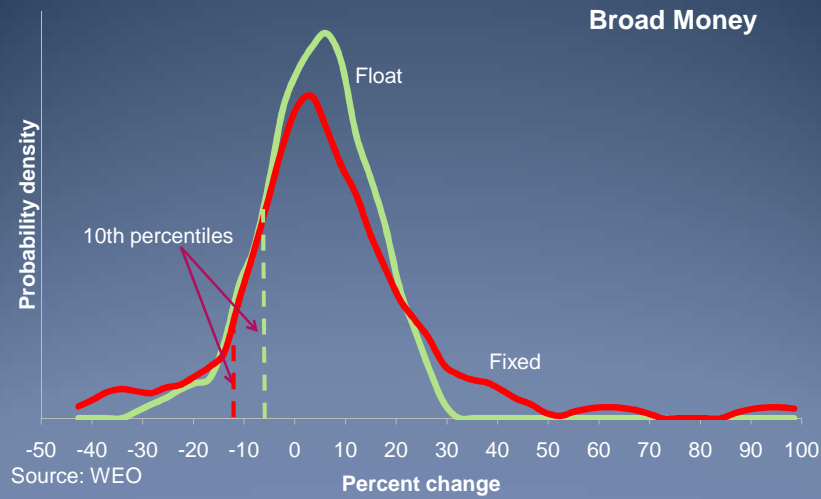
- New combination metric proposal
 - Identify “risk-weighted” liability stock
 - Estimate reserve holdings needed against this stock
- Supplement with scenario analysis
- Future work can consider imbedding in a cost-benefit framework
 - Attractive in principle, hard to apply in practice

Proposed New Approach and Metric

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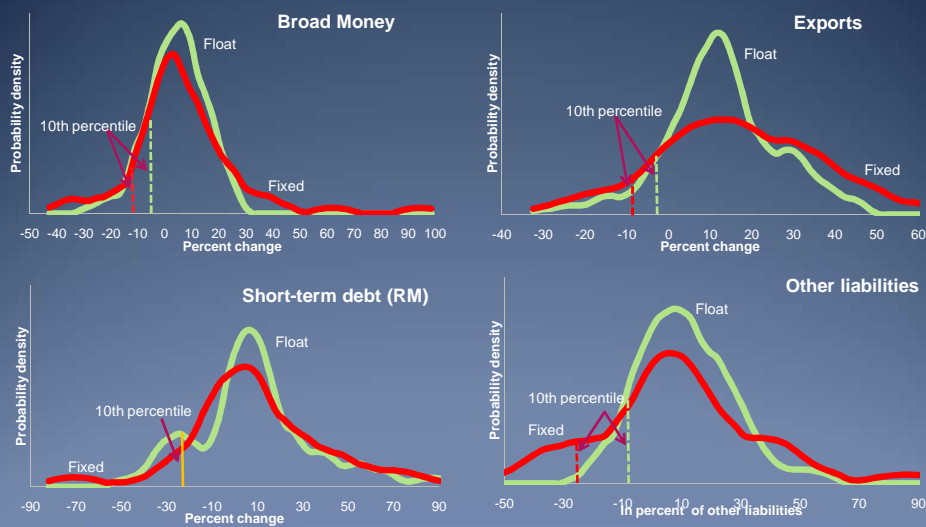
Tail risks from past crises guide risk weights



Proposed New Approach and Metric

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...across different potential losses



Proposed New Approach and Metric

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We base a *risk-weighted liability stock* on the above FX drains.

Based on the 10th percentile of historical outflows:

- **Pegs:**
 - 30 percent of STD, plus
 - 15 percent of other external liabilities (excl. FDI), plus
 - 10 percent of broad money, plus
 - 10 percent of exports
- **Floats:**
 - 30 percent of STD, plus
 - 10 percent of other external liabilities (excl. FDI), plus
 - 5 percent of broad money, plus
 - 5 percent of exports

Proposed New Approach and Metric

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But outperforms them in predicting pressure.

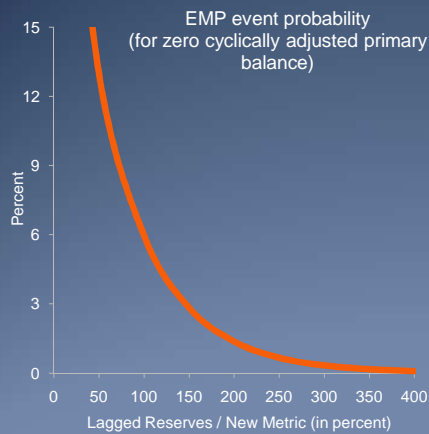
Logit Analysis: Probability of External Pressure

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Exchange Market Pressure events							Crisis events

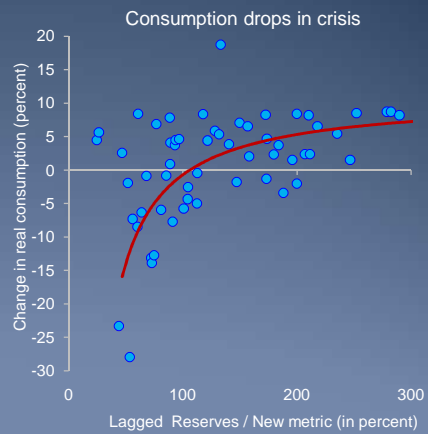
Proposed New Approach and Metric

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In the second stage, we need to judge how much coverage is 'adequate'.



Source: Staff calculations.

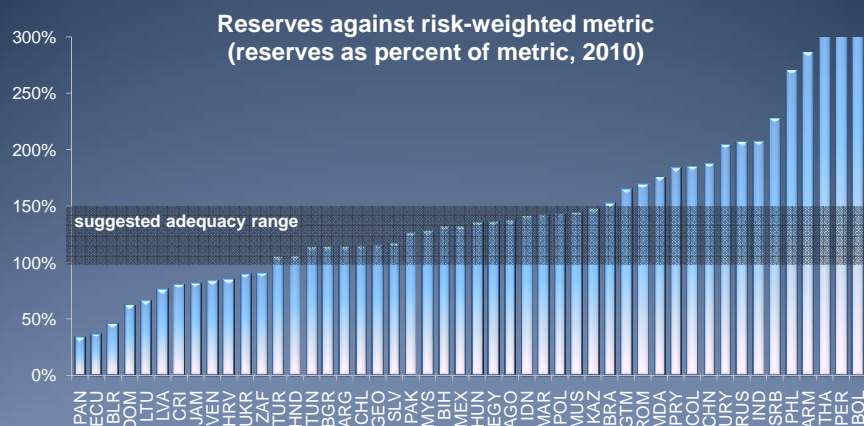


Source: WEO and staff calculations.

Proposed New Approach and Metric

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Around one-third of countries are within 100-150 percent of the metric.

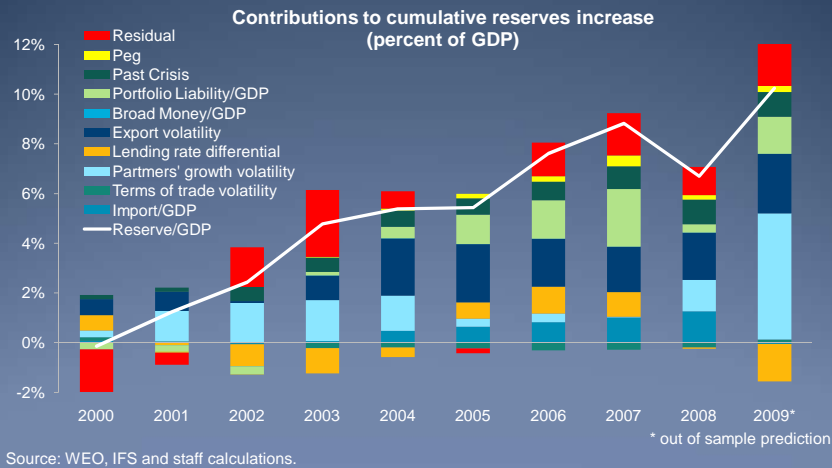


Source: WEO and staff calculations.

Proposed New Approach and Metric

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Reserves demand regression suggest similar factors.



Proposed New Approach and Metric

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Applying this any metric requires judgment.

- Composition of short-term debt
- Capital controls
- Dollarization
- Remittances
- Fundamentals

Proposed New Approach and Metric

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How much do reserves cost?

Possible measures:

1. Net financial cost
2. Costs from maturity of reserves vs. sovereign liabilities
3. Sterilization costs
4. Actual or potential exchange rate valuation losses
5. Opportunity cost of foregone consumption or investment

Net financial cost appropriate for EMs with market access

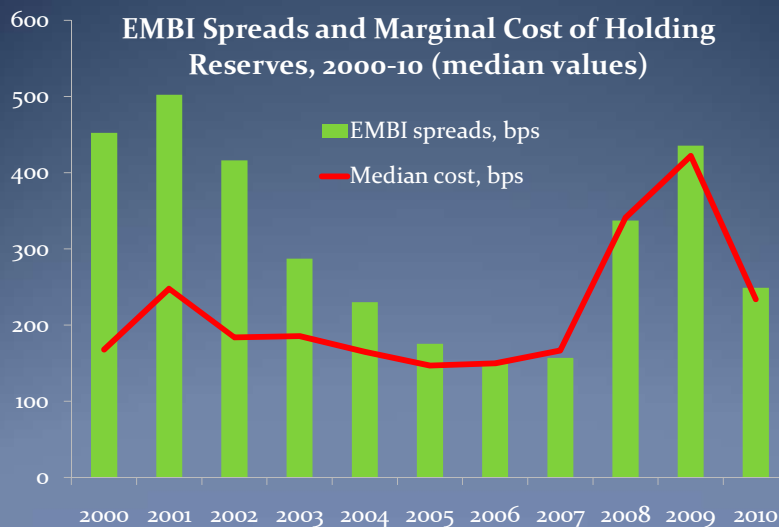
- At the margin, reserves are effectively financed by external debt
- Default risk and not just maturity structure
- Not costs from monetary and exchange rate policy decisions
- EM spreads (during normal times) as good proxy for NFC

How to account for the effect of reserves in reducing sovereign spreads?

Cost of Reserves

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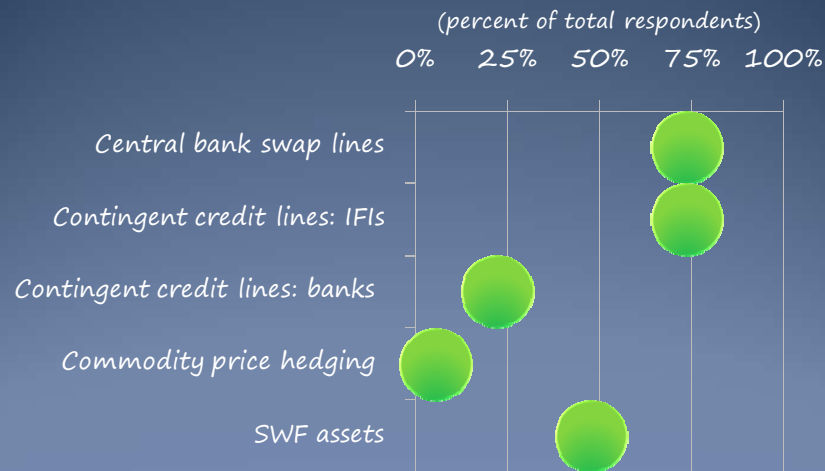
...and how have costs changed?



Cost of Reserves

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Which can play the role of reserves?



Reserve Alternatives

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Conclusions

- Assessing reserve adequacy remains an inexact science
- Proposed new risk-weighted metric is probably an improvement
- But ultimately a good policy framework is critical
- And country-specific circumstances critical
 - Adjustment of metric for country characteristics
 - Scenario analysis of possible drains on reserves
 - Country authorities' own assessments of risks
 - Existence of potential reserve substitutes and other country insurance

Conclusions

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Thank you

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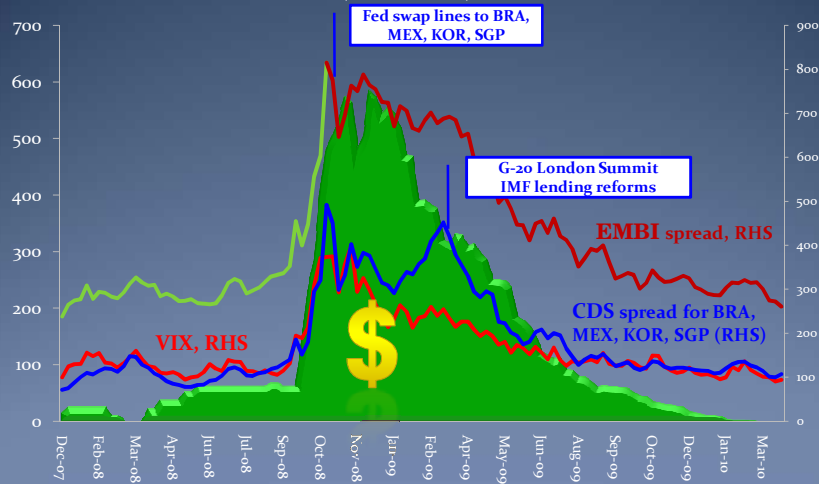
For further information ...

- www.imf.org
- <http://www.imf.org/external/pp/longres.aspx?id=4547>
- James Roaf: jroaf@imf.org
- Nathan Porter: nporter@imf.org

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Market reaction to swap lines was instant, but short-lived for EMs, until G-20 London summit/IMF lending reforms...

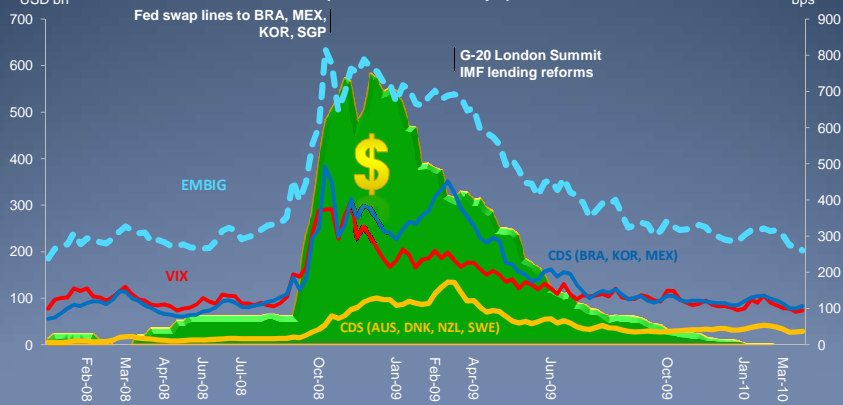
Federal Reserve liquidity swaps and Market Reaction
(USD billion)



Policy responses to systemic crises

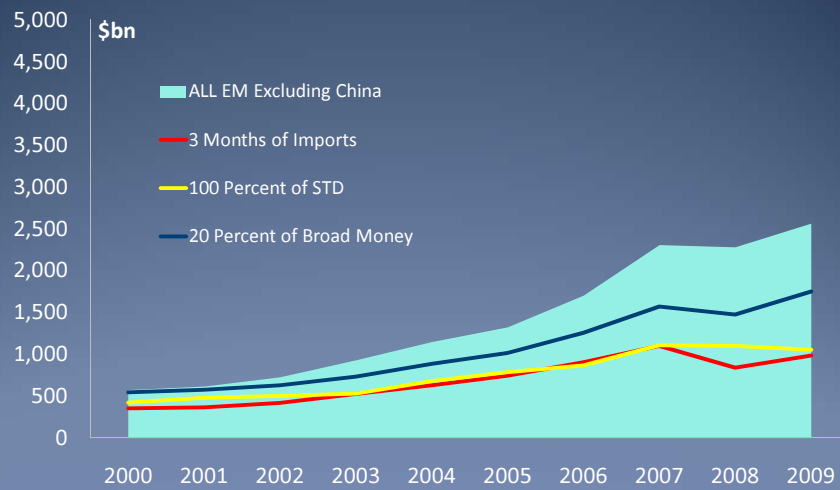
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Federal Reserve dollar liquidity swaps and market reaction
(USD billion and bps)



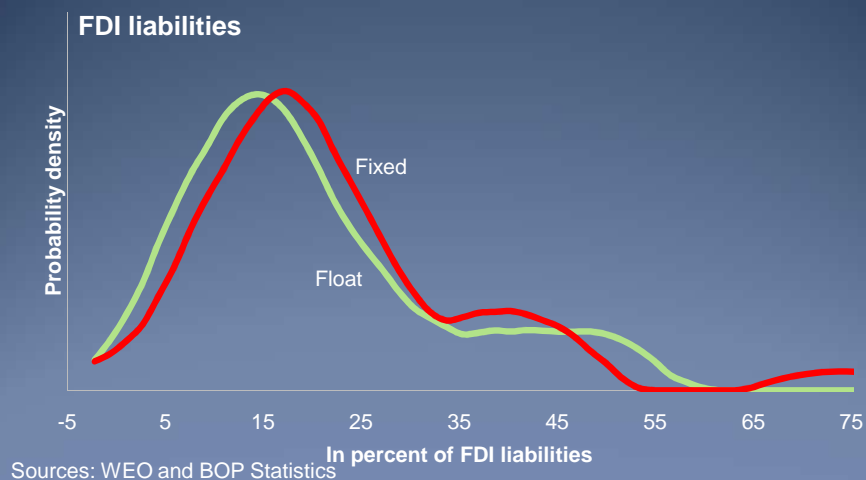
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(also excluding China and oil exporters)



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Unlike other financial account stocks, FDI does not leave.



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