Exposure to emerging markets : How to integrate country risk into a comprehensive portfolio approach

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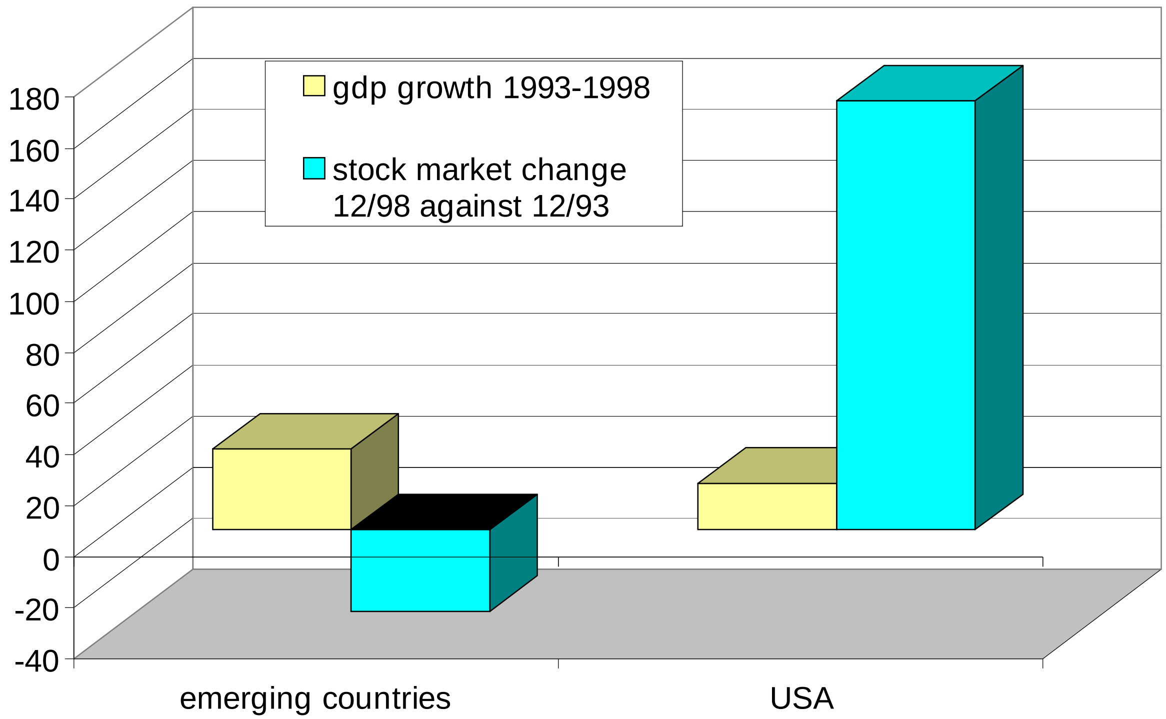
- Standard country risk analysis remains vital, but is not enough
- Risk diversification through cross-country correlation of risk
- Higher efficiency portfolio approach including combinations of broad classes of counterparts with country-specific situations

introduction

THE PARADOX OF EMERGING MARKETS : STRONG GROWTH NOT REWARDED BY FINANCIAL PERFORMANCE TRENDS



Emerging stock market changes measured from ING Barings World Index in USD

- Economic growth much stronger than in industrialised countries
- But poor performance for financial assets, when taken as a trend

TIMING AND COUNTRY SELECTION ARE THE KEYS, FOR EQUITY MARKETS AS WELL AS FOR OTHER FINANCIAL ASSETS (INCLUDING LOANS)

- The basic example of stock markets : a “right” timing and area selection (Asia, Latin America or Emerging Europe) would have given a 375% gain since December 1993 !

- But the sudden reversals and losses are very difficult to avoid ...

➨ Country risk analysis is still an absolute prerequisite

➨ but it has to be completed by overall risk mitigation strategies

1- COUNTRY RISK ANALYSIS REMAINS VITAL BUT IS NOT ENOUGH

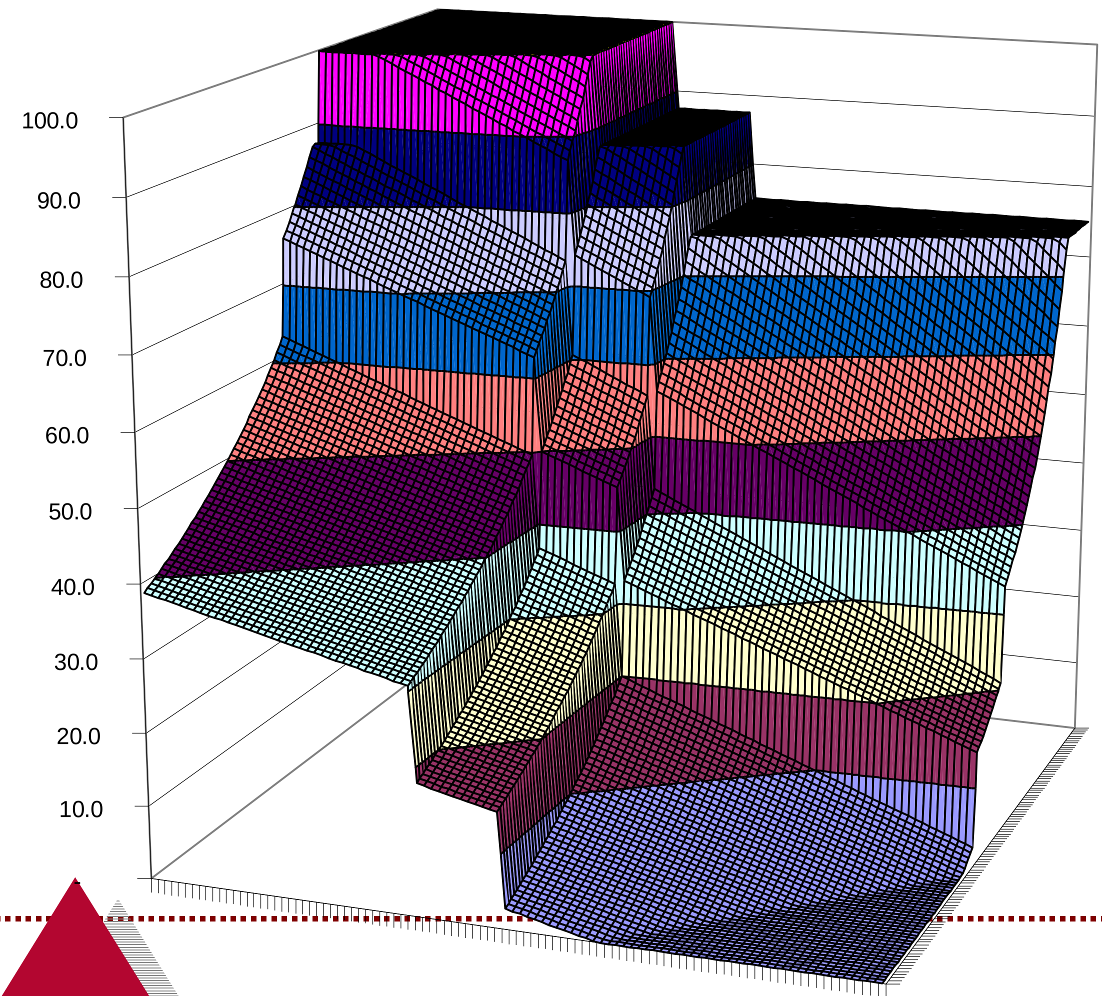
- Past crises were at least in part predictable

  ➜ if the non-linear characteristics of the relationship between economic variables and risk are taken into account

- A clear need to continuously improve existing tools

- And a benefit from confronting various approaches to risk measurement

Non linearity : an example derived from T-A-C non linear model on Short-Term Exchange Rate Balance (XR risk as a non-linear function of XR pressure indicator and FX reserves indicator)



1- COUNTRY RISK ANALYSIS REMAINS VITAL BUT IS NOT ENOUGH

- But country risk analysis cannot “do it all”, as shown by the recent crises

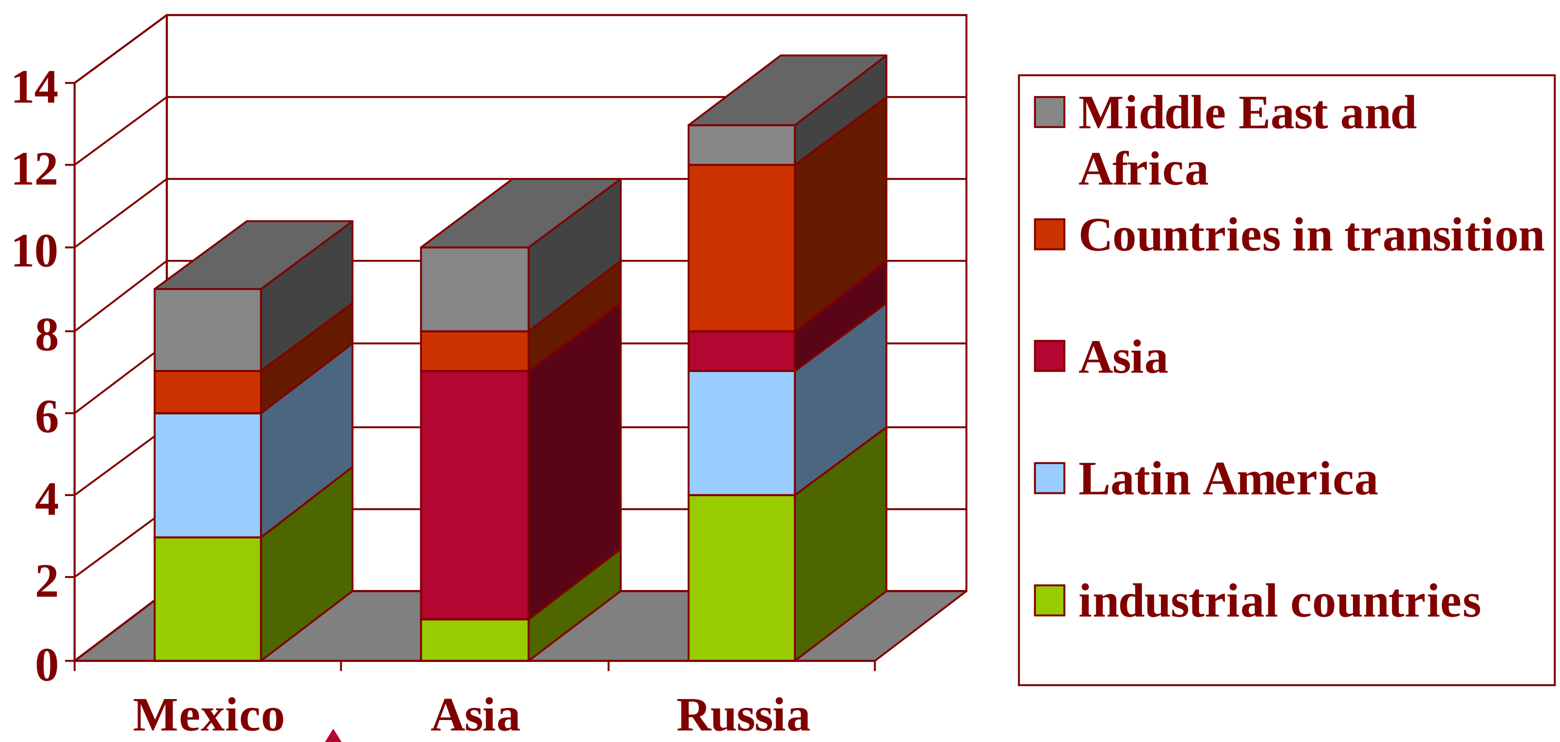
  ➜ contagion between countries

  ➜ non-linearity (again!) between macro- and micro-economic variables

  ➜ central role of the banking sector, policy reactions, markets’ perception and overall tension

Increasing and unpredictable contagion ?

number of countries and areas affected by contagion during recent crises (source : IMF)



Key elements for the relationship between macroeconomic shocks and microeconomic failures

- The banking sector : how a market over-reaction can create a non-reversible systemic shock, the case of Thailand
- Economic policy reaction : return of confidence and the non-linear impact of the crisis duration
- Overall perception and tensions within the world financial markets : differences between the Russian and Brazilian crises

2- RISK DIVERSIFICATION THROUGH CROSS-COUNTRY CORRELATION OF RISK

- The ability to measure different types of risks across time and countries allows to think in terms of "portfolio of emerging risks"

  ➜ "back to basics" on portfolio diversification principles: cross-correlation between countries

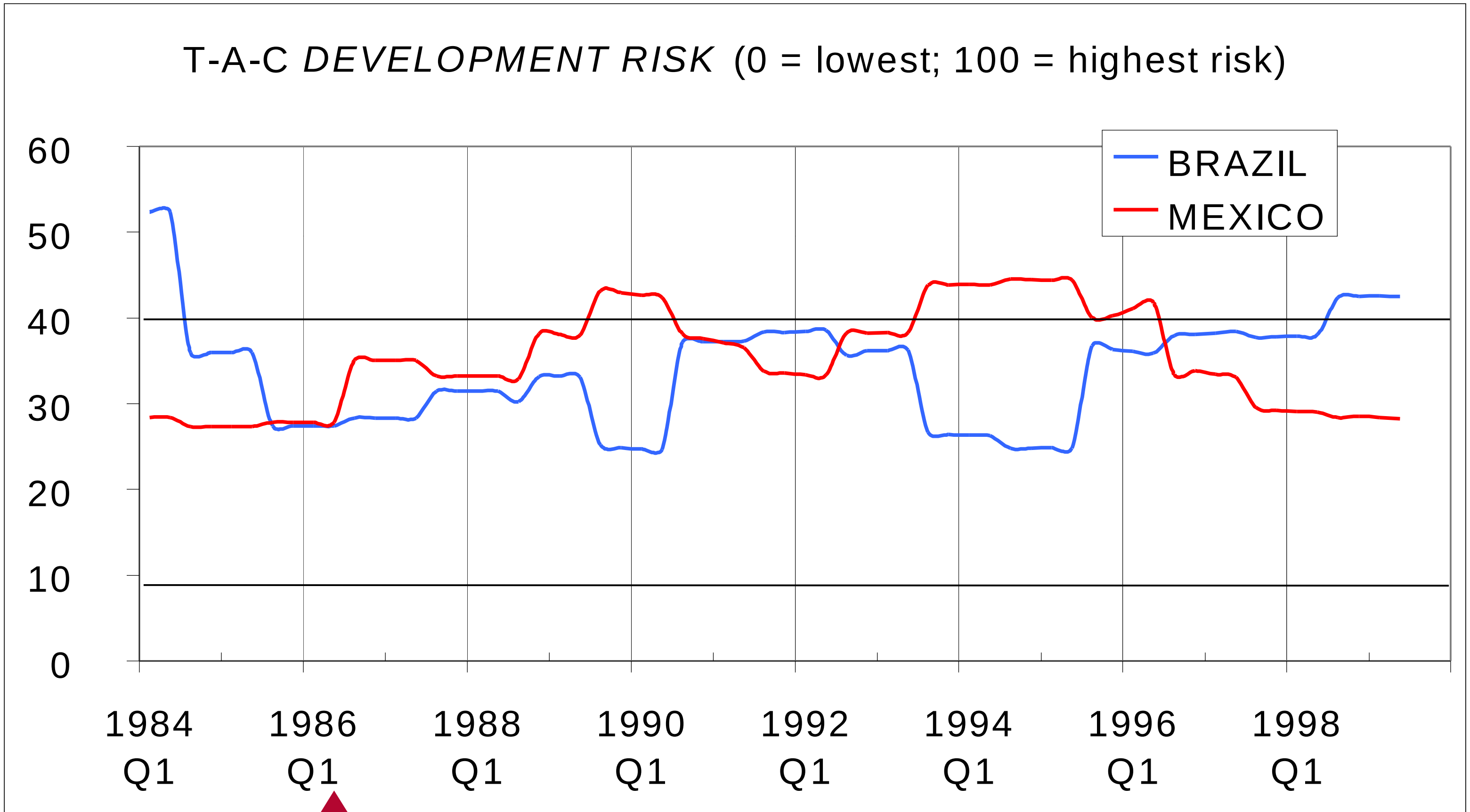
  ➜ requires to identify the exact nature of the risks taken by the foreign investor (LT *versus* ST, solvency *versus* liquidity, financial *versus* counterparty, etc.)

An interesting example within the same area:

FINANCIAL DEVELOPMENT RISK

(risk of recurring liquidity problems)

for Mexico and Brazil since the mid-80s



Computing the cross country correlation:

if you increase your exposure to South Africa and are most sensitive to changes in financial variables,

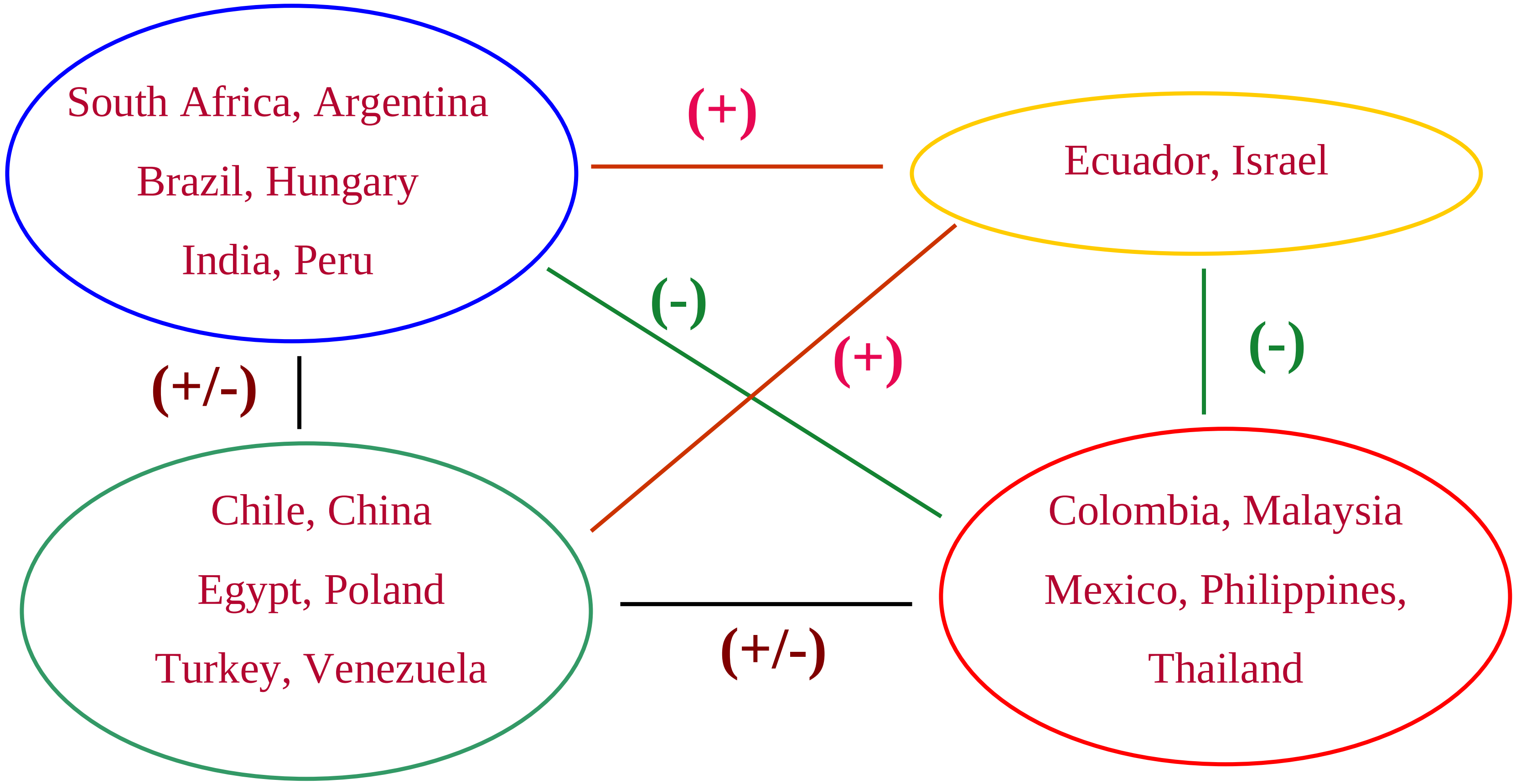
what can you derive from a 10-year correlation analysis ?

- Calculation on T-A-C *ST FINANCIAL RISK*
  - → correlation of quarterly measures between 1987 and 1998
  - → between South Africa and 38 other developing countries
  - → identification of countries with correlation coefficient over 0.5 or below -0.5

➨ 4 countries with high positive correlation : Algeria, Bahrain, Saudi Arabia and India

➨ 5 countries with high negative correlation : Colombia, Egypt, Poland, Thailand and Uruguay

Computing the cross country correlation:
“cluster analysis” on T-A-C *ST FINANCIAL RISK*



3- HIGHER EFFICIENCY PORTFOLIO APPROACH INCLUDING COMBINATIONS OF BROAD CLASSES OF COUNTERPARTS WITH COUNTRY-SPECIFIC SITUATIONS

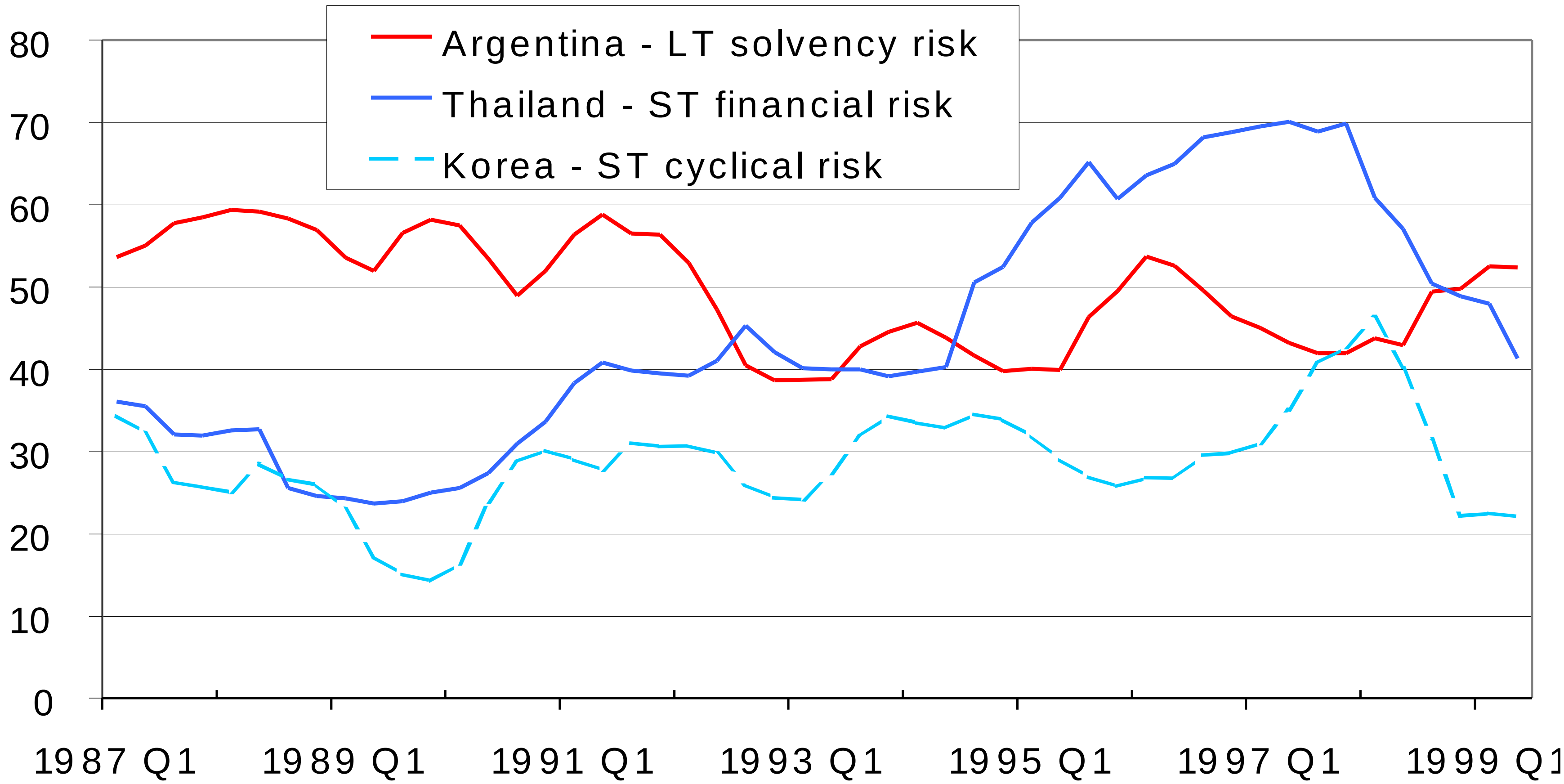
- Diversification of risk can be further enhanced
  - ➜ by looking at the different categories of risks (LT / ST, solvency / liquidity, financial / counterparty)
  - ➜ by improving the selection of counterparts within each emerging country

You have a long-term exposure on an Argentine counterparty
***solvency risk* is your main preoccupation**
It is possible to reduce the overall risk by ...

- Improving "pure risk diversification", as described before, with a reduction in similar exposure to Brazil, Hungary or the Philippines and / or an increase in similar exposure to Indonesia, Mexico, Poland ...

- But you can also look for a different kind of "exposure management" :
  - → reduction in short-term exposure to financial variables (XR, IR) in Hungary, India, Brazil or Peru
  - → reduction in long-term liquidity risk exposure in Egypt or Ecuador
  - → increase in ST exposure to financial variables in Mexico, Thailand or Indonesia
  - → increase in ST exposure to cyclical developments (counterparty risk) in Thailand, South Korea or Morocco ...

Risk indicators do move in different directions : an example from T-A-C measures on Argentina, Korea and Thailand over the past 10 years



3- HIGHER EFFICIENCY PORTFOLIO APPROACH INCLUDING COMBINATIONS OF BROAD CLASSES OF COUNTERPARTS WITH COUNTRY-SPECIFIC SITUATIONS

- Improving the selection of counterparts within each emerging market in order to increase the overall diversification of risk
  - ➜ definition of broad classes of counterparts according to (theoretical) *financial structure* (LT financial strength and ST liquidity situation)
  - ➜ cross correlation analysis on *solvability ratios* for a large number of counterparts
  - ➜ statistical analysis of the relationship between the *solvency ratios* and the characteristics of *country risk*, *industry risk*, and *financial structure*

3- HIGHER EFFICIENCY PORTFOLIO APPROACH INCLUDING COMBINATIONS OF BROAD CLASSES OF COUNTERPARTS WITH COUNTRY-SPECIFIC SITUATIONS

- The statistical analysis can rely on newly established and highly efficient tools for data analysis:
  - ➜ Self Organizing Map or Kohonen Network, which can give a visual discrimination between classes of counterparts according to the most relevant criteria of *country risk*, *industry risk*, and *financial structure*
  - ➜ Genetic Algorithms (close to the neuronal networks), which can detect the optimum combinations between the various criteria

Using counterparty analysis to improve the overall risk of country risk exposure

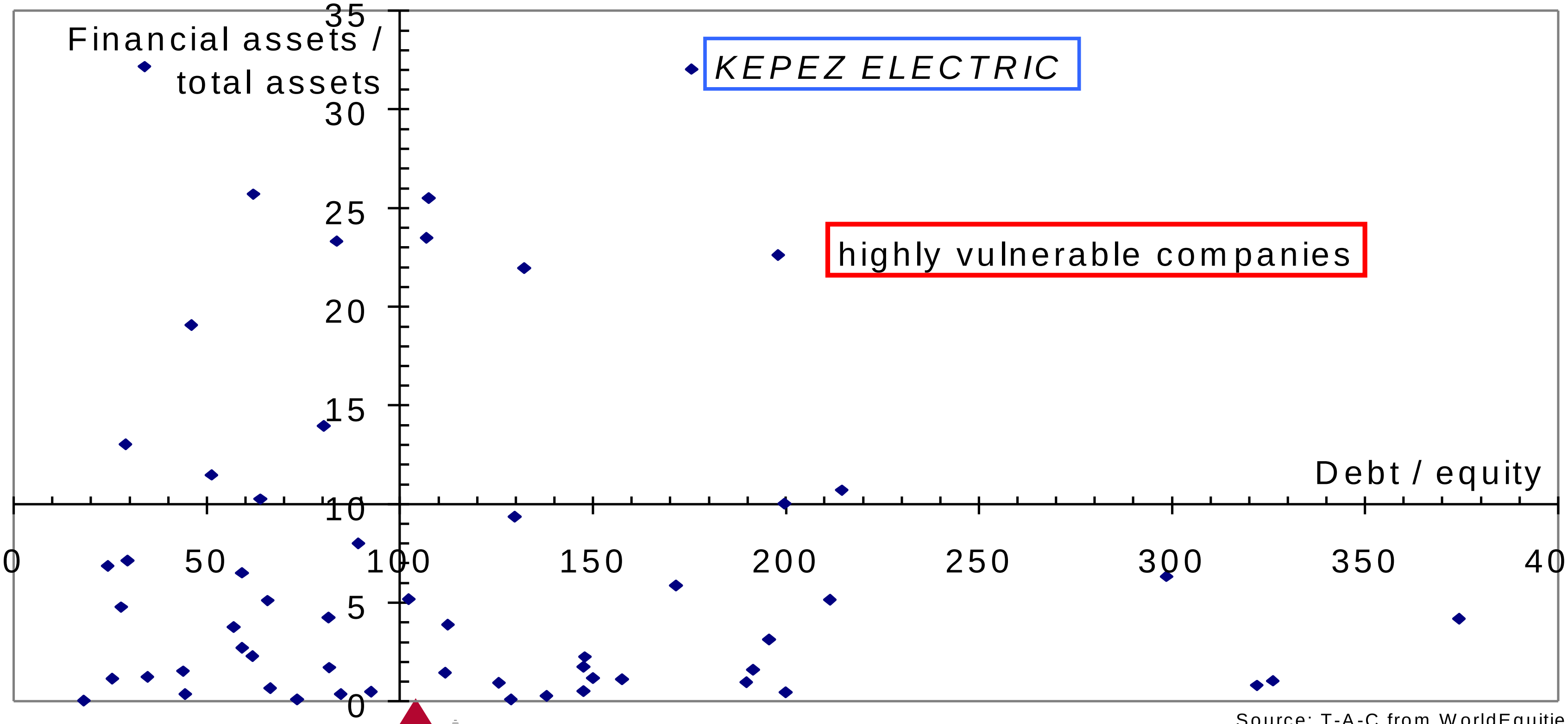
if you have to increase your exposure on a Turkish company when you think that *ST Financial Risk* for Turkey is increasing ...

- Characterisation of the Turkish counterparty according to its *financial structure*

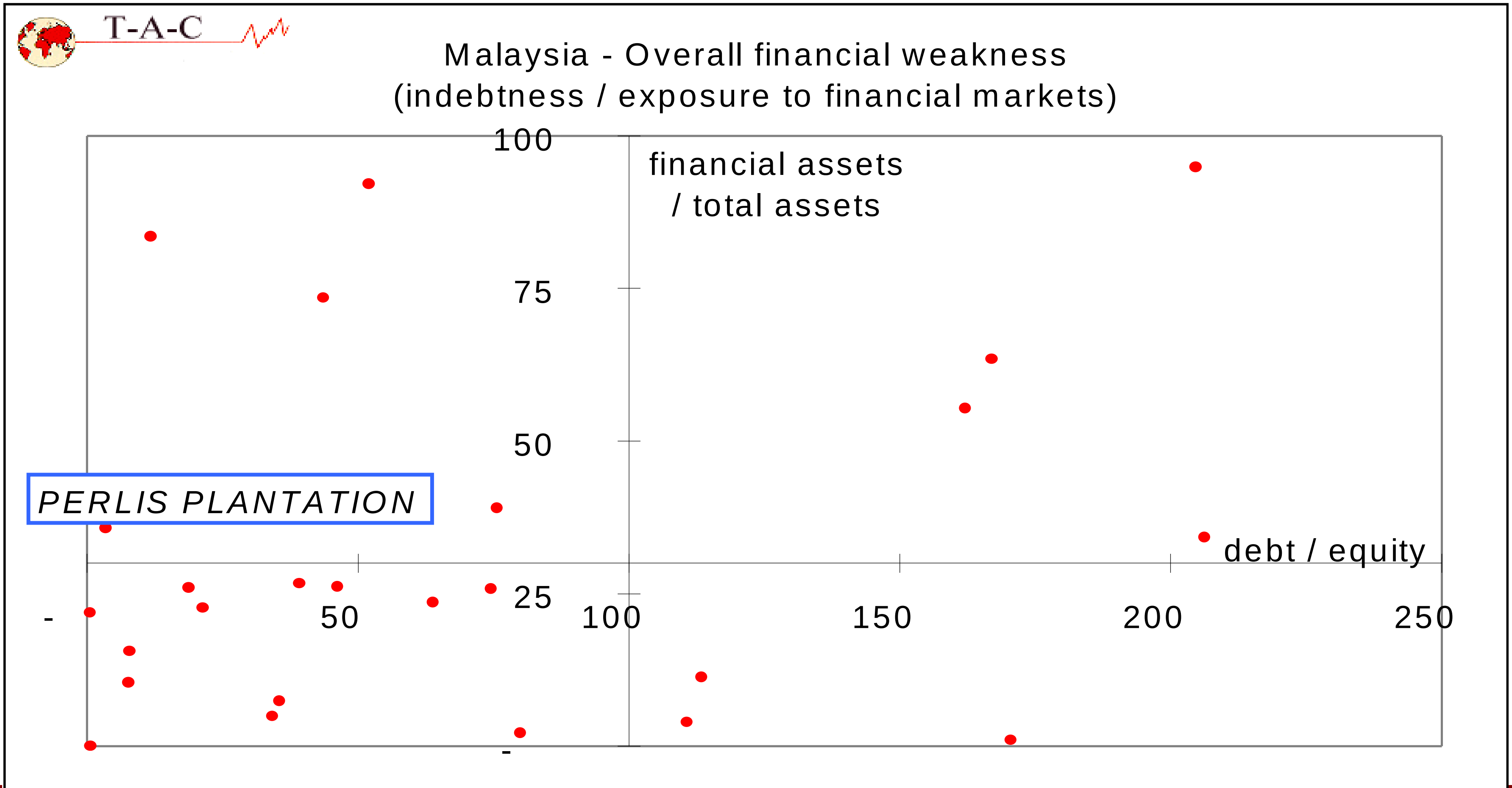
- Identification / detection of *country / industry / financial structure* characteristics which offer the highest negative correlation or risk diversification
  - → as of 1999Q2, Malaysia offers a much lower *ST financial Risk*
  - → with companies offering a strong *LT financial position* as well as a positive *sensitivity to ST financial changes*
  - → so that the overall risk is reduced by simultaneously increasing the exposure to such companies

Using counterparty analysis to improve the overall risk of country risk exposure

FINANCIAL VULNERABILITY OF TURKISH COMPANIES



Using counterparty analysis to improve the overall risk of country risk exposure



CONCLUSION : THE NEED TO DEVELOP AN “INTERACTIVE” AND MORE COMPLEX APPROACH OF COUNTRY RISK

- Improvement of specific characteristics for country risk according to the type of investment
- Integration of geographical diversification
- Integration of diversification according to the different types of risks
- Integration of counterparts’ characteristics in overall country risk management

T-A-C

T-A-C was created in 1991 with the aim to improve analysis of the links between the macro-economic and financial environment on the one hand, and corporate strategic choices on the other, and to supply information which can be readily integrated in operational decision processes.

The major research areas on which T-A-C can apply the highest expertise include :

- country risk analysis: non-linear logic analysis, risk rating and optimisation processes, in-depth long-term political, social and economic scenarios ;
- international financial markets : cyclical developments and asset allocation, evolution of exchange and interest rates;
- structure of, risks in and performance of the banking and insurance industry : analytical tools for risk assessment, changes in competition and markets, links between macro-economic evolution and the performance of financial institutions.

During its first eight years of existence, T-A-C has conducted research for more than thirty five corporations or business organisations, either through studies dedicated to answering a specific operational issue or through more general studies aiming at providing background information for decision making.
The following list names some of our customers:

Association Française des Banques, Banque de France, Crédit Agricole Indosuez, Caisse des Dépôts et Consignations, Crédit Agricole, CNP, Banque CPR Crédit Mutuel, UE CIC, Société Générale, BBL, CENCEP (Caisses d'Epargne), The European Commission, The Ministry of Finance (France), ...

T-A-C voluntarily keeps a light structure of six economists / analysts but can complement its expertise with the recourse to other specialised consultants or through association with other consulting firms.

T-A-C is headed by **Pr. Thierry APOTEKER**, who graduated from the elite French business school HEC and obtained a Doctorate in monetary economics from the University of Paris. Thierry Apoteker started as a junior economist in a French think tank (B.I.P.E), and then moved to Banque Indosuez (now Crédit Agricole Indosuez), a major international French bank headquartered in Paris and operating in more than 70 countries world-wide. He set up the country risk division before becoming the bank's chief economist and head of the Research Department. He quitted the bank in 1990 to create the consultancy group which bears his name. He taught banking and financial economics at the University of Rennes as an Associate Professor until September 1997.

T-A-C

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