Country risk score over pacific alliance

CASTILLO - Edgar† & FORNAGUERA- Luis

Instituto Tecnologico de Estudios Superiores Monterrey

_____

The Pacific Alliance has become the biggest block of countries in Latin America, aiming towards a better interaction with Asian markets and an even closer coordination between the four founder countries as well as a broader arrange of members in the future. However, how well are they doing in a strictly financial matter, such as banking? Is the financial system of the four founders tough enough to sustain the size of such a group? We discuss this and many other matters with the numbers provided by their respective authorities and, even better, rank them with a new country risk score to meet the soundness of their economies, aiming to create an even more accurate model to predict bankruptcy in banks.

Pacific Alliance, Financial system, Economies, Banks

_____

Citation: Castillo E, Fornaguera L. Country risk score over pacific alliance**.** ECORFAN Journal-Mexico 2014, 5-13: 1072-1079

_____

_____

† Researcher contributing first author.

Introduction

Banking, since the recent 2008 crisis and the overwhelming evidence of its causes in the banking, regulatory and mortgage sector, has become (if it wasn't enough already) one of the most important pillars of the economic analysis, projections and risk forecasting for every single economy around the world. However, regulatory authorities, as well as rating agencies, have the somewhat 'dirty' job of checking financial statements to verify the soundness of banks. Even with a variety of scales and methods to check those financial statements, a good and accurate measure for every single bank around the world would prove helpful to predict the default risk and health of the banks. Some other sectors on the worldwide economies have a proper way to achieve indexes and default risk indicators. Manufacturing sectors, stock participants and companies other than manufacturing (other than banks) have the Z-Scores by Altman. DuPont analysis, in the other hand, has been proven useful by using financial statements and reasons to achieve indicators on capital, rotation and profit margins, among other indexes, achieving a 'universal' approach since most respected companies use financial statements with a (kind of) similar base.

However, we all know banks don't have regular financial statements. Most of these indexes focus on normal companies rather than the specific banking companies and penalize high levels of debt and leverage, one of the main characteristics of a bank. It would be fair to assume that we can't use the standard way of measuring these indexes since the base of them, a financial statement, is not normal. In the other hand, emergent economies have been some of the best performing over the last years.

Even with the 2008 crisis, the 'natural' things that happened on the following years (like the rising of prices of bonds, attractive interest rates and a not-so-big response to worldwide volatility) have had a rather positive impact on these economies and most of them have been doing well so far, maintaining their exports and economic conditions stable. It is well known, as well, that some of the most important banks around the world have made emergent economies (specifically Latin America) their 'jewels' and most important markets, such as BBVA, Santander, Scotiabank, Citibank, HSBC, Barclays and many others. If Latin America has become that important on the banking sector, it would be fair as well to analyze the health of the latin banks. However, we need a source big enough to make a difference.

Luckily, the Pacific Alliance (Alianza del Pacífico, in Spanish) has been growing on the last years and caught the attention of the world's biggest blocks and economies. Lately, the Pacific Alliance has dispatched Mercosur from the biggest exporting block of Latin America, becoming the 8th biggest economy and 7th biggest exporting block of the world. Finland, Morocco, Costa Rica and Greece, among many other countries, have developed interest on joining this block originally formed by México, Chile, Colombia and Peru and make it even more powerful. If there is a Latin American zone to be recognized and worth of being analyzed, this is it. Having our problems and sector defined, from now on we'll be focusing on proving some standard approaches on the country risk measurement and even creating a new approach, aiming to combine it with another qualitative analysis to create a new, accurate default risk predictor for banks.

Even if these approaches don't make that much of a difference now, we'll be aiming to adapt and even create other models proper to the banking sector all around the world while discussing several curious facts and a first round of analysis.

1 Development

First off, we thought we needed a base model to develop a new one. Country risk models are (luckily) varied with plenty of variations, bases and approaches. We focused on four models and companies, given their strength and their methodologies:

- BBVA Research Model
- Bloomberg Model
- Moody's Model
- S&P Model

All four of them had varied approaches and assumptions. While BBVA focused on macroeconomic variables over other kind of data, Moody's and S&P had a specific approach for banks. Bloomberg, on the other hand, had a simple, yet practical way of determining a score rather than a complex methodology. The decision of a base model was tough, but Bloomberg came out as our choice because a basic spreadsheet with a very basic methodology came out with very interesting results and with a very accurate (and general) way of developing and concluding a significant country risk score. Bloomberg's score is basic and practical, yet accurate. It's based on first-hand Bloomberg's economic data and a basic percent calculation to deliver a score accurate enough to make yourself an idea of the situation of a country.

First, Bloomberg's model acquires a set of data on a specific topic (Bond spreads, GDP, etc.) and ranks every single country with a "Percent Rank" function, which means they rank every number as a percentage (being 100% the highest number and 0% the lowest). That percentage is multiplied by a factor, given by the result of 100 divided by the number of data sets or topics (default factor was 3.85 on equally weighted numbers) to sum a score, finally. Simple, isn't it? However, we thought Bloomberg's model was not enough for our goals. Even with a practical and simple spreadsheet, Bloomberg's model only considered economic, financial and political risk. We thought a country's situation is not measured accurately only by those factors, but by many other things as well. In consequence, we needed to find some other data sets to add to our model. We believe society was our solution, and came out with important variables explained shortly.

Pollution: Since the beginning of (industrialized) time, pollution has become a major concern on our modern life. Countries invest insane amounts of money just to lower the levels of contaminant agents and that should talk about the soundness of an economy (if you don't have money as a country, you don't invest in such things). Anyway, pollution also talks about the country's culture itself and the way they develop with the bigger, cleaner economies. That should be a plus.

Criminality: Being safe is a major topic anywhere. Criminality indexes show how safe a country is and how safe a business investment would be. Major companies don't invest in violent countries because they take the risk of losing it all if violence spreads and gets out of control. Again, criminality also talks about a country's culture and the way they develop their lives: the good way (working and getting a job, etc.) or with violence.

Birth rate: It is a well-known fact that Europe's most advanced economies are, as well, the oldest ones. Being an old economy (not too old) is an advantage since it represents experience, education and culture. It also means that elder people are prepared enough to know the risks of having a baby and are concerned about birth control, which means an efficient health system and a rather good health infrastructure (or infrastructure in general terms).

Migration: People flee from bad working conditions. That's a fact. Bad working conditions, in consequence, mean under-developed economies or a poor labor force regulation. Any of those meanings are bad for our comparison, which could lead to social volatility apart from low salaries and a slow-growing economy. We are looking for countries where people want to go, not to flee from.

Scholarship: Prepared people mean a bright future. Just to give an example, South Korea invested on education and had an impressive growth on GDP per capita over the last 40 years based on technology. Modern society is not about prime material, but about knowledge. Technical advancements are directly related to this and could lead to a better future if encouraged.

Internet: Yes, internet. The World Wide Web has become the main source of advancements on technologic and educational matters over the last 25 years. Having a connected country definitely impacts the way society learns and interacts with the world positively, meaning a higher chance of a growing economy.

We now have a 32-factored coefficient with financial, economic, political and social indicators. Using Bloomberg's method, country risk for the four founders of the Pacific Alliance came out like this:

Colombia Indicators		Values	Percent Rank	Per * Coef.
5Y CDS		118.658	51.00%	1.59375
10Y Bond Spread (10Y		371.1	22.80%	0.7125
1Y Price Change (%)		-11.17551	7.00%	0.21875
Index Returns To Global		-0.536041	7.00%	0.21875
Index PE Ratio		18.8146	37.50%	1.171875
EIU Banking Risk		39	52.70%	1.646875
Historical 3M Volatility		5.1819	73.50%	2.296875
FX Vol – 3M Implied Vol		7.465	72.40%	2.2625
GDP YOY%		5.1	75.90%	2.371875
GDP Forecast		4.3	75.50%	2.359375
GDP Value (BLN USD)		369.606	54.30%	1.696875
Currency Reserves (BLN		42.7579	38.50%	1.203125
Total External Debt (BLN		83.888	72.60%	2.26875
CPI Actual		2.02	59.00%	1.84375
CPI Forecast		2.3	49.10%	1.534375
Exports (BLN USD)		62.9869	26.30%	0.821875
Imports (BLN USD)		58.6313	65.00%	2.03125
Unemployment		9.65	29.50%	0.921875
Ages 15-24 Population		57.4	85.90%	2.684375
EIU Political Risk		46	35.10%	1.096875
Government Effectiveness		0.01	29.80%	0.93125
Rule Of Law		-0.39	24.50%	0.765625
Regulatory Quality		0.39	36.80%	1.15
Control Of Corruption		-0.43	22.80%	0.7125
Ease of Doing Business		42	54.40%	1.7
Starting a Business Rank		74	49.20%	1.5375
Pollution		71	23.40%	0.73125
Criminality		58.54	20.50%	0.640625
Birth Rate		17.23	52.80%	1.65
Migration		-0.66	35.00%	1.09375
Scholarship		90.4	43.10%	1.346875
Internet Penetration		22538000	49.82%	1.55686746
	Score	44.7724925		

Table 1

Chile Indicators				Values
5Y CDS		79.55	64.80%	2.025
10Y Bond Spread (10Y UST)		370.1	25.00%	0.78125
1Y Price Change (%)		-14.00009	3.50%	0.109375
Index Returns To Global Avg (Z-		-0.579695	3.50%	0.109375
Index PE Ratio		18.0823	44.70%	1.396875
EIU Banking Risk		28	87.80%	2.74375
Historical 3M Volatility		7.24	32.70%	1.021875
FX Vol - 3M Implied Vol		8.98	34.10%	1.065625
GDP YOY%		5.7	85.10%	2.659375
GDP Forecast		3.4	66.60%	2.08125
GDP Value (BLN USD)		269.869	43.80%	1.36875
Currency Reserves (BLN USD)		41.6361	36.80%	1.15
Total External Debt (BLN USD)		119.829	66.70%	2.084375
CPI Actual		1.76	60.80%	1.9
CPI Forecast		2.2	52.80%	1.65
Exports (BLN USD)		81.8759	33.30%	1.040625
Imports (BLN USD)		79.4681	50.90%	1.590625
Unemployment		5.98	58.90%	1.840625
Ages 15-24 Population Ratio		31.3	31.50%	0.984375
EIU Political Risk		26	70.20%	2.19375
Government Effectiveness		1.25	70.10%	2.190625
Rule Of Law		1.37	71.90%	2.246875
Regulatory Quality		1.54	82.40%	2.575
Control Of Corruption		1.56	77.10%	2.409375
Ease of Doing Business Rank		34	61.50%	1.921875
Starting a Business Rank		30	75.50%	2.359375
Pollution		62	28.90%	0.903125
Criminality		47.09	39.40%	1.23125
Birth Rate		14.28	63.70%	1.990625
Migration		0.35	70.90%	2.215625
Scholarship		95.7	61.20%	1.9125
Internet Penetration		7,009,000	41.07%	1.28333342
	Score	53.0364584		

Table 2

Peru Indicators				Values
5Y CDS		133.067	43.20%	1.35
10Y Bond Spread (10Y UST)				0
1Y Price Change (%)		-23.63477	0.00%	0
Index Returns To Global Avg (Z-Score)		-0.728601	0.00%	0
Index PE Ratio		22.9795	21.50%	0.671875
EIU Banking Risk		35	66.70%	2.084375
Historical 3M Volatility		4.1479	79.60%	2.4875
FX Vol - 3M Implied Vol		7.165	76.60%	2.39375
GDP YOY%		4.4	66.60%	2.08125
GDP Forecast		5.15	84.40%	2.6375
GDP Value (BLN USD)		203.79	28.00%	0.875
Currency Reserves (BLN USD)		62.3003	61.40%	1.91875
Total External Debt (BLN USD)		55.462	82.40%	2.575
CPI Actual		2.81	39.30%	1.228125
CPI Forecast		3.05	40.00%	1.25
Exports (BLN USD)		42.9598	19.20%	0.6
Imports (BLN USD)		42.5813	70.20%	2.19375
Unemployment		5.7	60.80%	1.9
Ages 15-24 Population Ratio		57.4	85.90%	2.684375
EIU Political Risk		40	49.20%	1.5375
Government Effectiveness		-0.16	21.00%	0.65625
Rule Of Law		-0.61	10.50%	0.328125
Regulatory Quality		0.49	45.60%	1.425
Control Of Corruption		-0.39	28.00%	0.875
Ease of Doing Business Rank		39	57.90%	1.809375
Starting a Business Rank		60	56.20%	1.75625
Pollution		74	22.30%	0.696875
Criminality		58.14	21.30%	0.665625
Birth Rate		19.13	43.20%	1.35
Migration		-3.03	20.70%	0.646875
Scholarship		92.9	52.90%	1.653125
Internet Penetration		9,158,000	30.99%	0.96850145
			Score	43.2997514

Table 3

Mexico Indicators			Values
5Y CDS	91.51	58.90	1.840625
10Y Bond	338.6	29.60	0.925
1Y Price	-	17.50	0.546875
Index	-	17.50	0.546875
Index PE	23.3336	19.70	0.615625
EIU Banking	36	63.20	1.975
Historical	10.685	10.30	0.321875
FX Vol - 3M	11.675	12.80	0.4
GDP YOY%	1.3	31.40	0.98125
GDP	1.53	28.80	0.9
GDP Value	1178.126	77.10	2.409375
Currency	175.432	82.40	2.575
Total	362.949	51.00	1.59375
CPI Actual	3.81	32.20	1.00625
CPI Forecast	3.6	32.80	1.025
Exports	395.569	82.40	2.575
Imports	407.827	14.10	0.440625
Unemploym	4.25	78.50	2.453125
Ages 15-24	43.3	63.10	1.971875
EIU Political	42	43.90	1.371875
Government	0.32	43.80	1.36875
Rule Of Law	-0.56	15.70	0.490625
Regulatory	0.47	43.80	1.36875
Control Of	-0.41	24.50	0.765625
Ease of	51	43.90	1.371875
Starting a	41	72.00	2.25
Pollution	55	34.50	1.078125
Criminality	52.46	30.00	0.9375
Birth Rate	18.87	46.00	1.4375
Migration	-3.11	20.20	0.63125
Scholarship	86.1	33.30	1.040625
Internet	31,020,0	26.98	0.843115
		Score	40.05874 01

Table 4

We should note that, other than the social data and the coefficient, all other data comes from Bloomberg's Country Risk methodology.

However, we believe social data adds a new, different dimension to our score and we think it's perfect to analyze, along with other quantitative data, the soundness and a default risk analysis for banks.

2 Conclusion

It turns out Pacific Alliance's countries have curious things between them. First off, Peru doesn't have a complete set of data (10Y Bond Spread data is not available) and, anyway, managed to be out of the bottom of the list. Mexico, on the other hand, has issues with financial and political stability, the main reasons of the fourth place out of four possible. Chile, in the other hand, has proven to be a solid and sound economy with the necessary reforms to develop itself. The final scores are (from 0 to 100, higher means better):

Chile: 53.03
Colombia: 44.77
Peru: 43.29
Mexico: 40.05

We should note that, even being a practical, easy and accurate (again, general) model, Bloomberg's model is far from being the ideal methodology we should be asking for. We, as a part of our investigation, are looking forward to develop a more specific model using probability and some other valuable financial resources in order to apply it to our default forecasting model for banks.

3 References

Dr. R. Kasilingam, Dr. G. Jayabal. (2012). Profitability and Solvency Analysis of a Manufacturing Company using Dupont and Altman method. January 15th, 2014,from Management

Castillo E, Fornaguera L. Country risk score over pacific alliance. ECORFAN Journal-Mexico 2014, 5-13: 1072-1079

Edge:
web.b.ebscohost.com.millenium.itesm.mx/ehost
/search/advanced?sid=b05c48d   1-462a-4bf9-
b375-
1db0ca31f919%40sessionmgr111&vid=1&hid=
128

JOSÉ F. GONZÁLEZ-HERES, PING CHEN,
AND STEVEN S. SHIN. (2010). Revisiting the
Altman Definition of Distressed Debt and a
New Mechanism for Measuring the Liquidity
Premium of the High-Yield Market. January
        15th,   2014,   from   Morgan
        Stanley: http://0-
web.b.ebscohost.com.millenium.itesm.mx/ehost
/resultsadvanced?sid=b05c48d
1-462a-4bf9-b375
1db0ca31f919%40sessionmgr111&vid=2&hid=
128&bquery=ALTMAN&bdata=J
mRiPWJ1aCZ0eXBlPTEmc2l0ZT1laG9zdC1s
aXZl

Altman,   Edward   I.   (1968).   FINANCIAL
RATIOS, DISCRIMINANT ANALYSIS AND
THE   PREDICTION   OF   CORPORATE
BANKRUPTCY.   January   15th,   2014,
        from Journal of Finance Sitio web:
http://onlinelibrary.wiley.com/doi/10.1111/j.15
40-6261.1968.tb00843.x/full

Soliman, Mark T.. (2008). The Use of DuPont
Analysis by Market Participants. January 15th,
2014,   de   University   of   Washington
ABSTRACT: Sitio web: http://0-
web.b.ebscohost.com.millenium.itesm.mx/ehost
/resultsadvanced?sid=b05c48d   1-462a-4bf9-
b375
1db0ca31f919%40sessionmgr111&vid=2&hid=
128&bquery=ALTMAN&bdata=J
mRiPWJ1aCZ0eXBlPTEmc2l0ZT1laG9zdC1s
aXZl

Peru's Financial Statements: "Transparencia
operativa" (2014), retrieved on January 15,
2014   from
http://www.sbs.gob.pe/0/modulos/JER/JER_Int
erna.aspx?ARE=0&PFL=2&JER
=467

Colombia's   Financial   Statements:
"Superintendencia Financiera de Colombia"
(2014), retrieved on January 15, 2014 from
https://www.superfinanciera.gov.co/jsp/loader.j
sf?lServicio=Publicaciones&lTipo
=publicaciones&lFuncion=loadContenidoPubli
cacion&id=60775

Mexico's Financial Statements: "Información
de la Situación Financiera" (2014), retrieved on
January   15,   2014   from
http://portafoliodeinformacion.cnbv.gob.mx/bm
1/Paginas/infosituacion.aspx

Chile's   Financial   Statements: "SBIF.cl:
Información Financiera" (2014), retrieved on
January   15,   2014   from
http://www.sbif.cl/sbifweb/servlet/InfoFinancie
ra?indice=4.0.

Data: "CIA World Factbook" (2014), retrieved
on   March   14th,   2014   from
https://www.cia.gov/library/publications/the-
world-factbook/

Pollution Data: "Statistic Brain (From World
Health Organization)", retrieved on March
14th,   2014   from
http://www.statisticbrain.com/countries-
ranked-by-air-pollution/

BBVA Research (2013), "Informe Trimestral de Riesgo País", retrieved on March 10th, 2014 from http://www.bbvaresearch.com/KETD/ketd/esp/nav/tematicas/riesgopais/index.js p Moody's Global Banks Methodology (2013), retrieved on March 10th,

2014 from https://www.moodys.com/researchandratings/rating-methodologies/003006001/methodology/rating-methodologies/003006001/4294966628%204294966440/4294966623/0/0/-/0/-/-/-/-/-/-/-/es/mex/pdf/-/rra

S&P Ratings Criteria (2014), retrieved on March 10th, 2014 from http://www.standardandpoors.com/ratings/criteria/en/us/?filtername=financial- institutions