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IBRE Economic Outlook
Trade balance: A drag on Brazil's recovery?

Interview
Teresa Ter-Minassian
Ensuring fiscal credibility

Foreign policy
Rethinking Brazil-US relations



The government announces a multibillion-real plan to encourage companies to invest in innovation, but how much return will there be on those investments?

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The BRAZILIAN ECONOMY

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THE BRAZILIAN ECONOMY









News Briefs

4 Big losses from poor logistics … external current account deficit soaring … unemployment stable as labor market cools … consumer confidence steady but not business confidence … stock exchange down, exchange rate up … Azevedo to run the WTO … tax breaks for the ethanol industry … public sector deficit up

Foreign Policy

8 Rethinking Brazil-US relations

President Rousseff's state visit to Washington will raise expectations on both sides and create an opportunity for the two countries to reassess their relations. João Augusto de Castro Neves explains why Brazil's aspirations on the world stage may have been stymied by Brasília's strategy for dealing with the US foreign policy establishment.

Cover Stories

10 Can the government foster innovation?

The multibillion-*real* Business Innovation Plan is the latest federal government initiative to stimulate investment in research, development, and innovation, but opinions about it are mixed, Solange Monteiro finds. Among the problems it faces are a shortage of trained professionals and that old faithful, the Brazil cost.

18 Innovating is risky

Seed capital, venture capital, and private equity are all vital to support companies that combine technological development and innovation. Kalinka Iaquinto explains how these sources of funding boost innovative businesses that have both market potential and growth prospects.

22 Patents wrapped in red tape

The average waiting time to secure a patent in Brazil is 10 years. Thais Thimoteo explains how the reluctance to grant patents of any kind undermines Brazil's competitiveness because it is such a high hurdle for innovation.

Interview

26 Ensuring fiscal credibility

Teresa Ter-Minassian, former director of the IMF Fiscal Affairs Department and now an international consultant, talks with Cláudio Accioli about her concerns that Brazil's recent actions are watering-down its fiscal policy goal, noting that "the primary balance is no longer a trustworthy signaling of fiscal policy." She also offers some ideas for restoring credibility.

IBRE Economic Outlook

30 Rising imports and stagnant exports will further suppress overall demand in the economy and drag down GDP growth.

ECONOMY

First quarter new job openings fell by 19.7%

The formal labor market registered 112,450 new job openings in March, said the Ministry of Labor, 8.9% less than in February. Openings for the first quarter were 306,068, down 19.7% from the first quarter of 2012. (April 17)

Chaos from farm to port

In transporting crops to port, accidents and deaths on potholed federal roads, bribes, bureaucracy, and lack of port warehouses cause US$3.3 billion in losses a year, according to experts quoted in *O Globo* newspaper. Brazil has also opted for the most expensive and polluting means of long-distance transport: 82% of the soybean crop is transported by trucks; in the U.S. trucks carry only 25% of soy production. (April 20)

External current account deficit soaring

Brazil posted a current account deficit of US$6.873 billion in March, more than double the deficit registered in March 2012, the central bank reported. Although foreign direct investment remains strong, US$5.7 billion in March, it has not been enough to cover this year's widening of the current account deficit. Brazil, a major soybean and iron ore producer, posted the smallest trade surplus for the month of March since 2001 as oil exports dropped and imports of petroleum derivatives rose. (April 24)

Consumer confidence evens out in April

After falling for six consecutive months due to tepid economic activity and high inflation, Brazil's main consumer confidence index held steady in April, according to the Getulio Vargas Foundation (FGV). The FGV Consumer Confidence Index ended April at 113.9 points, the same as in March. (April 24)

Unemployment stable as labor market cools

In March the unemployment rate in the six largest cities was up slightly at 5.7% compared to 5.6% in February, said government statistics agency IBGE. The mildness of the change was surprising because São Paulo city, Brazil's economic power house, lost 127,000 jobs, most of them in industry. Cimar Azeredo, IBGE coordinator for labor and income, said the 1.3% increase in unemployment in São Paulo raises concerns. The impact on the unemployment rate was not worse only because the city's job losses were offset by workers leaving the workforce. Average worker income also declined, by 0.2% to US$927. (April 25)

Business confidence falls again

In April, the FGV Business Confidence Index declined a seasonally adjusted 0.8% over the previous month, to 104.2 points. The drop reflected a decline in both the Expectations and the Present Situation indexes. As a result, business sentiment was at its lowest in eight months. (April 30)

Commercial bank credit expanded

Domestic credit expanded 1.8% month-on-month in March, up from 0.7% in February. Directed lending, largely from public institutions, was up 2.3% m-o-m and 24.1% year-on-year, well ahead of the 16.7% y-o-y growth in lending overall. Loan delinquencies have slacked off; they are down 0.2% from a year ago, to 3.6%. Despite the credit growth, analysts expect delinquency rates to keep falling because historically low policy rates (now 7.5%) have helped ease household debt burdens. (April 29)

Stock exchange down, exchange rate up

In April, despite reaching a high on the last day, Brazil's Stock Exchange (Bovespa) declined by 0.78%; so far in 2013 it has fallen 8.8%. Meanwhile the *real* appreciated against the U.S. dollar by 1%, ending the month at R$ 2.002 per US dollar. (April 30)

Consumer prices up in April

Consumer prices in Brazil rose 0.55 percent in April over March, and annualized inflation hit 6.49%, the state statistics agency IBGE said; 12-month inflation is now tapping at the ceiling of the inflation target band of 6.5 percent. April inflation was fueled by higher prices for health and personal care products as well as food. (May 8)

ECONOMIC POLICY



Photo: Valter Campanato/Agencia Brasil.

Finance Minister Guido Mantega

Tax breaks and credit for the ethanol industry

Brazil will cut taxes and extend subsidized lines of credit for the struggling sugar cane ethanol industry, Finance Minister Guido Mantega announced. The industry has lost market share to gasoline due to rising production costs. The cane industry association, Unica, said that the measures, although a step in the right direction, would not be enough to revive investment in ethanol capacity to keep up with demand for the biofuel. (April 23)

Federal tax revenues off 9.3% in March

The federal government collected taxes totaling R$79.6 billion in March, 9.3% less than in March 2012. Total federal tax collections for the first quarter were R$271.7 billion, down 0.48% compared to 2012. Tax exemptions to boost the economy have reduced revenues. (April 29)

Public sector deficit higher in March

The public sector deficit was R$15.9 billion in March, bringing the total for the first quarter to R$31.5 billion (2.79% of GDP); because of falling tax revenues, this was 1.53 percentage points of GDP higher than a year earlier. In March of this year public sector gross debt (for federal, state, and municipal governments and Social Security) reached R$2.7 billion (59% of GDP). (April 30)

Return on highway projects raised

Brazil has raised the rate of return for toll road concession projects, Finance Minister Guido Mantega has announced, providing yet another sweetener for the private sector as government scrambles to boost investment in a sluggish economy. The return has gone up from 5.5 percent to 7.2 percent to encourage competition and participation in the bidding for the concessions, which is expected to start in September. In February Mantega had extended the length of road concessions and improved their financing conditions. (May 8)

INTERNATIONAL

Roberto Azevedo chosen as WTO Director-General

Roberto Azevedo, Brazil's longtime ambassador to the World Trade Organization, was selected over Mexico's Herminio Blanco to be its next director general. Mr. Azevedo, 55, has a record of challenging U.S. and European farm-subsidy policies. He succeeds Pascal Lamy, a Frenchman who led the WTO for the past seven years but was unable to bring the Doha Development Round to closure. It is hoped Mr. Azevedo will be able to preside over a successful round of meetings this year in Bali, Indonesia, and advance the heavily scaled-back Doha talks. It will not be easy. (May 7)



Photo: Valter Wikimedia Commons.

New WTO Director General Roberto Azevedo

FGV Brazil

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How should governments support innovation?

CAN GOVERNMENT PICK WINNERS? And foster innovation? Those questions are naturally raised by the government's new Business Innovation Plan to encourage research, development and innovation, the subject of our cover story.

The main argument for encouraging national champions in innovation is that it worked in fast-growing countries post-World War II, especially Japan and South Korea. In Korea, there was powerful political support and public funds to promote the formation and expansion of *chaebols*, or what we would call conglomerates. Japan encouraged formation of *keiretsus*, Japanese conglomerates, but it is not clear how much government action influenced the emergence of world-beating companies like Toyota and Mitsubishi.

The success of Japan, the East Asian tigers, and more recently China has naturally attracted the attention of emerging countries looking for lessons on how to grow and reach wealth of more developed nations. However, it is necessary to see the whole picture of the Asian experience, not just pluck out one of its components, such as encouraging national standard-bearers.

The most prominent Asian tigers, like South Korea, not only encouraged innovation. They also invested heavily in education to increase productivity in the long run. They were able to finance those investments because they had high savings rates. They also had effective inflation control and an austere fiscal policy.

The main argument against government fostering innovation is that in general governments are a very bad at picking winners. Look at Japan. Its most successful products are automobiles and consumer electronics, industries that received negligible support from government. More recently, the U.S. and China have been heavily promoting, and subsidizing, the solar energy industry. The result has been a series of bankruptcies and little improvement in the efficiency of solar panels. On the other hand, without any government support, the innovations of Microsoft, Apple, and Google have transformed not just the U.S. but the global economy.

In addition, tax exemptions and subsidized credit to encourage innovation may create negative incentives for businesspeople to invest in building political connections and lobbying for access to generous government benefits rather than concentrating on cutting costs and developing new products and technologies (see: Solyndra, the bankrupt U.S.-subsidized solar panel manufacture). Meanwhile, it takes 5 years to get a patent in China and 10 to get one in Brazil—by which time it's worthless because the technology is obsolete. Wherever countries are particularly successful in developing new products, their government's share of total investment in R&D is less than 30%. The Brazilian government's share is over 50% (see cover story).

Instead of playing favorites with tax exemptions and subsidized credit for a few sectors, the government should be looking for ways to reduce costs for all companies and create an environment where it is profitable to invest in R&D.

Instead of playing favorites with tax exemptions and subsidized credit for a few sectors, Brazil should be looking for ways to reduce costs for all companies and create an environment (more education, better infrastructure, less administrative red tape, and low inflation) where companies themselves find it profitable to invest in R&D. Innovation and new products can flourish in the most improbable places.

Rethinking Brazil-US relations

João Augusto de Castro Neves

WHEN IT COMES TO PRESIDENTIAL diplomacy, symbolic gestures can be more revealing than actual accords. For that reason, President Dilma Rousseff's state visit to Washington later this year should illuminate Brazil-US relations. To begin with, the fact that it will be a state visit—the highest form of diplomatic contact between two nations—is definitively a good start. As a sign of recognition of Brazil's rising global importance, President Obama's invitation will resonate rather well with Brasilia's foreign policy establishment.

But beyond the ceremonial pomp, the visit will also raise expectations on both sides and create an opportunity for the two countries to reassess their relations. Despite the dynamism that tends to set the tone of cooperation in the private sector, there is a sense that the diplomatic engagement between the two largest democracies and economies in the Americas falls far short of its full potential. In the last two presidential meetings Rousseff was able to establish good rapport with Obama, but it was not enough to generate any substantial front-page agreement.

Some might argue that for Brazil, being under the radar or away from the spotlight is a good thing—it may be easier to avoid disputes and achieve real progress when nobody is looking. Innumerable policy proposals launched by business communities in both the US and Brazil suggest that this appraisal may have elements of truth. By extension, a similar logic arguably suggests that somewhat more detached interaction between the two nations, at least from a geopolitical standpoint, could translate into less pressure over some of Brasilia's foreign policy overtures, especially in the region.

So how to explain Brasília's deep-seated frustration with Washington's general aloofness or benign indifference toward Brazil? The short answer: prestige. But more generally, for a country that aspires to climb the ladder of global power, recognition or even support from the world's enduring "lone superpower" is vital. It comes as no surprise, therefore, to the dismay of Brazil's Foreign Relations Ministry, that while four of the five permanent members of the UN Security Council have at one time or another showed support for or outright endorsed Brazil's bid to join the club, the US has demonstrated only an uncommitted and tongue-tied sympathy.

The truth behind this neutrality rests partly on the fact that Brazil's motivations for a greater international role do not resonate

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deeply enough in Washington's foreign policy establishment. Like its fellow BRIC countries, Brazil has attractive demographics and an abundance of natural resources. But unlike the other BRICS, Brazil is nowhere near the world's geopolitical hotspots. And Brazil is the only non-nuclear power of the original BRICs (before South Africa capitalized the S). And Brazil's credentials may be questionable in comparison to the four other candidates for permanent UN Security Council membership: Japan and Germany figure among the top three donor countries to the UN budget (Brazil is not even in the top 10); China is far ahead on geostrategic points, and having a nuclear bomb may enhance India's aspirations.

It is also possible that Brazil's aspirations have been stymied thus far by Brasília's deficient strategy for dealing with the US foreign policy establishment. The foreign ministry's principled approach to Brazil's role in a new and more equitable global order may be noble, but it does not translate well into Washington's geostrategic speak. Moreover, Brasília's efforts to emphasize the regional representation angle fall on deaf ears when many of the region's most important countries are expressing vocal opinions not only about rejecting Brazil's claims to regional leadership but also to garner disproportionate support from Washington interest groups.

This is not to say that Brazil should abandon its principled approach to foreign policy to seek a shorter—more friction-prone—path

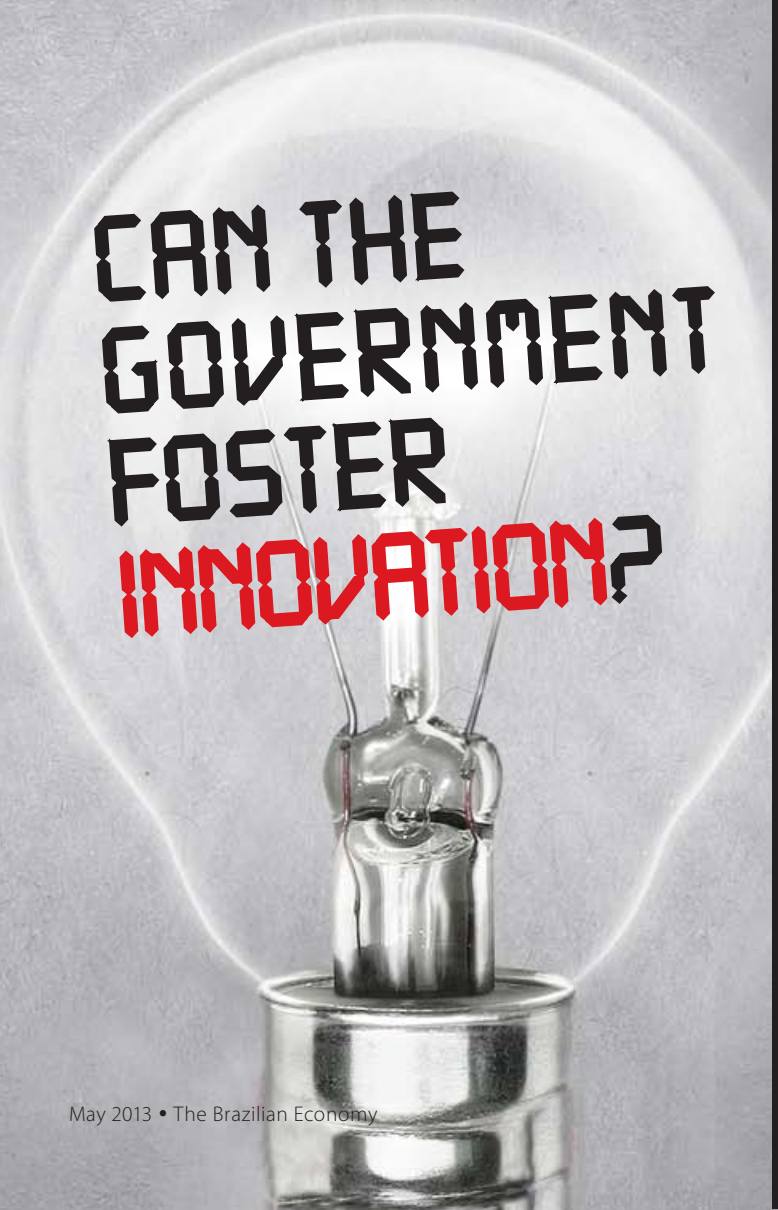
The diplomatic engagement between the two largest democracies and economies in the Americas falls far short of its full potential.

to the center of the US strategic field of vision. Neither should Brazil forgo its efforts to consolidate a more stable regional order and turn its back on sometimes disaffected neighboring countries. Quite the contrary. The country should maintain and even deepen those commitments.

But Brasília can learn from other Latin American nations and fellow emerging countries on how to engage with civil society, businesses, and academia to better defend Brazil's interests in Washington's policy circles. Good intentions alone do not do the trick. Money and research are vital to a long-term and coherent engagement strategy. While lobbying is frowned upon in Brazil—to put it mildly—Brazilian policymakers and businesses need to keep in mind that it is a legitimate and ubiquitous activity in the US.

Brazil's motivations for a greater international role do not resonate deeply enough in Washington's foreign policy establishment.

The government announces a multibillion-real plan to encourage companies to invest in innovation, but the business environment needs work to ensure that there will be a return on those investments.



CAN THE GOVERNMENT FOSTER INNOVATION?

Solange Monteiro, Rio de Janeiro

AN UNPRECEDENTED MULTIBILLION-REAL PLAN is the latest federal government initiative to stimulate investment in research, development, and innovation (RD & I), diversify the production of goods and services, and improve productivity. The government seems to have realized that without private investment in innovation, Brazil's loss of competitiveness will accelerate.

The Business Innovation Plan (*Plano Inova Empresa*) announced in March is expected to attract R $ 28.5 billion in direct investment from the government, plus R$4.4 billion from the national petroleum agency (ANP) , Electric Energy (ANEEL), and the Brazilian Service of Support for Micro and Small Enterprises (Sebrae). It is also expected to boost private investment in RD&I to correct a major imbalance: too much basic scientific research and too little applied research. Today, although Brazil's public spending on RD & I as a share of GDP is very similar to that of other countries, private companies spend less than in members of the Organization for Economic Cooperation and Development (OECD).

"University researchers focus on publication of articles; our productive environment is somewhat averse to taking the risks of an innovative strategy," says economist David Kupfer, coordinator of the Industry and Competitiveness Team of the Federal University of Rio de Janeiro (UFRJ). "Now, however, the government has opted to focus on technological development from the point of view of future profit generation—profitability," Kupfer says. He added that makes the new policy "implicitly very attractive."

The government seems to have realized that without private investment in innovation, Brazil's loss of competitiveness will accelerate.

Some analysts, however, speculate that, although the measure is clearly relevant, the results will be less than expected if the government does not significantly improve the business environment to reduce the cost of innovation and ensure it earns a return. "If the business environment is hostile to fixed investments, innovation becomes even riskier," says economist Mauricio Canêdo, Brazilian Institute of Economics (IBRE), noting that a timid recovery of fixed investment has only just begun after several quarters of falling investment. "Today, there is a trend for the government to invest money to fix everything. It has become clear that this policy alone does not guarantee results," adds Claudio Frischtack, president of InterB consulting.

THE INNOVATION PLAN

The new plan has two parts. The first is funding. In addition to the government commitment for 2013–14, the plan gives businesses access to resources, and existing grant, loan, and venture capital programs can be accessed for the same project, using a one-stop shop, the Brazilian Agency for Innovation. The plan also creates the Brazilian Enterprise for Research and Industrial Innovation (Embrapii), which will be launched with R$1 billion to support cooperation between companies and technological institutes on innovative projects. The new plan is directed to seven areas: agriculture, energy, oil and gas, health, aerospace and defense, information technology and communication (ICT), and environmental sustainability.

"While Brazil has a relatively complete menu of innovation policies, they lacked strength. Allocating more resources, with well-defined target sectors, makes a major breakthrough, "says Fernanda de Negri, Director for Studies and Sectoral Policies for Innovation, Regulation and Infrastructure (Diset), Institute of Applied Economic Research (IPEA). The Funding Authority for Studies and Projects (FINEP), the government agency responsible for 40% of the government's share of resources in the new plan, will streamline processing and approval of resources for projects. "With the new innovation plan, our budget increased by R$6 billion, and

The results [of the Business Innovation Plan] will be less than expected if the government does not significantly improve the business environment to reduce the cost of innovation and ensure it earns a return.

we need to respond efficiently to private sector requests," says Glauco Arbix, FINEP President.. "We expect to announce in July that any project submitted will receive a reply within 30 days."

The National Bank for Economic and Social Development (BNDES), which accounts for R$ 15.3 billion of the total government commitment for the plan in 2013–14, also wants to approve project funding within 30 days. Maurício Neves, superintendent of the BNDES industrial area, expects that the magnitude of projects will be very different from what had been usual, pointing out that "we went from R$100 million in five years to R$3 billion after announcement of the plan to support innovation in the sugarcane industry (the PAISS)." Neves notes that the New Innovation Plan specifies certain deadlines, and helps the bank define the best funding instruments.

The Sugarcane Technology Center (CTC), in Piracicaba, São Paulo state, is one of 25 companies selected to receive PAISS funding. In 2011, the CTC submitted 22 projects to FINEP-BNDES. "It took time to analyze the projects. But in the end we approved six projects for grants and loans and contributed R$4 million to the University of Campinas' research institute partner," said Diego Ferrés, CTC director of strategic planning. Now, CTC collects royalties per hectare planted with the 30 new sugarcane varieties developed.



Publicity photo.

National Institute of Technology (INT), Rio de Janeiro state.

NEW PARADIGM

Paulo Mol, director of innovation, National Confederation of Industries (CNI), is responsible for the Embrapii pilot project. He says the new agency will not only bridge industry and research institutes but is also focused on markets because it has a financing tripod: enterprise resources, Embrapii grant, and research center contributions of infrastructure and researchers. Research institutes will be responsible for assessing the merits of projects they participate in, which was once done by the financing agencies, so that the process should be faster and more flexible. To claim their share of the

one billion reais available, research institutes must not only have an excellent research track record but also be able to identify how each project will serve the market.

Testing of the new strategy began in April 2012 with the National Institute of Technology (INT) under the Ministry of Science and Technology in Rio de Janeiro, the Institute Technological Research (IPT) in São Paulo state, and the Center for Integrated Manufacturing and Technology (Cimatec), a private nonprofit organization connected to the National Service of Industrial Learning (Senai). The results underscored some of the challenges that the new system must meet to bring private investment in innovation up to OECD standards. "Senai-Cimatec performed better than the other institutes because market focus was already intrinsic to its operations," Mol says. Senai-Cimatec closed the first year of the pilot with 12 contracted manufacturing and automation projects with a total value of R$18 million and another six projects being negotiated.

In the IPT in São Paulo, where 60% of revenue (R$132 million in 2012) is derived from appraisals, quality control, and metrology services to markets, the focus is on process improvement. "We are introducing a system to evaluate the performance of researchers in terms of five criteria, including market knowledge and negotiating skills," says Flavia Gutierrez Motta, IPT coordinator of planning and business. The institute was accredited to work in biotechnology, nanotechnology, and microtechnology and this year added new metallic materials, polymers. and ceramics. By April 2013 IPT had eight projects contracted, totaling R$7.5 million, and is about to close on another

"Today, there is a trend for the government to invest money to fix everything. It has become clear that this policy alone does not guarantee results."

Claudio Frischtack



Photo: Nelson Campos.

Sugarcane Technology Center (CTC), Piracicaba, São Paulo state.



Publicity photo.

Institute for Technological Research (IPT), São Paulo state.

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R$15 million contract. According to De Negri, in all cases projects were processed faster: "Negotiations with Funtec [the BNDES Technological Fund], involving R&D and intellectual property, used to take 10 months to more than a year. Negotiations with Embrapii took just three to five months."

Carlos Alberto Marques Teixeira, INT coordinator, embraces the efficiency of the new model as well as the allocation of resources: "Embrapii makes [the whole funding] available when 80% is committed, not just when they are executed, as has been traditional for FINEP. This is better suited to market reality." His institute, whose specialties are energy and health, had five contracts totaling R$9 million signed by April, and had asked Embrapii for R$15 million for new contracts that it expects to close this year.

When fully operational, Embrapii will investigate whether other technology research centers throughout Brazil can participate effectively in the new research plan. However, the Ministry of Science and Technology has not yet announced the relevant criteria. CNI's Mol says, "The criteria should follow the guidelines we have used so far: qualification of laboratories and human resources, results of previous cooperative projects involving companies, and success in private fundraising."

According to an IPEA survey of 196 laboratories and infrastructure authored by Fernanda De Negri, 37% had not provided technology services to businesses in 2011. "Those who manage to build scale and specialization will win," she says. Another

Brazil lags behind in number of researchers and patents.

	Researchers in R&D	Patents (per million inhabitants)	Engineers and scientists	Patents per researcher (1,000)
Germany	3,780	203.6	4.5	53.9
Argentina	1,046	1.1	3.9	1.0
Brazil	696	2.8	3.5	4.0
Chile	355	3.8	4.7	10.7
China	1,199	6.5	4.4	5.4
South Korea	4,947	161.1	4.9	32.6
United States	4,673	137.9	5.4	29.5
Japan	5,189	210.7	5.7	40.6
Mexico	347	1.6	4.0	4.7

Sources: UNESCO and World Economic Forum (2010); data for engineers and scientists refer to 2012.

factor essential to Embrapii's success that has not been defined is the source of funds for its own operations, especially after the 1 billion *reais* announced is spent.

IBRE's Canêdo sees another stumbling block: the shortage of trained professionals. He notes that in the World Economic Forum competitiveness study, under innovation Brazil's worst rating is for availability of scientists and engineers, 113 among 144 countries. The institutes that participated in the pilot innovation project increased the demand for scientists and engineers. Canêdo thinks the new plan will "encourage greater exchange of people between companies and universities, give students more incentives to go into engineering and the sciences, and even attract skilled labor from abroad."

In the World Economic Forum competitiveness study, under innovation Brazil's worst rating is for availability of scientists and engineers, 113 among 144 countries.

NETWORK PARADOXES

Companies are also responding positively to the creation of Embrapii. The partnership of Theraskin, which produces dermatological and skin care products Theraskin, with IPT in the pilot has speeded development of a new drug, leveraging the infrastructure of the IPT laboratories in São Paulo. "We have 650 employees, including 50 researchers, and we invest about 5% of our revenue in R&D.



Technology complex on the campus of the Federal University of Rio de Janeiro.

In Brazil, the government invests more in R&D than corporations. In contrast, in developed countries corporations invest more in R&D than the government.

	Corporations % of GDP	Corporations % of Total	Government % of GDP	Government % of Total	Total % of GDP
Germany	1.9	66	0.8	29	2.8
Argentina	0.1	21	0.4	73	0.6
Brazil	0.5	45	0.6	52	1.2
Chile	0.2	43	0.1	33	0.4
China	1.2	71	0.4	23	1.6
South Korea	2.7	71	1.0	26	3.7
United States	1.8	61	0.9	31	2.9
Japan	2.5	75	0.6	17	3.4
Mexico	0.2	43	0.2	46	0.4

Source: UNESCO (2010).

But research on new molecules involves high risk, and each month postponed is one more chance for the competition," says Aeissa Alves Sardagna, Theraskin director of medical and regulatory affairs. In its Embrapii project, "negotiations took only five months. In 20 months, we expect to have completed development, testing, and clinical study and be ready to request product registration."

The story of Theraskin and other companies would have an even happier ending if the macroeconomic, regulatory, and sectoral issues that make investing in innovation more expensive were resolved. For Theraskin, the principal obstacle is how long it takes to get a new medicine approved. As Sardagna explains, "We have recently seen a positive change in the National Health Surveillance Agency (ANVISA), which relieves some of the overlap with the National Institute of Intellectual Property (INPI), but we still do not know if it will take two to five years to get approval. We urgently need a regulatory change." She notes that Brazilian pharmaceutical manufacturers can sell their products in the Southern Cone countries before they can do so in Brazil.

Dante Alário Jr., CSO of Biolab Pharmaceuticals, says that "despite some progress, the industry needs clarity. For example, ANVISA rules do not address the innovation made in Brazil. For pricing drugs fully controlled by the government, the rules of the Chamber of Regulation of the Drug Market (CMED) do not allow for any item for RD&I made in Brazil." Biolab has 186 products in the works, all self-funded. One of the most advanced products is

a new antimycotic, whose final tests should be completed soon. To get the tests done fast, however, the company had to have enough of the product manufactured in China to test on 240 patients. Alário says that "It would have taken six months to import the raw materials in the quantities needed; by doing manufacturing in China, we had the drug ready in half the time."

Brazilian pharmaceutical manufacturers can sell their products in the Southern Cone countries before they can do so in Brazil.

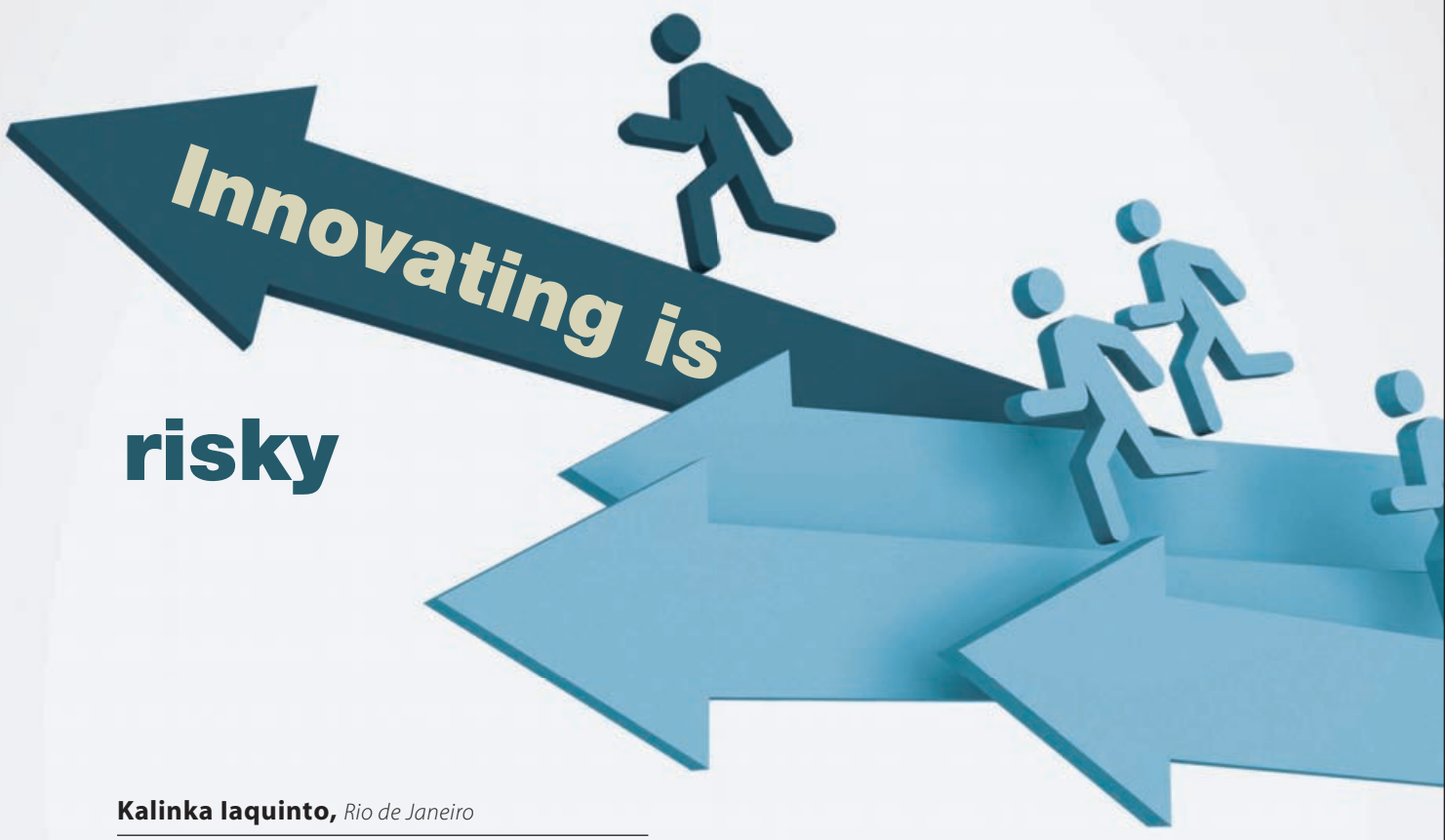
For InterB's Frischtak, these obstacles show the need for innovation without boundaries. "In Brazil, for historical reasons, we think about innovation in the same way as import substitution, setting high tariff barriers, innovation was viewed as having a native, endogenous outcome. But today innovation is carried out in several countries simultaneously," he says. "The implications of this are huge. Companies face a huge tax on imported technological services, for example. Another thing: Companies do not have the same benefits of a university, which thanks to the Romário Law can buy used research equipment .... We need to reduce taxes on the private innovation process."

The problem for an innovation policy is not the lack of progress, but the lack of perspective, and the lack of a more supportive business environment. IBRE's Canêdo explains that "Since the technology policy of the Lula administration, launched in 2004, the government has created several public policy instruments aimed at private companies. However, if we do not give the business environment the same attention, we will continue to be less productive than we could be and put the return on new investments at risk."



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Kalinka Iaquinto, *Rio de Janeiro*

COMMON SENSE SUGGESTS that there is a gap between basic science and innovative products. The new federal Business Innovation Plan (*Plano Inova Empresa*) aims not only to bridge the gap between basic science and innovative products but also promote innovative businesses.

The challenge is to boost innovative businesses that have both market potential and growth prospects. One way is through risk capital funds—seed capital, venture capital, and private equity—which, especially in the early stages, seek companies that combine technological development and innovation. The next step would be the stock market.

Risk capital is financing rapid over-the-counter tests for tuberculosis; analysis and sales of online insurance; and a new breed of wasps that can kill the larvae of pests that attack soybean and other grains (see box). These are products created to meet identified market needs efficiently and profitably.

"If the company provides a solution to meet a market need and we can capture the value of this solution to the market, we invest in the company," says Marcio Spata, manager of the Department of Investment Funds of the National Bank for Economic and Social Development (BNDES).

DIVERSITY

Risk capital funds work with a portfolio of investments in companies, of which two or three will have enough success to pay for the entire portfolio. Investors know that not all promising ideas will

succeed. "Of course, what goes wrong has to be eliminated. There is always the possibility that the investment does not give the expected result, but there is also the chance to be very successful," says Robert Binder, coordinator, Committee for Entrepreneurship, Innovation, Seed Capital and Venture Capital, Brazilian Association of Private Equity & Venture Capital (ABVCAP).

Understanding this "loss and gain" logic is important in promoting the sector and hence the Brazilian economy. "This pushes real economic development because this type of investment is what motivates others to invest. If Brazil is innovative, competitive, we will have economic development that will attract new investors," Binder says.

In Brazil, despite the international crisis risk capital funds registered 31% growth in committed capital between 2011 and 2012, from R$64 billion to R$83 billion, according to an ABVCAP survey. "What the venture capital investor is seeking is high profit. It is an alternative investment that one believes will have high financial return. This type of investment looks for dramatic innovations that create a big impact," Binder explains.

Currently, most of the investment (88% in 2012) is in less risky private equity funds, which finance companies well established in the market with high income and access to capital markets through initial public offerings (IPOs). In contrast, the comparatively riskier venture capital funds—which finance companies with market experience, good sales, and expansion by means of high-profit products—accounted for only 3%

Bug business

Kalinka Iaquinto

RAISING WASPS AND OTHER INSECTS can be a very profitable business. Diogo Carvalho and his associates solicited seed capital for a project based on biological control of agricultural pests, and in 2001 established the Bug Agentes Biologicos company. Negotiation with the Criatec fund was fast, about six months, and today the company is one of the stars of the Criatec portfolio—in 2012 it placed 33rd in a global ranking of the 50 most innovative companies by *Fast Company* magazine, by passing Petrobras, Embraer, OGX, and other Brazilian corporations.

"We started the company with seven employees, servicing 100 acres or less a month, and now we have 70 employees servicing about 2,000 hectares a day," Carvalho says. The flagship product is a minute wasp, *Trichogramma*, which brings in about 70% of company revenues. Bug Agentes Biologicos company sells a solution with nearly 40,000 fertilized wasp eggs per gram. As they grow the wasps are released to act as a parasite on the eggs of major crop pests, such as moths and butterflies. According to the company, this costs clients 30% less than common insecticides—and unlike pesticides, wasps are usually applied only once a growing season, when cultivation begins.

Targeting growers of such major crops as soybeans, sugarcane, corn, cotton, wheat, and beans, the company has a department dedicated to developing new products. "We want to increase the range of products for agricultural producers. We know we will not solve all the problems with just one," Carvalho says. Because it is a tropical country, Brazil has a great variety of pests that cannot always be eliminated by wasps alone. Bug Agentes Biologicos is now working on insects and mites that can eliminate the soybean bug.



Profitable business: The minute Trichogramma wasp at work.

Carvalho stresses that the company intends to increase the share of biological pest control in Brazil, which is currently the largest market for pesticides. Although the demand for biological products has grown—either because of environmental awareness or market standards, especially international—there is still a combination of biological and chemical pest control practices. But this scenario can be changed. "Brazil is a major exporter of technology for producing insects. We know we can supply this market at a cost often lower than for insecticides," Carvalho says. "We believe we can be a Brazilian biological multinational."

For Carvalho venture capital fund support made his company viable; it also built up the company's staff marketing skills. "The company's participation in the [Criatec] venture capital portfolio made Bug Agentes Biologicos company more visible in the market and projected a promising professional image of biological pest control."

> **"If a company provides a solution to meet a market need and we can capture the value of this solution to the market, we invest in the company."**
>
> *Marcio Spata*

of investments, mostly from the BNDES. The challenge is to boost seed capital funds, which invest in innovative business, often still on paper. These investments are even riskier, so these companies tend to get more investment from government resources, either through BNDES or FINEP.

Criatec is an example. It is a fund that invests seed capital in small but promising companies with sales up to R$6 million that are highly innovative. Launched in 2007, Criatec has invested in 36 companies with average investments of no more than R$1.5 million; its total capital commitment has been R$100 million. For the next two editions of the program (to be implemented in 2013 and 2014) the capital commitment should be around R$200 million. "Criatec went after the Brazilian science and innovation that can capture value in the market," says BNDES's Spata.

CHALLENGE

How can an innovative company get its product, still experimental, accepted by customers?

"Between the visionaries and pragmatists there is an abyss. And most companies fall into this abyss because they cannot get their products from the concept to the marketing stage. The challenge is to cross the abyss," according to José Arnaldo Deutscher, managing partner of Antera Gestão de Recursos, which administers Criatec. He emphasizes that innovation cannot be understood only as creation; it presupposes market entry, and good company governance.

Spata points out that Criatec emerged as a way of structuring a supply chain for innovative companies, in various fields. "Seed capital is strategic for Brazil because from it will emerge future big businesses," he says.

Another agency that has a powerful venture capital presence is the federal Funding Authority for Studies and Projects (FINEP), which since 2000 has approved

Types of Risk Capital Funds

Angel Investor – Individual or funding agency that provides capital for a business start-up to build on innovative ideas, usually in exchange for convertible debt or equity.

Seed Capital – Investment in the initial phase of the company or project. Often there is only the idea, without a structured company. The purpose is to validate the business model, supporting the first steps of the company.

Venture Capital – Investment in small and medium-sized companies with high growth potential. Venture capital finances the first expansions, leading the company to new market heights.

Private Equity – Investment in larger consolidated companies with high revenues (reaching millions of reais) that normally use financial leverage and often are preparing to enter the stock exchange market.

Source: Criatec guide.

27 investment funds, of which five are seed capital. Committed private capital is about R$4 billion, plus R$500 million from FINEP. FINEP expects to invest R$100 million to R$150 million a year, which will enable approval of three to four new funds annually.

OPPORTUNITIES

However, for companies financed by capital and venture capital to stay in the market until they can qualify for the stock exchange, they must look for opportunities in foreign trade. Deutscher of Antera emphasizes that it is critical to add value to exported products and particular commodities. "The policy of innovation is absolutely essential for a very simple reason: Brazil can be the food basket of the world. If we can, for example, process soybeans at 30% of current production cost, that will be more profitable," Binder added.

In 2006, the Deloitte survey of "Global Trends in Venture Capital" pointed out that the risk capital market was going through unprecedented internationalization of operations, indicating a connection between consolidated and emerging markets. Currently, the economic situation of large investors in European countries and the United States has slowed the growth of risk capital in Brazil. ABVCAP data indicate that last year the domestic share in investment funds exceeded foreign capital.

Yet there are fears that the risk capital market will stagnate or grow more slowly. "Even in countries where risk capital funds are well developed, there is increased risk aversion related to seed and venture capital," Spata says.

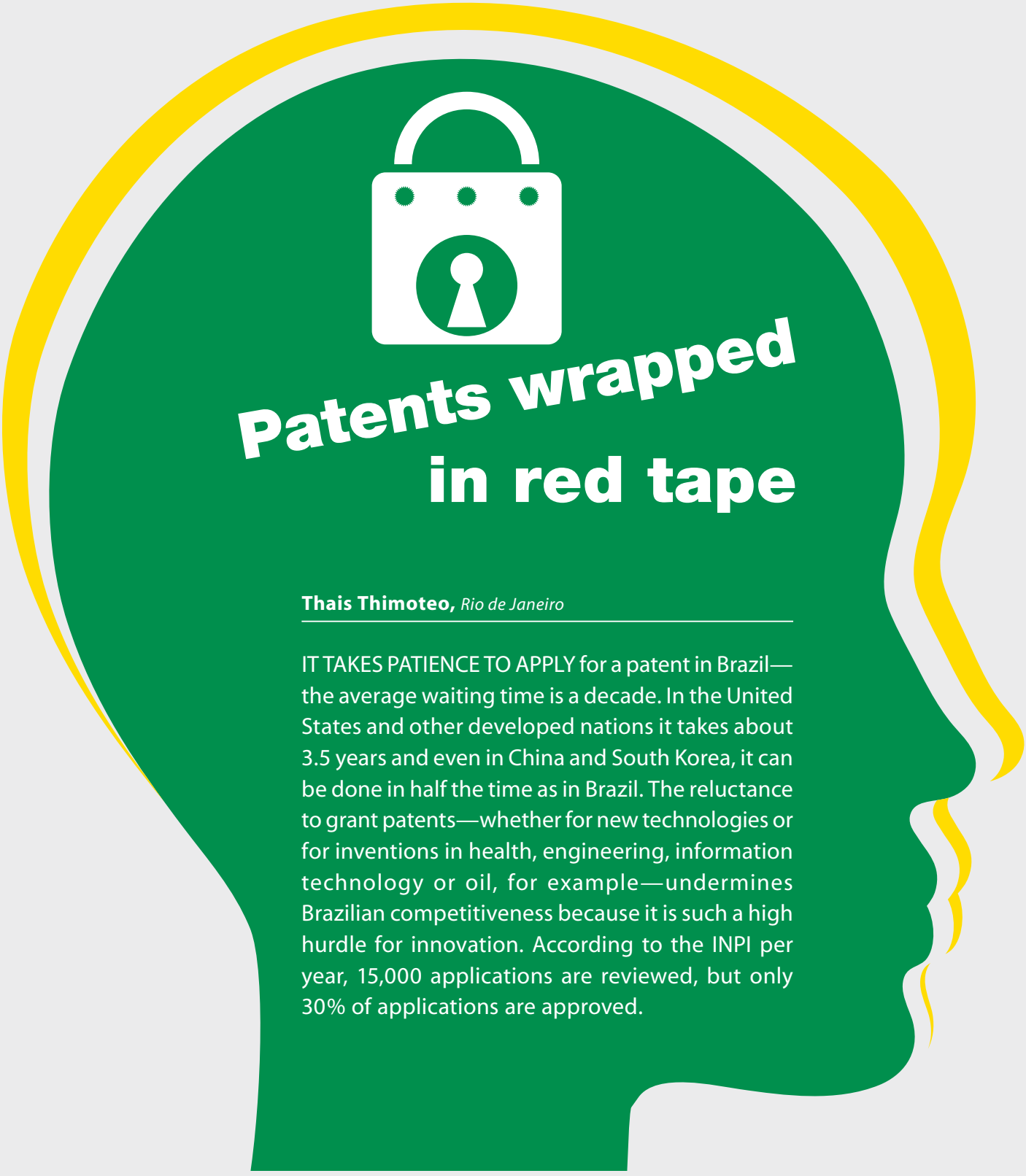
In addition, risk capital funds have only been operating in Brazil for about 10 years, compared to nearly seven decades in the United States. "Foreign investors do not like the lack of a track record in evaluating a manager," said Augusto Costa, head of the FINEP Department of Investment in Funds. "The way that Brazil makes these investments is a bit different from the practices common in the international market, which may be a complicating factor," Costa says. He notes that foreign investors find it strange that institutional investors have seats on the investment committee, in order to follow the development of each company rather than the fund itself, globally.

DIFFICULTIES

Local investors criticize the Brazilian fiscal and tax scenarios, infrastructure, logistics, and regulation.

Binder argues that in addition to innovation policies Brazil needs to create competitive conditions for entrepreneurs. "In Criatec's portfolio, the MagnaMed company got permission to export to Europe in a year, but it took four years to get a license to sell in the domestic market. If it had been faster they could be earning four times as much today," he says.

Deutscher stresses that Brazil does not yet understand that investing in innovation is about more than allocating more resources to research and development. It is above all creating a set of tangible and intangible assets, which presupposes risks: "To innovate is to risk."



Patents wrapped in red tape

Thais Thimoteo, *Rio de Janeiro*

IT TAKES PATIENCE TO APPLY for a patent in Brazil—the average waiting time is a decade. In the United States and other developed nations it takes about 3.5 years and even in China and South Korea, it can be done in half the time as in Brazil. The reluctance to grant patents—whether for new technologies or for inventions in health, engineering, information technology or oil, for example—undermines Brazilian competitiveness because it is such a high hurdle for innovation. According to the INPI per year, 15,000 applications are reviewed, but only 30% of applications are approved.

"Most of the technology undergoing patent examination will become obsolete before the process is finished. Innovation has come out of university research labs but has not reached the society in the form of products,," says Segen Estefen, director of technology and innovation, Luiz Coimbra Institute for Graduate Studies and Research in Engineering, Federal University of Rio de Janeiro (UFRJ). Some action is being taken to relieve the situation. Particularly promising is online filing of patents, the *e-patent*, launched last March by the National Institute of Industrial Property (INPI). The goal is to reduce processing time from ten to four years by 2017.

"Most of the technology undergoing patent examination will become obsolete before the process is finished."

Segen Estefen

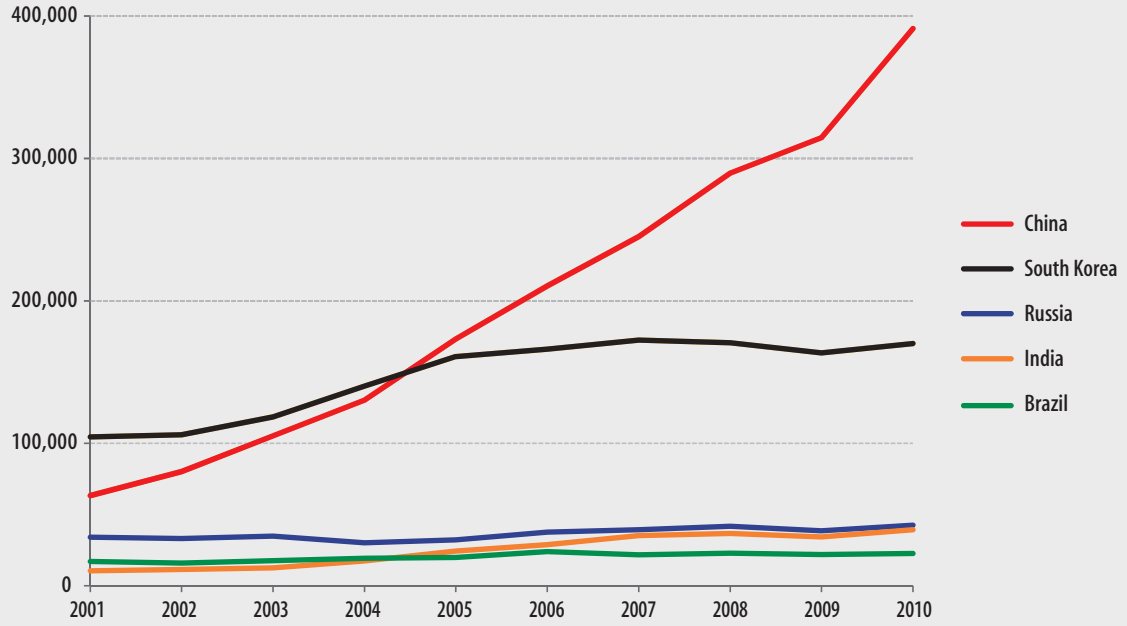
STIMULI

The effort is part of a set of federal government incentives to innovation, which also includes the Business Innovation Plan that will provide R$33 billion for Brazilian companies to invest in technology. However, it is still doubtful whether the INPI has the capacity to meet the "innovative wave" if companies listen to the government's call. Experts and INPI itself believe so, although with some caveats: It takes more than investment and digitalization to speed up the processing of a patent. More INPI analysts are needed, as well as greater understanding between companies and researchers, and consolidation of a culture that recognizes the importance of intellectual property for building knowledge. "By next year we plan to hire more than 400 analysts," says Júlio César Moreira, INPI director of patents. "We have also sought to raise the awareness among small and medium entrepreneurs of the importance of depositing technology with the INPI. The immediate impact was an increased number of patent applications from universities."

Vanderlei Bagnato, coordinator, Innovation Agency of the University of São Paulo (USP), recognizes the efforts to reduce patent-processing delays but believes it is not enough. "We need to improve the analysis process. Entrepreneurs need support to learn how to apply for invention patents," he says, adding that if a country cannot process patents efficiently it runs the risk of having all its planning compromised. Estefen is more optimistic. He believes that if more experts can be hired, and the red tape and paperwork are cut, patent application requests will be granted much faster than they are today.

"It's what I'd like to believe, "adds Eliezer Barreiro, coordinator, National Institute of Science and Technology of Drugs and Medicines (INCT-InoFar). Since 1999, 15 of his patent applications have not yet been analyzed. The first, filed in late 1990 in Brazil and the United States, was a molecule that restores the strength of the heartbeat and can be used in medicines for patients with

Number of patent applications filed by countries



Source: Thomson Reuters Derwent World Patents Index (DWPI).

heart problems and hypertension. It did take the United States Patent and Trademark Office (USPTO) until 2006 to grant the patent—but INPI has not yet analyzed it.

UFRH's Estefen is another researcher whose application succeeded abroad last year but not in Brazil. "In 2004, we applied for patent of a device to generate electricity from ocean waves in Brazil. In 2005, we applied to the USPTO for a patent of the same invention and obtained approval," he says. He also emphasizes the losses to a company caused by the dilatory process. "You can negotiate with the application letter, but your invention has less value." USP's Bagnato agrees that if a patent is not yet registered, companies are reluctant to use the technology—and researchers are discouraged from negotiating their inventions because patent approval is not yet secured.

LAST IN THE PACK

Of Brazil, Russia, India, China, and South Korea, Brazil is in last place in terms of generating patents. A February report from Thomson Reuters, *Building Bricks*, shows that in 2010 China and South Korea accounted for 84% of total patent applications. In contrast in the overall ranking of number of articles published in journals indexed by Thompson Reuters in 2009, Brazil is in 13th above countries like Russia, Taiwan and Sweden. Proof that knowledge is not lacking in Brazil, but it is lacking its use in new products.

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Ensuring fiscal credibility



Teresa Ter-Minassian

International economic consultant
and former IMF staff director

Cláudio Accioli, *Rio de Janeiro**

ALTHOUGH IN RECENT YEARS BRAZIL'S PUBLIC ACCOUNTS have become more transparent, that is not true of its fiscal policy indicators, particularly with regard to the federal primary budget balance, says Teresa Ter-Minassian, who in 30 years of service to the International Monetary Fund (IMF) directed its Fiscal Affairs Department for eight years. Currently an international economic consultant, she notes that with practices such as recording temporary revenues, excluding investments, and extensive use of accounting gimmicks related to transactions with public financial institutions, it becomes impossible to make out whether fiscal policy is expansionary or contractionary. Ter-Minassian spoke at the IMF-Getulio Vargas Foundation seminar on *Brazil's Fiscal Risks in the Middle and Long Term*, held April 25–26. Here she analyzes the fiscal risks to the Brazilian economy—including social security and the debt of states and municipalities—and how the IMF has performed with regard to the Euro crisis: "With no room for financing, austerity is almost inevitable."

***The Brazilian Economy*—Later this year the International Monetary Fund (IMF) is expected to launch a new Code of Fiscal Transparency for member countries. Do you think there has been a significant advance in fiscal responsibility globally?**

Teresa Ter-Minassian—The IMF has been quite effective in promoting greater fiscal transparency worldwide. Of course there are exceptions, and it was not equally effective in all countries. But good results were obtained by making governments aware of the need for transparency in public accounts and for improved fiscal and budget management. This was not just because of the IMF, but also because of other international organizations like the World Bank and the Organization for Economic Cooperation and Development (OECD) and non-governmental organizations like Transparency International. Some countries have also established fiscal "watchdogs," like the UK Office for Budget Responsibility. But the global crisis clearly demonstrated that many fiscal risks had not been sufficiently identified. So the IMF decided to draft a new version of the Code of Fiscal Transparency, which is still in gestation, and promote a new assessment of fiscal risks, whether macroeconomic shocks, natural disasters, or contingent liabilities, such as guarantees for the financial system. The new methodology has already been tested in Ireland and Costa Rica.

* In collaboration with economist Gabriel Leal de Barros, IBRE.

In what condition is Brazilian fiscal policy?

Brazil has made much progress toward transparency of public accounts; the availability of information is good. My concern is with the watering-down of fiscal policy objectives and goals, for instance, by redefining the public sector to exclude large state-owned companies like Petrobras and Eletrobras; ignoring some operations, such as the Growth Acceleration Program; tax exemptions; the use of state-owned banks and companies to conduct quasi-fiscal operations through directed and subsidized credit; anticipating dividend payments by state-owned banks, and finally, the government's proposal in the last Budget Law to not offset deviations by states and municipalities from the primary budget balance target. All this means the primary balance is no longer a trustworthy signaling of fiscal policy and whether it is expansionary or contractionary.

The more uncertain the economic outlook, the more necessary are reliable indicators of the direction of monetary and fiscal policies.

Brazil should relax its fiscal goals. That would be preferable to creating devices to reach a primary budget balance that is no longer needed. It would be much better to formally reduce the fiscal target and perhaps take the opportunity to start calculating a structural budget balance. It is essential that indicators of fiscal and budget policy are reliable, and the current primary budget balance no longer is.

Would adopting a structural primary budget balance rescue credibility?

Yes—in combination with initiatives such as expanding data coverage of the public sector and eliminating quasi-fiscal operations. It is preferable to use a budget balance adjusted for business cycles. Of course, this calculation is always subject to uncertainty. Personally, I would prefer calculating the structural result and using it to define the primary goal for the year. But I admit that is difficult because it is not clear at the moment how much of the growth slowdown in Brazil is due to structural factors and how much merely to cyclical factors. I believe the problem is more structural: supply factors are causing the fall in GDP growth.

Has observance of Brazil's Fiscal Responsibility Law been relaxed?

The problems began before the current government. The Fiscal Responsibility Law is a law on budgetary procedures, a law on transparency, and a code of good public financial management. It does not establish many quantitative targets. Of the few that were fixed by the Senate, the borrowing limits for state and local governments are too high. In my view, the law needs to be supplemented. It leaves too much room for fiscal policy, though that is not necessarily negative, if there is careful monitoring and analysis of the sustainability and appropriateness of primary budget balance targets. I'm not a supporter of strict rules because they create incentives for accounting gimmicks. The important thing is to re-establish reliable indicators of fiscal policy goals and stance.

What are the consequences of using accounting gimmicks to achieve a primary budget balance surplus?

This practice is beginning to generate credibility problems, but for me, the key point is that it may become a disservice to govern-

ment itself, because it ends up not knowing whether it is carrying out an expansionary or a contractionary fiscal policy. The more uncertain the economic outlook, the more necessary are reliable indicators of the direction of monetary and fiscal policies.

It would be good to have an independent agency with a mandate to comment on the quality of the assumptions underlying the budget, like the Congressional Budget Office in the United States.

Do budget assumptions like 4.5% inflation and GDP growth of 4.5% significantly increase budget risk?

One of the most important roles of fiscal watchdogs is to comment on assumptions underlying the budget. In some cases, as in the UK, the assumptions the government should use are set beforehand by the Office for Budget Responsibility. I do not advocate that this model necessarily be applied to Brazil, but I think it would be good to have an independent agency with a mandate to comment on the quality of the assumptions underlying the budget, like the Congressional Budget Office in the United States.

You warned that debt levels remain high in the larger states. What risk does this carry?

With the current ceiling on debt service, the most indebted state governments will not be able to repay the federal government or refinance their debt in the next 15 years . . . The current ceiling of 16% of net revenue for contracting new debt each year is very high and clearly presents a problem. I would like to see more demanding quantitative rules for new debt and introduction of market discipline. For the latter to work, it is necessary to eliminate privileged channels of access to credit and Treasury guarantees because today the banks are not lending to state governments based on the situation and their solvency but based on the Treasury's guarantees. It is a soft budget constraint. Pressed to increase fixed investment very quickly, either because of infrastructure deficiencies or major sport events, the federal government is now allowing more room for major new debt without necessarily ensuring the quality of each investment.

A significant weight in government spending is the pension system. How to address this issue?

The seminar clearly showed that the Brazilian social welfare system is too generous from an international perspective, even compared with the welfare states in Europe, in terms of retirement age and adjustment of pension benefits. … At the same time, social security contributions are very high, which is a disincentive to private saving. It would be necessary, and I think there is consensus on this, that there be some short-term reforms of the public pension system. We're not talking about adopting a defined contribution system, which would involve very large structural changes, but about simply stemming the deterioration of social security finances. The main goal must be to review and reduce benefits, at least for future pensioners, since it is not possible to change the rights people have already acquired.

The government has granted tax exemptions to a few sectors of the economy, but without corresponding spending cuts. Is

there a risk of a fiscal problem ahead?

I would have preferred to see a general reduction of taxes on businesses and streamlining of the VAT. Very selective and specific exemptions to favor one or another sector further distort the Brazilian tax system, which is already so complex and difficult to administer. Replacing the payroll tax by the VAT would have the advantage of reducing taxes on exports and increasing it on imports—that strategy was much used in Europe in recent years. But here in Brazil, indirect taxation is already very heavy and distorted.

The Brazilian social welfare system is too generous from an international perspective, even compared with the welfare state in Europe, in terms of retirement age and adjustment of pension benefits.

Fiscal issues have been at the heart of the Euro crisis. Do you think IMF-imposed austerity is the best way to deal with the problem?

At least in the last year, the IMF has had a rather reasonable position in terms of the impact of fiscal policy and austerity. If you cannot afford to borrow, you have to do whatever it takes to adjust your deficit to your financing capacity. On the other hand, if you have access to some financing, you can use it to smooth out the short-term adjustment, provided it is accompanied by a credible medium-term adjustment. The problem is that the southern countries of the European Union, at present, do not have resources to finance their deficits. Of course this is a political decision as well because, in principle, the EU could increase the amount it loans to member countries. The IMF does not have this option, because it is not a European club. The IMF has to preserve its ability to operate in the future in other countries that may require financing. In fact, the IMF already has a very high exposure to European countries. At the same time, it cannot compel the European institutions to do more. This is the dilemma.

Are you optimistic about a solution in the medium term?

I think the political will to stay in the euro area is very strong in the southern European countries, but I see many problems with society accepting the required austerity. I think more could have been done in terms of structural reforms, especially in the labor market, to reduce the rigidity of these economies. But it takes time and usually has short-term fiscal and social costs. So with no room for financing, fiscal austerity is almost inevitable. In Italy, the debt stock is high, but the fiscal accounts are not bad: it has already managed to achieve a primary budget surplus. Greece and Portugal have carried out a powerful fiscal adjustment and their very high primary budget deficits are turning into a surplus. ... But I do not consider myself optimistic, and I'm worried.

The BRICS group is calling for reforms to redistribute quotas and increase their decision-making power within the IMF. Is Europe indeed over-represented today?

Absolutely. I am completely in favor of emerging countries having more weight in the IMF. Movement in this direction has begun, but we need to go further. I've always argued for more voice for emerging countries.

Trade balance: A drag on Brazil's recovery?

IN ADDITION TO RISING INFLATION and an expansionary fiscal policy that is contradicting the central bank's recent leaning toward tighter monetary stance, last month's external balance has added a new factor to the list of risks and uncertainties that has characterized the economy this year.

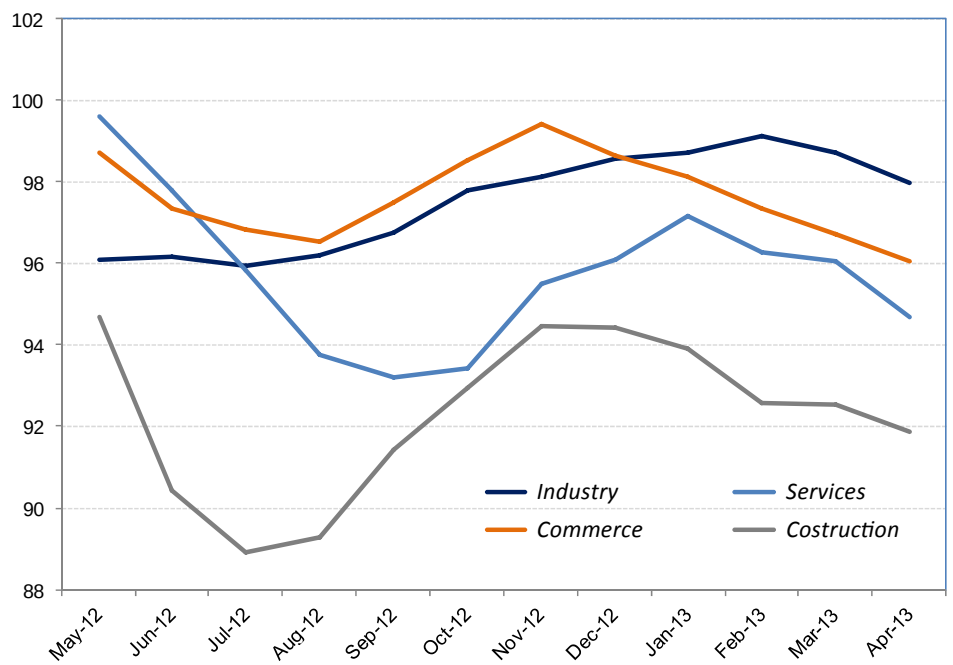
Through April the 2013 trade balance accumulated a deficit of US$6.2 billion, the highest in recent years. Setting aside some atypical external transactions that increased fuel imports in April, there seems to be a more permanent trend: Compared to the same period last year, in the first quarter the volume of exports fell by 6.6%, commodities fell by 12%, and manufactured goods fell by 5%, while imports rose by 8.1%. As prices of imported and exported goods have remained fairly stable, changes in import and export values entirely reflect changes in quantities.

Even if the economy's recovery is lukewarm, we predict some increase in imports, especially for industry. At the same time, since depreciation of the exchange rate seems unlikely for fear of accelerating inflation, the competitiveness of Brazil's manufacturing exports will be severely limited, especially in light of increasing labor costs, China's taking over of our Latin American markets, logistical problems because of poor infrastructure, and a smaller than expected reduction in energy costs. Whether exports of commodities recover will depend heavily on the strength of the Chinese economy and recovery of the economies of Europe, the US, and Japan—all of which are themselves surrounded by uncertainties.

Rising imports and stagnant exports will further suppress overall demand in the economy and drag down GDP growth. This will make the economic recovery even more feeble since household consumption is restrained because of the reduction in household disposable income resulting from the acceleration of inflation. And business confidence, according to IBRE surveys, has declined across all sectors.

Brazil: Confidence has declined across the board.

(Quarterly moving averages. Base: average of the last three years = 100, seasonally adjusted)



Source: IBRE/FGV.