

Diagnostic and Finance

Stefano Marchese, MD

A sustained increase in the stress hormone cortisol leads to both a reduced tolerance for financial risk and an increased preference for perceived safer, but lower return, outcomes. This physiological response to stress may be a contributing cause to financial market instability, particularly during times of increased uncertainty.

A team of British and Australian researchers reached these conclusions after conducting a study on participants using a combination of **cortisol** dosing and computerized lottery games (Kandasamy et al., *Cortisol Shifts Financial Risk Preferences, Proceedings of the National Academy of Sciences of USA*, March 4, 2014).

The research findings suggest that people with higher cortisol levels have a large increase in risk aversion and place a great emphasis on small probabilities (a sign of more risk aversion). When people are stressed by chronic uncertainty or uncontrollable threats, their endocrine system discourages them from taking any risks.

DIESSE's check-up

Catia Perazzolo, Accounting Department

Every three months, DIESSE makes a **check-up** in order to see if it is financially and economically healthy.

Here are the results of its last check-up, referred to the period Jan. 1, 2014 - September 30, 2014 compared to Jan. 1 - Dec. 31, 2013:

(€ k.)	3Q2014	2013	3Q14/2013
Sales	€ 16.870	€ 20.610	82%
EBITDA	€ 3.103	€ 3.264	95%
EBIT	€ 1.739	€ 1.623	107%
Net income	€ 719	€ 337	213%
Equity at the end of the period	€ 8.226	€ 7.502	110%
Net financial position at the end of the period	-€ 11.388	-€ 13.400	85%

DIESSE & FDA Compliance Project

Silvana Verdiani, FDA Compliance Project Leader

Medical Devices (MD) play a critical role in the human health care. They can range from simple devices, such as tongue suppressors and bandages, to very complex equipment such as pacemakers. The medical devices sector plays a crucial role in the diagnosis, prevention, monitoring, and treatment of diseases and the improvement of the quality of life of people. In the US market, FDA regulation ensures that MD are safe and effective.

Also In Vitro Diagnostics Devices (IVDD) are placed under this "umbrella" of MD definition.

In the **USA**, the requirements for the development, manufacturing and distribution of medical devices have been laid down in the revised cGMP regulations for Medical Devices (21 CFR Title 21, Part 820) and the FDA's Center for Devices and Radiological Health (CDRH) is responsible for the approval. Inspections are primarily performed by the FDA. In **Europe**, the main EU directives for the medical devices industry are, for the Active Implantable Medical Devices the **90/385/EEC**, and **98/79/EC** for the In Vitro Diagnostic Medical Devices. GMP regulations -strictly speaking- are not notified. Instead, harmonized standards represent the state-of-the-art in the area of the EU. Inspections are primarily performed by Notified Bodies (e.g. TÜV). Since 1998 DIESSE is certified **UNI EN ISO 9001** and

since **2003 UNI EN ISO 13485** reflecting proper management of quality activities. Each product and equipment is CE marked also for products listed in Annex IIB as required by the IVD directive 98/79/CE. Last year, in accordance with our policy to improve the quality of products continuously, DIESSE decided to approach the **"FDA Project"** which will allow the company to expand its activities to other strategic markets, especially to USA.

The "Compliance Action Plan" (CAP) to achieve a Quality System according to the Code of Federal Regulations, Title 21, Part 820, was kicked off on **4th April 2014**.

In this project the main tasks were defined, from the identification of the members of the CAP Board to establish roles and responsibilities, to the review of all our SOPs and how to structure a technical documentation and finally prepare an FDA inspection and react to the assessment of audit requirements. Since DIESSE has always been persuaded that the Quality improvement is endless, facing this new task is a consequence.

Under the guidance of expert consultants and thanks to the eagerness of people working in DIESSE, we are confident to reach an **effective, efficient and sustainable Quality System** and to become familiar with implementation of the regulatory requirements for the FDA approval within the next year.

We wish ourselves good luck in our job.

Life sciences; *Aperitivo con le imprese*, DIESSE invited by the University of Siena

Grazia Dal Maso, DIESSE Production Manager

On September 17th 2014, in the wonderful and suggestive location of the Rectorate, DIESSE was invited to attend a meeting organized by the University of Siena.

The project "**Aperitivo con le imprese**" (Aperitif with Companies) was aimed **to help and guide students and new graduates in the difficult search of careers opportunities**; the meeting specifically covered the topics of biology and life sciences. DIESSE was invited together with four other companies and starts up to describe its own story and experience. I was personally honored to participate, but quite afraid to not be able to address the students' aim. How can a production manager motivate a young audience? This was my thought, so I decided to present DIESSE through my own experience. The presentation started; "*only 15 minutes*" I was told, no more, space and time had to be given to promote the discussion and share opinions with participants.

The slides showed DIESSE story, from the successful idea of 4 researchers, as Dr. Francesco Colocola wrote in the previous newsletter, up to these days. Viruses and bacteria production, monoclonal antibodies and finished products, instruments and plastic moulded devices, all **M@de in DI-**



Winners and losers In the global market?

Gabriele Monciatti, Q.C Head, Logistic dept coordinator

1. The evolution of management paradigms that has taken place over the years has led to such big changes in the companies, that we can only imagine the great pioneers of management, lost and incredulous in front of a modern company. Yet, it is precisely on this field that today more than ever, the survival and success of a company play their role. With an evolution at first slow, but gradually more and more incisive, companies shifted from being *product-oriented* to *customer-oriented*, from family-run to *manager-run*, from local to *international*.

It is clear that all this has led a big impact on the complexity and management techniques of a company. Without aiming to a too punctual examination, we can list in a non-exhaustive summary those which today are some of the

ESSE: the results of good ideas, passion and work of many people. My thoughts, my memories, after 25 years spent in DIESSE, flowed with the same rhythm of the slides sequence. At the end I wished the participants all the best for their future, inviting them to follow their dreams and their passions, borrowing the words from Primo Levi's "*La chiave a stella*" (*The Wrench*):

"Se si escludono istanti prodigiosi e singoli che il destino ci può donare, l'amare il proprio lavoro (che purtroppo è privilegio di pochi) costituisce la migliore approssimazione concreta alla felicità sulla terra: ma questa è una verità che non molti conoscono". (Excluding prodigious and single instants that destiny can give us, loving our work (which is unfortunately a privilege of the few) is the best concrete approximation to happiness on earth: but this is a truth that not many people know).

My doubts faded away, people listened with interest. Mario Tognini, our Product Manager, supported me in this successful event with the display of promotional materials and demo kits. Many were the participants who approached us and asked questions at the end of the meeting. Some of them have contacted DIESSE to send their *curriculum vitae*.

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APERITIVO CON LE IMPRESE
CICLO DI INCONTRI

SCIENZE DELLA VITA

Saluto del Rettore Angelo Riccaboni
Introduce Cosima Baldari, Università di Siena
Giovanni Baldi e Mariangela D'Elia "Le nanotecnologie in medicina"
Centro Studi Cotroneo Savignano Vico (FI) e Università di Firenze
Grazia Dal Maso "Strumenti avanzati per la diagnostica"
DIESSE Diagnostica Senese, Montecatini (SI)
Chiara Giustolisi "Servizi per la ricerca nel campo delle scienze della vita"
ViaModori, Siena
Gabriele Messina "Dispositivi biomedici innovativi"
EgnoLab, Siena

L'aperitivo è stato gentilmente offerto dalla Bottega della Spezia in campagna - Città Siena

17 settembre 2014, ore 17
Corrile del Palazzo del Rettorato
Banchi di Sotto 55 - Siena

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goals of this evolution; conceptions that **distinguish a successful company from the others**.

1. The **customer** is the one with whom I interact, allowing me to exist and that by choosing me gives me his confidence. I can not do anything else but but paying off this "opening of credit" towards me not only by meeting its expectations but "delighting him", preventing his unexpressed wishes and requirements which are so fundamental to his satisfaction.
2. The **job** consists of interrelated processes. If I want each process to give its best, I have to identify and define the exact responsibilities involved, the interfaces between the various processes, the expectations of the "downstream" process, just like I do with those of any customer.
3. The **personnel** is not an independent variable, its choice is crucial. With weak teams you cannot win anything! But

Beyond this, everyone must become aware of his importance in the final product. To give his/her best, it is important that personnel is given **formation** (on work processes, security, ...) and **information** (on corporate strategies, on the progress of business, ...)

4) The **training of management**, to manage, motivate, plan. These are basic skills, but not innate. The management of the company must ensure that these skills are acquired and cultivated by its first lines. They must ensure that *Lean thinking, Visual Factory, Kaizen, p.p.m., Risk Analysis,* are not bad words but everyday tools to be applied to the specific situation of the company.

5) The **"creative" benchmarking**. We grew up with the fear, born at school, of being punished for copying. Well, this is not true. Whoever looks at similar experiences made by other companies, studies, suits and then applies them is

definitely winning over those who believe they "already know what to do", anyway and in any case.

6) And finally, last but not least (!) **Governance**.

It is no a secret that a well organised company has in its top management the crucial keystone that directs its policy and strategy, a Board truly convinced that Quality, management techniques, marketing, strategy and overall vision, are the indispensable *humus* so that what is "sown", that is, activities, projects and ideas, give their best fruits.

So who wins and who loses? Looking around, it will be easy to see which are the companies that, even in this period of unhappy economic situation, made their own the points that we listed.

A taste of Tuscany www.dievole.it

The private estate of Dievole, both **Viticulture Company and wine resort**, is set in tranquil surroundings, nestled in the beautiful Tuscan hills ... in Vagliagli, very close to Siena.

The estate is spread out over an area of 400 hectares, all within the **Chianti Classico DCGG**, with a very long history stretching back to the 11th century where cypress and olive trees, far-reaching vineyards, hidden villages and magnificent medieval buildings dominate the landscape. Reputed wines have been produced at Dievole **for over 1000 years**. The secret stays in mixing the ancestral knowledge of our winemakers and the ultimate agricultural and oenological technology. The first one keeps you close to the territory and its essence; meanwhile the second one enhances the quality of our wines.

Wherever you are, all it takes is a glass of **Dievole Chianti Classico** to feel part of its unique story.



Avidity Test Screening validated and routinely used in India on TORCH status to support on women reinfection risk.

Adriano Cocola, International Sales Director Arab & Indian Markets

With regards to the Indian studies on CMV and Rubella, a study on Rubella seropositivity shows that 90 - 95% of the population are seroimmune and so do other studies from different parts of India. However, 5 - 10 % is still serosusceptible. ToRCH has been shown as the major cause of abortions in Bad Obstetric History. Seropositivity of 14.66%, 4.66%, 5.33% and 8.66% are found respectively for Toxoplasma, Rubella, CMV and HSV. Maximum number of abortions, intrauterine death and preterm labor are found with Toxoplasma infection while neonatal deaths are more associated with Rubella and HSV. HSV is also found to be major cause of congenital malformations in Bad Obstetric History cases.

Not only in Bad Obstetric History, ToRCH is also found to be common agent of first trimester miscarriages.

TORCH Infections:

Pregnancy is a very special moment where the mother's condition directly affects the child. But pregnancy, if infected with any infection, can be disastrous to the fetus (congenital infections) and the neonate. The infant who is born with an infection acquired transplacentally during first, second or early third trimester may have what is termed "Congenital Infection". Amongst these infections the most common is TORCH syndrome.

IgG Avidity Testing- An important tool for discriminating recent from past TORCH infection

Sometimes it becomes difficult to differentiate between recent infection and past infection. This condition arises when the sample has come **positive for both the antibodies viruses: IgG and IgM.**

Problems because of which IgM can come positive in serum are:

- Persistence of IgM antibodies for month and years after infection
- Reinfection with increase of IgM antibody response
- A polygonal IgM stimulation

In consideration of the serious consequences for pregnant women and the danger of congenitally acquired infection for the unborn, a positive result should be confirmed with other methods.

One of these tools could be to distinguish reinfection from primary infection and old infection from recent infection is by examining the **antigen-binding avidity of specific IgG**. Avidity is defined as the measure of the functional binding strength of antibodies to multiple antigenic determinants (epitopes) on natural antigens. In natural situations in vivo, a variety of antibody molecules are generated in response to a large number of multivalent antigenic stimuli.

Avidity is therefore a measure of the stability of the multivalent antigen- multivalent antibody complex.

Following antigenic challenge the IgG antibodies produced initially bind weakly to the antigen (low avidity). As the immune response develops there is maturation of IgG antibody response and the avidity increases progressively over weeks or months depending on time and also the antibodies with high affinity proliferate.

It has been shown that detection of TORCH specific IgG of low avidity is a reliable indicator of recent infection (i.e. within the previous 8 months). However, detection of IgG of high avidity is actually more informative from a clinical standpoint; the presence of high avidity IgG necessarily removes the chances of the possibility that infection occurred within the previous five months (reinfection or previous exposure). The test was developed by **Hedman and Colleagues** in Finland in 1989.

UNITED ARAB EMIRATES



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SHEIKH RASHID HALL

WE WILL BE PLEASED TO WELCOME YOU

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