

# **The Problem with Spreadsheets**

## **A Business Case for Spreadsheet Management and Controls**



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## The Problem with Spreadsheets

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## Executive Summary

Spreadsheets form a core operational tool of most company's financial business processes. Spreadsheet usage is widespread and increasing in sophistication and complexity. If left uncontrolled, spreadsheets present an unacceptably high level of business and compliance risk for most organizations, whether as a result of errors, poor control or vulnerability to fraud. Even where manual control processes exist, these are unlikely to be sufficiently robust or enforceable to completely mitigate the potential risks and are likely to incur excessive manpower costs to meet the demands of regulators and auditors.

Within financial services organizations, just as the cost of regulatory compliance will not shrink, the use of spreadsheets is unlikely to diminish. A spreadsheet management and control strategy should, therefore, be a key component of any operational risk strategy. With the support of suitable enabling technology it is possible to accurately identify spreadsheet usage, assess the underlying risks and implement a structured control framework which not only mitigates the operational risk to the business, but can also provide significant savings in regulatory compliance cost.

## A Brief History

In 1979 when Dan Bricklin and Bob Frankston released VisiCalc for the Apple II computer, the electronic spreadsheet was born. Not only was this 'killer application' largely responsible for the success of the Apple II and the start of the personal computer revolution, but the world changed forever at that point for accountants, financial planners and everyone else who required to manipulate numbers and perform repetitive or complex calculations in the course of their everyday jobs. Dan Bricklin stated at the time that "VisiCalc took 20 hours of work per week for some people and turned it out in 15 minutes and let them become much more creative."

Fast forward 30 years to today and Microsoft Excel<sup>®</sup> is one of the most widely used analysis and reporting tools on the planet with some estimates suggesting in excess of 200 million users worldwide. Spreadsheets play a central part in most enterprise's financial processes. In many cases they are inextricably embedded in a company's core operations and financial reporting and are used to drive critical decision making. In parallel with this explosion in spreadsheet usage, the functionality offered by the software products has grown immeasurably since the days of VisiCalc resulting in increased sophistication and complexity of both the spreadsheets themselves and the tasks to which they are applied.

Today, the use of spreadsheets is prevalent across the UK Financial Services industry<sup>1</sup>.

## The Problem

On the one hand, a spreadsheet is an easy to use business productivity tool, is quick to implement and, unlike more traditional IT systems, has the flexibility to be amended quickly and easily by the end-user as business requirements change. However, therein lies the problem. The very nature of the applications to which spreadsheets are applied coupled with their widespread, largely uncontrolled use, presents an unacceptably high level of business and compliance risk for most organisations. For financial services firms where the cost of compliance, in general, is a growing burden, the challenge always exists to demonstrate a high degree of risk management while at the same time reducing compliance costs. Risks from spreadsheet usage may arise as a result of any of the following factors:

- **Errors**

Complex spreadsheets inherently contain errors which, if undetected, can impact on bottom line financial results (some estimates suggest that 20%-40% of all spreadsheets contain errors<sup>2</sup>). As well as basic errors in data entry, errors are also likely to occur within formulas, the spreadsheet logic or links to other spreadsheets and external data sources. The increasing complexity of spreadsheets combined in many cases, with the lack of training of spreadsheet users is also a potential contributory factor. The problem is only likely to get bigger – for example, in their latest version of Office 2007, Excel can now support up to 1 million rows and 16,000 columns per worksheet!

- **Lack of audit trail**

As with all financial processes, the ability to audit and control changes to key data is essential both for internal governance and for compliance with external regulation (for example, the requirements of Sarbanes-Oxley Section 404). For critical spreadsheet applications, managing this risk effectively is crucial and in many instances will require monitoring and controlling changes at the individual cell level.

- **Poor version and change control**

By their very nature, spreadsheet applications and other end-user developed applications can be more difficult to control than more traditional IT developed applications. Even where change control policies exist, these can be difficult to enforce. With up to a third of all enterprise data now held in uncontrolled end-user applications, this problem is only likely to be exacerbated further in the future by the proliferation of laptop computers and the increase in mobile computing.

- **The risk of the unknown**

Perhaps the greatest operational risk associated with spreadsheet usage is in not knowing the size of the potential problem. As mentioned above, the use of spreadsheets is so widespread that for many companies it is extremely difficult to assess just how many exist, how many are used in critical business applications, how these are linked together or where data is fed into or extracted from other IT applications. To quantify this risk, therefore, it is necessary to carry out a full inventory of spreadsheet usage and a detailed risk assessment of all business critical spreadsheets. This is not a simple task. However, the effectiveness of operational risk controls is a key factor assessed by the regulator and, for example under Basel II and Solvency II, has a direct impact on the level of regulatory capital required to be held.

## The Consequences

Listed are a series of real world examples (drawn from publicly available information) which illustrate the quantifiable consequences that can arise from the uncontrolled use of spreadsheets. As can be seen, the consequences of poor spreadsheet control and management can result in one or more of the following:

- Financial loss
- Loss of stock value
- Loss of reputation and/or market share
- Vulnerability to fraud
- Increased cost of auditing and compliance
- Regulatory fines and penalties for non-compliance
- Increased capital adequacy requirements
- Loss of your job!!

### **Spreadsheet Fraud: Prevent it on your watch and learn from the Société Générale calamity<sup>3</sup>**

In January 2008, news spread about one of the biggest fraud cases in financial history with rogue trader Jerome Kerviel racking up losses of £3.6bn (\$7bn) at Société Générale – one of the world's leading banks. As questions were raised as to how a junior trader could have engineered such a position, it emerged that spreadsheet fraud played a key role in the deception. Kerviel was able to circumvent Société Générale's internal systems by opening and manipulating Excel spreadsheet reports utilized by managers to monitor trader's activities. In response to the fraud, the Société Générale Report, written by PricewaterhouseCoopers, found that new system upgrades and more robust internal procedures are being deployed on schedule.

### Excel error leaves Barclays with more Lehman assets than it bargained for<sup>4</sup>

In September 2008 when Barclays Capital, Inc. were negotiating the purchase of the assets of bankrupt firm Lehman Brothers, an error in reformatting a spreadsheet by the legal firm representing Barclay's resulted in 179 Lehman contracts being mistakenly included in the asset purchase agreement. The original spreadsheet – which contained almost 1000 rows of data and more than 24,000 individual cells - containing the list of assets to be purchased contained "hidden" contracts which should have been excluded. However, when this was reformatted into a PDF to be sent to the bankruptcy court, the excluded contracts were mistakenly included. A legal motion submitted by Barclay's to amend the purchase agreement was approved as the court accounted for the fact that "..... the harm to the financial markets that would have resulted had this deal not been completed quickly"!

### TransAlta says clerical "snafu" costs it \$24 Million<sup>5</sup>

In June 2003, TransAlta Corp, a Canadian power generator, announced that it would take a \$24 million charge to earnings after a bidding "snafu" landed it with more U.S. power transmission hedging contracts than it bargained for, at higher prices than it wanted to pay. TransAlta chief executive Steve Snyder said in a conference call ... 'It was literally a cut-and paste error in an Excel spreadsheet that we did not detect when we did our final sorting and ranking bids prior to submission.'

### The role of spreadsheets in AIB/Allfirst \$691 million currency trading fraud<sup>6</sup>

John Rusnak, the rogue trader formerly employed on the currency desk at Allied Irish's subsidiary Allfirst Bank managed to hide \$691 million in bad trades by quietly manipulating cells within his trading spreadsheet. Rather than pay the \$10,000 for a direct data feed from Reuters to the risk control section, Allfirst instead got Rusnak to download his Reuters feed into a spreadsheet. He then substituted **links to his private manipulated spreadsheet**. In addition, Rusnak exaggerated bonuses by over half a million dollars. Ray Butler (previous chair of EuSpRIG – European Spreadsheet Risks Interest Group<sup>7</sup>) points out in his article that 'One error in a spreadsheet will subvert all the controls in all the systems feeding into it'. **An auditing tool would have found the external links in the key spreadsheet.**

### **SEC: Ex-CFO used spreadsheets for fraud<sup>7</sup>**

The former CFO of the information and learning division of ProQuest Co. (now Voyager Learning Co.) from 1999-2005, Scott Hirth, was charged by the Securities and Exchange Commission of making false accounting entries, with the use of spreadsheet aids that materially inflated ProQuest's reported pre-tax earnings for 2001-2004 and the first 3 quarters of 2005. He was alleged to have used "hidden rows" so that false account entries didn't show up when printed in hard copy and covered up information by placing it in "white font". The scheme ultimately cost the company more than \$437 million in market capitalization and caused its stock price to drop from \$29.41 to \$12.31 per share between February and April 2006.

### **Westpac jumps the gun on profit announcement<sup>8</sup>**

In 2005, Westpac was forced to halt trading on its shares and deliver its annual profit briefing a day early after it accidentally sent its results by email to research analysts. Details of the \$2.818 billion record profit result for the 12 months to September 30 were embedded in a template of the previous years' results and were accessible with minor manipulation of the spreadsheet. (Some reports indicated an employee had thought that a black cell background fill would hide black text)! Chief Financial Officer, Philip Chronican said 'A trading halt is not a trivial issue and therefore not a decision we took lightly.....It is not just one error, it is a compounding of two or three errors ... We will obviously be conducting a full inquiry to make sure it doesn't happen again.'

### **Shurgard stock dives after auditor quits over company's accounting<sup>9</sup>**

In Nov 2003, shares of the Seattle self-storage company fell 7.1 percent after Shurgard disclosed that Deloitte and Touche quit upon learning Shurgard overpaid its chief executive and another investor \$700,000 each and took more than six months to find and correct the error. Shurgard said the overpayment occurred when the company bought out a limited partnership owned by Chief Executive Charles Barbo and another investor. A person in Shurgard's accounting department **used the wrong spreadsheet to figure out what the two were due**, spokesman Jeff Szorik said. The payment was discovered and repaid six months later.

### There's bad news and good news – mainly bad – revenue reduction of \$1.8M<sup>10</sup>

NEW YORK, February 8, 2005 - CECO Environmental Corp (North America's largest air pollution control company) reported that its in-house accounting staff had discovered an accounting error in the spreadsheet calculations used by the Company's construction division for its "percentage of completion" accounting. The net effect to the financials will be a cumulative reduction in revenue of \$1,969,000 over the four year period from January 1, 2000 to December 31, 2003 with an equivalent charge to pre-tax net income for the same period.

The error has a favourable effect in the current year, 2004, as the Company understated revenues as our backlog was declining and therefore, the error is reversing. This will add approximately \$180,000 to CECO's 2004 income before taxes for the nine months ended September 30, 2004. Phillip DeZwirek, Chairman and CEO of CECO stated that "our in-house accounting staff discovered this miscalculation and immediately reported it to our independent auditors. As our business expands it is important to know that our Sarbanes-Oxley compliance preparation is working".

### Accounting error forces bank to \$3b write-down<sup>11</sup>

In September 2001, the National Australia Bank wrote down the value of its US mortgage business HomeSide Lending by a massive AUS\$3 billion. The news triggered a free fall in the NAB's share price that knocked more than \$6.5 billion off the bank's market value. Contributing to the write down was **an incorrect interest rate assumption fed into HomeSide's financial modeling programs** leading to distortions in financial results and HomeSide's exposure to interest rate movements. Allegations also surfaced that executives inside the business did this so that certain financial targets could be met regardless of the fact that US interest rates were coming down. **A selling spree knocked more than 13% off the value of NAB shares.** The bank was also subject to a lengthy AUS\$750 million lawsuit brought by disgruntled NAB shareholders.

### FSA fines W Deb MVL PLC £560,000 for regulatory compliance failure<sup>12</sup>

In January 2007, the UK Financial Services Authority (FSA) imposed a financial penalty on W Deb MVL PLC (formerly known as Williams de Broe Plc) for "... failures in its systems and controls and its failure to adhere to the regulatory requirements relating to accounting procedures and records, the firm's own stock positions, client money and compliance". One specific area highlighted by the FSA was shortcomings in the procedures associated with the spreadsheet used to manage the firm's Crest Cash Control Account. "The current procedure was a complex manual process, **requiring formatting and visual investigation of spreadsheets, which increased the risk of human error**, especially in the event of the absence of the reconciliation clerk". "...the procedure still had weaknesses in the operation of the spreadsheet. Furthermore there was no formal evidence of independent management review of the performance of this control account and no formal testing of the spreadsheet had been performed".

### Citigroup pays FSA £13.9 million to settle over 'Dr Evil' bond strategy<sup>13</sup>

This was the headline in The Independent (29th June 2005) reporting on what was, at the time, the second largest fine imposed by the FSA, over a series of controversial bond trades conducted by a group of traders at Citigroup Global Markets Ltd which resulted in "...short term disruption to volumes of bonds quoted and traded on the MTS platform, and sharp drops in prices". Throughout the FSA Final Notice to the firm frequent reference is made to a "spreadsheet system" developed by the traders which was the centre piece of the trading strategy, designed to execute the simultaneous sale of a large number of bonds. Specific comments by the FSA include, "...**the execution risk arising from, amongst other things, the use of a spreadsheet that was not fully testable**" and "The FSA further considers that CGML's execution of the trading strategy based on presumptions about the spreadsheet's functioning that were not supported by scientific analysis **constituted a serious failure of skill, care and diligence**".

### \$1.2 billion accounting error!<sup>14</sup>

Washington-based Fannie Mae made a \$1.2 billion accounting error in 2003 because of what it called 'honest mistakes made in a spreadsheet' used in the implementation of a new accounting standard.

### FSA censures SFI Group Plc<sup>15</sup>

In December 2003 the FSA stopped short of fining SFI group but issued a statement censuring the firm "...for failing to take reasonable care to ensure that an announcement ...of its preliminary financial results for the year ended 31 May 2002 ..... was not misleading or false". One area highlighted in the FSA review was the firm's reliance on spreadsheets..... "Due to limitations in its original accounting system, SFI became reliant on a series of spreadsheets to calculate figures that were subsequently used in SFI's accounts. When the accounting system was upgraded in light of the rapid growth of the business, the use of spreadsheets continued. The increase in the number of outlets owned by SFI meant that **these spreadsheets became increasingly unwieldy and unreliable**".

### It's not Rocket Science!! NASA misstated SBR by \$644M<sup>16</sup>

NASA's fiscal year 1999 Statement of Budgetary Resources (SBR) was misstated by a reported \$644 million due, in part, to a misinterpretation of guidance and errors in NASA's ad hoc process for generating budgetary information. As a result, the NASA locations used various methods to extract the data for this line item from their separate systems and entered the data on spreadsheets, which were then compiled by NASA headquarters. "... NASA officials have indicated that undetected errors in this spreadsheet process - in addition to the inclusion of the erroneous category of transactions - were also responsible for a portion of the SBR misstatement. According to NASA officials, they have strengthened internal controls over this process for fiscal year 2000. Arthur Andersen did not detect the error in NASA's SBR during its audit of the fiscal year 1999 financial statements. Evidence in Arthur Andersen's working papers relating to understanding and testing internal controls and validating underlying data for key financial statement balances was not adequate to support Arthur Andersen's unqualified audit opinion 'on the SBR and Statement of Financing for fiscal year 1999. ...**The other errors of approximately \$32 million related to errors in the spreadsheet data** may have had an impact on the P&F Schedules."

## The Solution

As can be seen from the examples given, the potential consequences of poor spreadsheet management and control can be extremely costly and potentially devastating for the companies involved and their shareholders. The need for robust control procedures around spreadsheet development and usage is undeniable and should form a key component of any operational risk management strategy.

In terms of implementing such a strategy, PricewaterhouseCoopers suggested one possible approach, specifically in response to the demands of Sarbanes-Oxley:

According to a white paper written by PricewaterhouseCoopers in July 2004<sup>17</sup>, "implementing a process to ensure appropriate controls over spreadsheets is a critical element of compliance with Sarbanes-Oxley Section 404". According to PwC there are 5 high-level steps to implementing such a process:

- 1. Inventory Spreadsheets** - "This step is critical to ensuring that the population of spreadsheets in use within the organization is defined and subjected to evaluation."
- 2. Evaluate Their Use, Complexity** - "This involves determining a spreadsheet's category of uses (operational, analytical and financial) and then assigning and documenting a level of complexity (low, moderate or high)..."
- 3. Determine Necessary Level of Controls** - could include change control, version control, access control, input control, security, data integrity, and more. "The level of controls implemented should be considered relative to the spreadsheet's use, complexity and required reliability of the information."
- 4. Evaluate Existing Controls** - "Any gaps between existing and 'necessary' controls should be identified as remediation items as well as any gaps in operating effectiveness."
- 5. Develop Remediating Plan** - could include assigning responsibility, establishing remediation dates, and prioritizing efforts. Action plans "should increase the controls over the spreadsheet to the necessary controls based upon the use and complexity of the spreadsheet."

Manual control processes alone, however, are unlikely to be sufficient, may be cumbersome and error-prone and will most likely increase rather than reduce compliance costs.

In recognition of this, **CIMCON Software** has pioneered the development of enabling technology to implement a structured process that mitigates these risks and improves business performance while providing sustainable, effective compliance from processes that are auditable, traceable, repeatable, consistent and accountable. CIMCON's SOX-XL™ suite of products provide the industry's most comprehensive spreadsheet lifecycle solutions from discovery, risk assessment, analysis and controls to archiving and record controls.

The CIMCON spreadsheet control and compliance technology is based on over 20 years experience and innovation gained in developing governance, risk and compliance solutions for end-user computing environments. With the largest installed client base of over 200 companies worldwide for regulatory compliance solutions, CIMCON is a market leader and has received the highest ratings from leading analyst firms, consultants, auditors and experts.

CIMCON Software provides a complete range of spreadsheet life cycle management tools that provide all the necessary controls:

- **XLRisk™ for Spreadsheet Inventory and Risk Assessment:** XLRisk™ is a discovery tool that scans your network drives and folders to create an automated spreadsheet and database inventory, and based on user-configurable risk factors, prioritizes the spreadsheets based on risk, with a wide range of graphical reports and dashboards.
- **XLAudit™ for Spreadsheet Analysis and Error Detection:** Graphical and highly visual tool to perform spreadsheet analysis, error detection and correction. XLAudit™ provides a wide range of spreadsheet diagnostics and documentation tools that include formula errors, inconsistencies, cells containing external links or queries, and dependency mapping.
- **SOX-XL™ Spreadsheet Control Solution:** Mature, proven and flexible solution that provides traceability from cell-level audit trails, access controls, segregation of duties, version control, workflow, change management, reports and dashboards.
- **SOX-XS™ for Access Database Controls:** SOX-XS™ is an add-on module that can provide both detective and preventive controls for Access databases.

## Contacts

If you would like to discuss any of the issues around spreadsheet management and control within your company or would like any further information on any of the topics discussed in this report, then please contact:

### **CIMCON Software, Inc.**

With 20+ years of innovation, experience and knowledge, CIMCON Software, Inc. is a pioneering market leader in Spreadsheet and Database Control solutions. CIMCON's Spreadsheet Compliance Technology is a de facto industry standard with the largest installed client base of over 200+ Companies, including the Regulator of America's Capital Markets and an enforcement arm of the Securities and Exchange Commission (SEC). CIMCON is also the first company to provide compliance solutions for Access databases in a single integrated platform.

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## References

1. The importance and criticality of spreadsheets in the City of London – Grenville J. Croll, EuSpRIG  
<http://aps.arxiv.org/abs/0709.4063>
2. What we know about spreadsheet errors – Raymond R Panko, University of Hawaii  
<http://panko.shidler.hawaii.edu/ssr/Mypapers/whatknow.htm>
3. Spreadsheet Fraud: Prevent it on your watch by learning from the Société Générale calamity  
[http://www.cpa2biz.com/Content/media/PRODUCER\\_CONTENT/Newsletters/Articles\\_2008/CorpFin/Spreadsheet\\_Fraud.jsp](http://www.cpa2biz.com/Content/media/PRODUCER_CONTENT/Newsletters/Articles_2008/CorpFin/Spreadsheet_Fraud.jsp)  
Société Générale bolsters internal controls  
[http://searchsecurity.techtarget.com/news/article/0,289142,sid14\\_qci1315178,00.html](http://searchsecurity.techtarget.com/news/article/0,289142,sid14_qci1315178,00.html)
4. Excel error leaves Barclays with more Lehman assets than it bargained for  
[http://www.computerworld.com/s/article/9117143/Excel\\_error\\_leaves\\_Barclays\\_with\\_more\\_Lehman\\_asset](http://www.computerworld.com/s/article/9117143/Excel_error_leaves_Barclays_with_more_Lehman_asset)
5. TransAlta Says Clerical Snafu Costs It \$24 Million  
[http://www.globeinvestor.com/servlet/ArticleNews/story/ROC/20030603/2003-06-03T232028Z\\_01\\_N03354432\\_RTRIDST\\_0\\_BUSINESS-ENERGY-TRANSALTA-COL](http://www.globeinvestor.com/servlet/ArticleNews/story/ROC/20030603/2003-06-03T232028Z_01_N03354432_RTRIDST_0_BUSINESS-ENERGY-TRANSALTA-COL)
6. The role of spreadsheets in the AIB/Allfirst \$691 million currency trading fraud  
<http://www.eusprig.org/butler-aib-allfirst-fraud-2002.htm>
7. SEC: Ex-CFO Used Spreadsheets for Fraud  
<http://www.cfo.com/article.cfm/11779964?f=search>
8. Westpac jumps the gun on profit announcement  
<http://www.smh.com.au/news/business/westpac-jumps-the-gun-on-profit/2005/11/02/1130823280336.html>
9. Shurgard stock dives after auditor quits over company's accounting  
[http://seattletimes.nwsourc.com/html/business/technology/2001794064\\_shurgard18.html](http://seattletimes.nwsourc.com/html/business/technology/2001794064_shurgard18.html)
10. There's bad news and good news - mainly bad – revenue reduction of \$1.8M  
<http://cincinnati.bizjournals.com/cincinnati/stories/2005/02/07/daily31.html>

11. Accounting error forces bank to \$3b writedown  
Australian Institute of Company Directors (Cover story June 2003)  
<http://www.companydirectors.com.au/Media/Company+Director/2003/June/Batting+for+the+Home+Side+Cover+Story.htm>  
theage.com.au (October 2003) <http://www.theage.com.au/articles/2003/10/24/1066974311694.html>
12. FSA fine Williams de Broe £560,000 [http://www.fsa.gov.uk/pubs/final/wdeb\\_15jan07.pdf](http://www.fsa.gov.uk/pubs/final/wdeb_15jan07.pdf)
13. FSA fines Citigroup Global Markets Ltd £13.9 million over European Bond trading strategy  
[http://www.fsa.gov.uk/pubs/final/cgml\\_28jun05.pdf](http://www.fsa.gov.uk/pubs/final/cgml_28jun05.pdf)  
<http://www.independent.co.uk/news/business/news/citigroup-pays-acircpound139m-to-settle-with-fsaover-dr-evil-bond-strategy-496938.html>
14. \$1.2 billion accounting error! [http://www.computerworld.com/s/article/93294/Sidebar\\_Oops](http://www.computerworld.com/s/article/93294/Sidebar_Oops)
15. FSA censure SFI Group [http://www.fsa.gov.uk/pubs/final/sfi\\_11dec03.pdf](http://www.fsa.gov.uk/pubs/final/sfi_11dec03.pdf)
16. It's not Rocket Science  
U.S. Government Accountability Office report GAO-04-754T May 2004  
<http://www.gao.gov/new.items/d04754t.pdf>  
<http://www.spaceref.com/news/viewsr.html?pid=5014> Testimony of Gregory D. Kutz, GAO
17. The Use of Spreadsheets: Considerations for Section 404 of the Sarbanes-Oxley Act,  
PricewaterhouseCoopers, 2004