McCullough Research

Robert F. McCullough, Jr.
Managing Partner

Date: February 1, 2008

To: McCullough Research Clients

From: Robert McCullough

Subject: Some Observations on Société Générale's Lack of Risk Controls

In 1892 Arthur Conan Doyle wrote a short story with the following exchange between Sherlock Holmes and Inspector Gregory:

> Inspector Gregory: "Is there any other point to which you would wish to draw my attention?"
>
> Holmes: "To the curious incident of the dog in the night-time."
>
> "The dog did nothing in the night time."
>
> "That was the curious incident," remarked Sherlock Holmes.[1]

Since 2002, McCullough Research has analyzed literally thousands of pages of documents concerning the schemes created by traders in their efforts to "game" electricity markets in the U.S. and Canada. Recent media coverage about the 7-billion-dollar trading loss attributed to Jérôme Kerviel, a former employee of Société Générale, begs the question: how could a very junior trader manage to command as much as $70 billion in equity investments at one of the world's largest financial institutions?[2]

While Mr. Kerviel's manipulations were not in the energy industry, his actions speak to the serious issue of internal controls. Are existing controls within corporations such as Enron or Société Générale sufficient to prevent abuses? Should global external regulatory controls be strengthened? The preliminary indications are that Mr. Kerviel's travails illustrate a need for stronger external regulation and more transparency. Recent shifts in trading from the open outcry systems to the considerably less-

[1] "Silver Blaze" in the *Memoirs of Sherlock Holmes,* 1892.
[2] "SocGen boss survives, says bank can too," Reuters, January 30, 2008.

transparent electronic exchanges have likely contributed to increased levels of volatility. If internal controls are as weak as the Société Générale saga appears to imply, significant regulatory reforms may be required.

On paper, the French bank's risk controls appear relatively consistent with industry practice. Page 96 of the 2007 Registration Document describes a prudent series of controls:

Internal control procedures governing the production of accounting and financial data

ACCOUNTING DATA ARE COMPILED INDEPENDENTLY FROM THE FRONT OFFICES

Accounting data are compiled by the back and middle offices and independently from the sales teams, thereby guaranteeing that information is both reliable and objective. These teams carry out a series of controls defined by Group procedures on the financial and accounting data:

- daily verification of the economic reality of the reported information;
- reconciliation, within the specified deadlines, of accounting and management data using specific procedures;
- production of a quarterly analytical report on the supervision carried out, which is submitted to the management of the entity or division, and to the Group Finance Department.

Given the increasing complexity of the Group's financial activities and organizations, staff training and IT tools are reviewed on a permanent basis to check that the production and verification of financial and management accounting data are effective and reliable.

SCOPE OF CONTROL

In practice, the internal control procedures implemented by the various businesses are designed to guarantee the quality of the financial and accounting information, and notably to:

- ensure the transactions entered in the Group's accounts are exhaustive and accurate;
- validate the valuation methods used for certain transactions;
- ensure that transactions are correctly assigned to the corresponding fiscal period and recorded in the accounts in accordance with the applicable accounting regulations, and that the accounting aggregates used to compile the Group accounts are compliant with the regulations in force;
- ensure the inclusion of all entities that must be consolidated in accordance with Group regulations;
- check that the operational risks associated with the production and transmission of accounting data through the IT system are correctly controlled, that the necessary adjustments are made accurately, that the reconciliation of accounting and management data is satisfactory, and that the flows of cash payments and other items generated by transactions are exhaustive and adequate.

SECOND-LEVEL CONTROL BY THE DIVISION FINANCE DEPARTMENTS

The Division Finance Departments employ over 500 staff across the Group to manage the transmission of accounting and financial data and carry out second-level controls. Financial data are transmitted via computerized accounting systems, which trace all events that generate an accounting entry (notion of audit trail).

> The Local Finance Departments, which are in charge of local accounts and reporting, harmonize this data with Group standards. They monitor whether the information is reliable and consistent with the various accounting frameworks defined for the Group.
>
> The Division Finance Departments control the consistency of the data produced by the entities and, in conjunction with the Group Finance Department, resolve any issues in the interpretation of accounting, regulatory or management data.
>
> **SUPERVISION BY THE GROUP FINANCE DEPARTMENT**
>
> Once the accounts produced by the various entities have been restated according to Group standards, they are entered into a central database and processed to produce the consolidated accounts.
>
> The department in charge of consolidation checks that the consolidation scope is compliant with the applicable accounting standards and controls a number of aspects of the data received for consolidation: validation of the aggregates produced with the collected data, verification of recurrent and non-recurrent consolidation entries, exhaustive treatment of critical points in the consolidation process, and processing of any residual differences in intercompany accounts. Lastly, the department checks the overall consolidation process by carrying out analytical reviews of the summary data and checking the consistency of the main aggregates in the financial statements. Changes in shareholders' equity, provisions and any deferred taxes consolidated in the fiscal year in question are also analyzed.

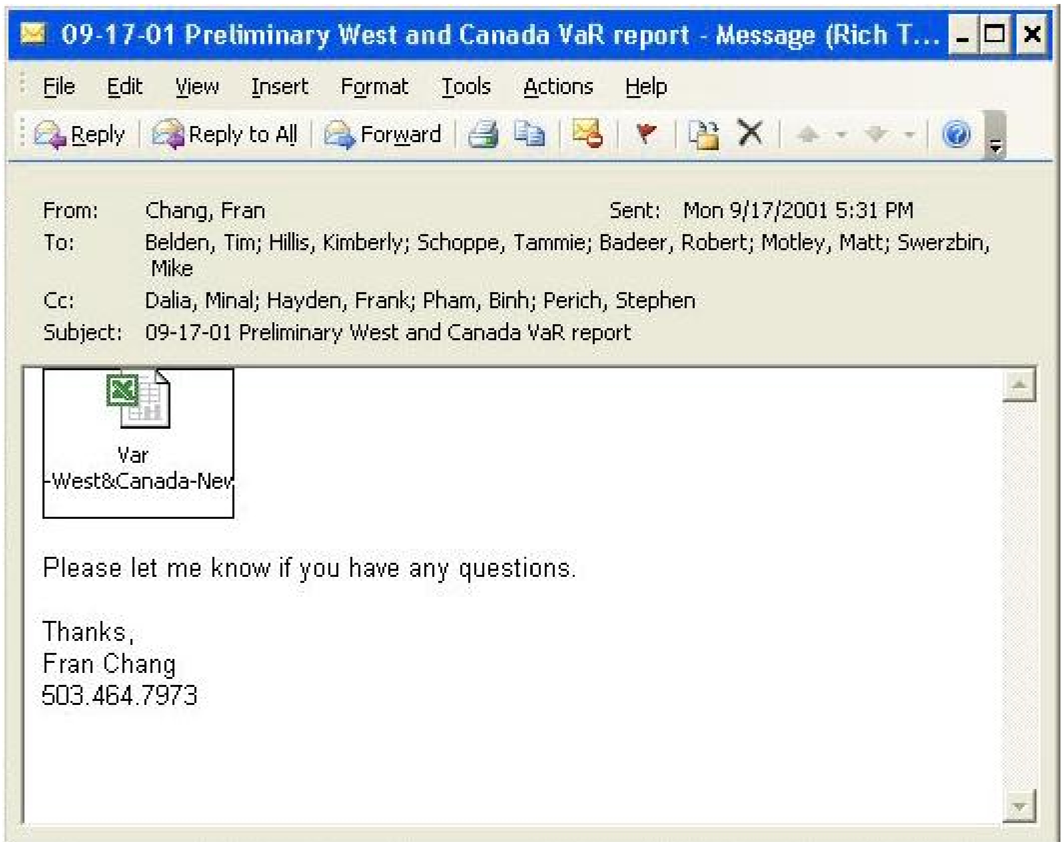
This is a different picture from the explanation that Mr. Kerviel has provided to French authorities.[3] In fact, excerpts from the transcript provided to the media appear to contradict normal industry practice in almost every detail. For example, Mr. Kerviel used fictitious transactions to avoid the bank's recognition of $750,000,000 in profits in July 2007:

[3] *Le Monde,* January 31, 2008; *The Wall Street Journal* and many other publications also published portions of the Kerviel transcript.

> ….At the end of July [2007], the market snaps because of subprimes and the markets are shook up. My result goes up: €500 million, and I find myself in the same situation as before, in an even bigger way, and do not declare this result which doesn't appear in the books of Société Générale. I hide this ? with a fictitious operation….

How does one "hide" a mark-to-market profit of $750,000,000? Enron Corporation's documents, now publicly available, reveal that its traders invented imaginary accounting reserves to hide excess profits.[4] We note that this approach was not available to Mr. Kerviel, since he could not count on the acquiescence of corporate accounting and external auditors to support his imaginary reserves. One alternative is to create transactions which would lose $750,000,000, yet the scale of Mr. Kerviel's gambles makes this an almost impossible undertaking. As a normal rule, traders are limited to a given trading scope. The scope is denominated in both Value at Risk (V@R) and nominal quantity terms. Limits on traders are reviewed daily by both supervisors and management. For example, the item below is from Enron's West Desk report for September 17, 2001:

[4] Schedule C, in Enron's parlance, was an accounting slush fund to hold profits from illegal transactions for later use to pad the earnings of disappointing quarters.



09-17-01 Preliminary West and Canada VaR report - Message (Rich T...

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From: Chang, Fran   Sent: Mon 9/17/2001 5:31 PM
To: Belden, Tim; Hillis, Kimberly; Schoppe, Tammie; Badeer, Robert; Motley, Matt; Swerzbin, Mike
Cc: Dalia, Minal; Hayden, Frank; Pham, Binh; Perich, Stephen
Subject: 09-17-01 Preliminary West and Canada VaR report

Var
-West&Canada-Nev

Please let me know if you have any questions.

Thanks,
Fran Chang
503.464.7973

The Excel spreadsheet attached to the email summarizes individual traders by V@R and nominal positions:

Portfolio name	Trader name	VAR	Change in VAR	Sep	Oct	Nov	Dec	2001 Total-01
Canada VAR LIMIT		**10,000,000**						
Canada Power Position								
ALBERTA-HOURLY	Cooper Richey			(799)	0	0	0	(799)
Alberta	John Zufferli			(10,015)	188,374	173,553	172,544	524,457
ST ALBERTA	Bill Greenizan			13,736	0	0	0	13,736
Total Canada		**18,704,589**	**2,515,046**	2,922	188,374	173,553	172,544	537,394
Canada Gas Position (in contracts)								
FT-CAND-PWR	John Zufferli			0	0	90	92	182
CAND-POWER-GD	John Zufferli			(117)	22	0	0	(94)
FT-CND-PWR-ST	Cooper Richey			(1)	0	0	0	(1)
CAND-PWR-PR	John Zufferli			0	(508)	16	16	(476)
Total Canada Gas Contracts				(118)	(486)	106	109	(389)
West VAR LIMIT		**25,000,000**						
West Power Position								
EPMI-LT-CALI	Bob Badeer	2,807,235	257,884	15	39,115	19,070	(50,641)	7,558
EPMI-LT-NW	Mike Swerzbin	9,193,184	327,233	(5,020)	(90,415)	(10,043)	(88,830)	(194,308)
EPMI-LT-SW	Matt Motley	7,478,986	58,822	583	26,239	31,035	(183,741)	(125,883)
EPMI-LT-WESTMGM	Tim Belden	1,870,040	433,781	(550)	74,996	38,724	28,775	141,944
EPMI-LT-WOPTS	Matt Motley			14,208	0	0	(396)	13,812
EPMI-LT-WTRANS	Mike Swerzbin, Tim Belden			0	0	0	0	0
EPMI-ST-CA	Jeff Richter	990,074	33,768	(15,296)	(42,953)	(49,595)	(29,686)	(137,529)
EPMI-ST-NW	Sean Crandall, Diana Scholtes	561,631	34,057	(16,155)	465	795	921	(13,974)
EPMI-ST-SW	Tom Alonso, Mark Fischer	800,675	49,601	(6,062)	27,402	(14,878)	(4,948)	1,514
Total West		**20,083,564**	**671,253**	(27,575)	34,849	15,108	(328,545)	(306,164)

Unlike Enron, at Société Générale Mr. Kerviel's imaginary position would have appeared in any number of reports including those for position limits by counterparty, position limits for the individual trader (or traders), and credit limits. Nonetheless, by December 2007, Mr. Kerviel's undeclared profit had risen to approximately $2 billion. His transcript makes this startling statement:

> As of the 31st of December [2007], I no longer have a "pose" and my "mattress" [profits set aside] has gone up to €1.4 billion, still not declared to the bank. At this point, the situation is beyond me and I don't know how to tell the bank about it, this represents unreported cash of €1.4 billion. So I decided not to declare this to the bank and to cover up this amount, I create an offsetting fictitious operation….

This is a great deal of cash. Moreover, it is at year-end when cash is likely to be reconciled as part of an institution's global financial statements. Year-end 2007 cash flows would certainly have indicated a discrepancy of $2 billion when normal cash flows were only $10 billion for the entire enterprise:

CASH FLOW STATEMENT

(in millions of euros)	IFRS December 31, 2006	IFRS December 31, 2005*	IFRS ex. IAS 32-39 & IFRS 4 December 31, 2004*
NET CASH INFLOW (OUTFLOW) RELATED TO OPERATING ACTIVITIES			
Net income (I)	**5,785**	**4,916**	**3,623**
Amortization expense on tangible fixed assets and intangible assets	2,138	1,806	1,760
Depreciation and net allocation to provisions (mainly underwriting reserves of insurance companies)	7,885	7,263	4,662
Net income/loss from companies accounted for by the equity method	(18)	(19)	(40)
Deferred taxes	194	227	34
Net income from the sale of long term available-for-sale assets and subsidiaries	(494)	(524)	282
Change in deferred income	274	(230)	(130)
Change in prepaid expenses	(361)	(103)	(22)
Change in accrued income	(668)	(285)	(135)
Change in accrued expenses	509	795	211
Other changes	2,986	1,179	(182)
Non-monetary items included in net income and others adjustments (not including income on financial instruments measured at fair value through P&L) (II)	**12,445**	**10,109**	**6,440**
Income on financial instruments measured at fair value through P&L(1) (III)	**(10,360)**	**(7,026)**	**(3,687)**
Interbank transactions	1,844	34,784	2,528
Customers transactions	8,555	1,041	479
Transactions related to other financial assets and liabilities	(10,267)	(42,042)	(10,359)
Transactions related to other non financial assets and liabilities	(165)	1,047	1,837
Net increase/decrease in cash related to operating assets and liabilities (IV)	**(33)**	**(5,170)**	**(5,515)**
NET CASH INFLOW (OUTFLOW) RELATED TO OPERATING ACTIVITIES (A) = (I) + (II) + (III) + (IV)	**7,837**	**2,829**	**861**
NET CASH INFLOW (OUTFLOW) RELATED TO INVESTMENT ACTIVITIES			
Net cash inflow (outflow) related to acquisition and disposal of financial assets and long-term investments	(1,284)	2,023	2,017
Tangible and intangible fixed assets	(3,511)	(3,161)	(1,245)
NET CASH INFLOW (OUTFLOW) RELATED TO INVESTMENT ACTIVITIES (B)	**(4,795)**	**(1,138)**	**772**
NET CASH INFLOW (OUTFLOW) RELATED TO FINANCING ACTIVITIES			
Cash flow from/to shareholders	236	(865)	(1,574)
Other net cash flows arising from financing activities	(170)	(7)	881
NET CASH INFLOW (OUTFLOW) RELATED TO FINANCING ACTIVITIES (C)	**66**	**(872)**	**(693)**
NET INFLOW (OUTFLOW) IN CASH AND CASH EQUIVALENTS (A) + (B) + (C)	**3,108**	**819**	**940**
CASH AND CASH EQUIVALENTS			
Cash and cash equivalents at start of the year			
Net balance of cash accounts and accounts with central banks	3,409	3,700	3,928
Net balance of accounts, demand deposits and loans with banks	2,347	1,237	70
Cash and cash equivalents at end of the year(2)			
Net balance of cash accounts and accounts with central banks	5,175	3,409	3,701
Net balance of accounts, demand deposits and loans with banks	3,689	2,347	1,237
NET INFLOW (OUTFLOW) IN CASH AND CASH EQUIVALENTS	**3,108**	**819**	**940**

** Amounts adjusted with respect to the published financial statements.*

(1) Income on financial instruments measured at fair value through P&L includes realized and unrealized income.

(2) o/w EUR 194 million cash related to entities acquired in 2006.

Mr. Kerviel's methodology to evade his supervisors' review is astounding:

> Now for the bank, since I am not supposed to have earned this money, I reported a result of only €55 million….I then provided fake evidence

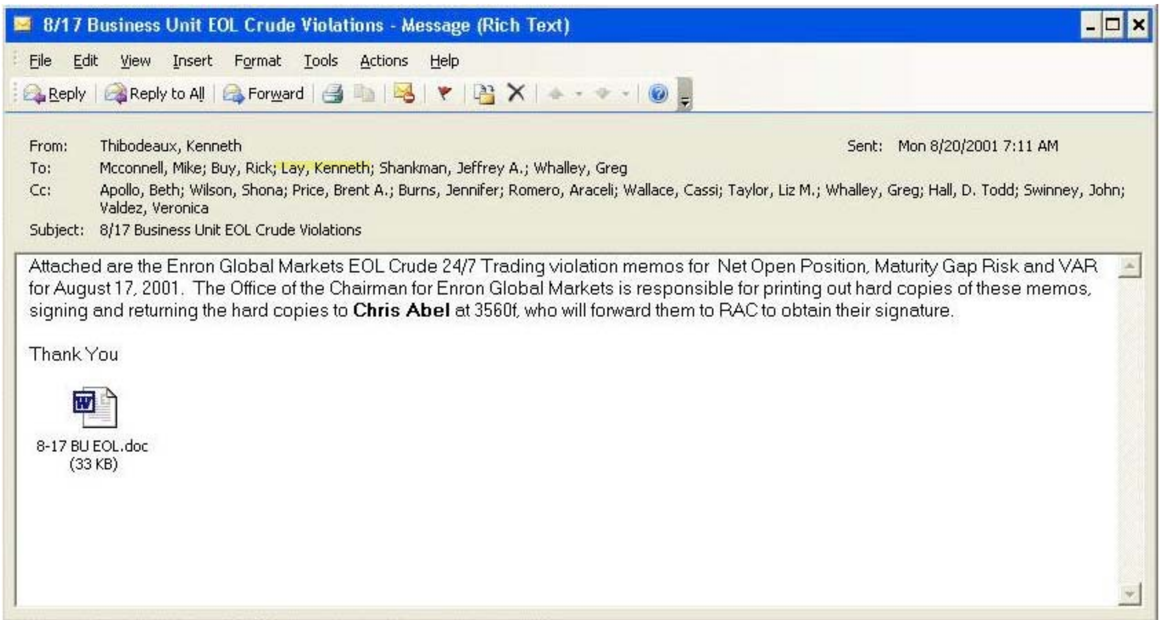
> of the recording of these operations, i.e. fake e-mails. I created a fake e-mail with a function that allows me to reuse the heading of an e-mail that is sent to me and change the contents….

While it is remotely possible in this day and age that Mr. Kerviel's supervisors do not know that emails are simply text files that can be edited in any word processor, it is unlikely that they would ask him for the fiscal evidence that by all rights should have been locked within the bank's trading databases.

Société Générale's 2007 Registration Document states:

> Accounting data are compiled by the back and middle office and independently from the sales teams, thereby guaranteeing that information is both reliable and objective.

Normally, traders enter transactions directly into the computer and the confirmations, contracts, and invoices are generated elsewhere. This is simply a precaution against a trader executing transactions that would directly benefit the trader. If we believe Mr. Kerviel, Société Générale's risk managers and supervisors rely on the traders themselves to provide documentation of the transactions. He argues that his superiors were aware of his trading violations. If this proves to be the case, Mr. Kerviel's statement describes an organization in which controls were enforced at very low levels. We note that Enron carried trader violations up the chain of command to the CEO. Enron's files document many violation notices. Here is an email notifying management (including CEO Kenneth Lay) of violations similar to those admitted to by Mr. Kerviel:



8/17 Business Unit EOL Crude Violations - Message (Rich Text)

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From: Thibodeaux, Kenneth
Sent: Mon 8/20/2001 7:11 AM
To: Mcconnell, Mike; Buy, Rick; Lay, Kenneth; Shankman, Jeffrey A.; Whalley, Greg
Cc: Apollo, Beth; Wilson, Shona; Price, Brent A.; Burns, Jennifer; Romero, Araceli; Wallace, Cassi; Taylor, Liz M.; Whalley, Greg; Hall, D. Todd; Swinney, John; Valdez, Veronica
Subject: 8/17 Business Unit EOL Crude Violations

Attached are the Enron Global Markets EOL Crude 24/7 Trading violation memos for Net Open Position, Maturity Gap Risk and VAR for August 17, 2001. The Office of the Chairman for Enron Global Markets is responsible for printing out hard copies of these memos, signing and returning the hard copies to **Chris Abel** at 3560f, who will forward them to RAC to obtain their signature.

Thank You

8-17 BU EOL.doc
(33 KB)

This email shows that the formal response document is attached, requiring signatures by both the CEO's office and Enron's risk management. It is puzzling that Enron had such measures in place (although ignored) yet Société Générale does not.

In summary, trading at one of the world's leading banks was poorly controlled, with few internal risk management checks and balances and inadequate supervision of key employees. Although all of the evidence is not in, Société Générale's crisis supports the argument for controls at the market level and not depending upon the prudence of company management.