

# Chapter 2: Setting up a Trading Room

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Reading this chapter you will be introduced to the following key concepts:

- The resources available in trading rooms and in the trading room at HEC: Bloomberg, Thomson ONE, FTS Trader
- How to get access and to get experience with the trading room at HEC
- The organization of a trading room: Front-office, middle-office, back-office, and administration

## Introduction

The term trading room, or dealing room, is widely used in financial markets to refer to the office space where market activities are concentrated in banks or brokerage houses. Sometimes the term trading floor is used as a synonym of a trading room. However, technically this is wrong as this term refers to the actual trading venue, a place where traders or stock brokers meet in order to buy and sell equities, also called a pit.

Financial trading rooms often consists of large open-space offices where financial employees (often referred to as "traders") monitor the markets and trade with other traders, their counterparties, either using the phone or through electronic interfaces. Trading rooms are getting increasingly large for several reasons, one of the being the importance of the actual trading business for financial institutions. According to Wikipedia, JP Morgan plans to have six 60,000 sq ft (5,600 m<sup>2</sup>) trading floors in its new downtown Manhattan building.

Today's trading rooms are highly technological spaces made up of several desks, with each desk being responsible for trading in a specific type of assets or asset classes such as bonds or stocks. The different trading or sales desks are equipped with financial data provided by companies such as Bloomberg and Reuters/Thomson. Having access to this data in real time is of imperative importance to traders. In addition to this, traders use various quantitative tools for analysing the data and sometimes also for executing the actual trades.

In the following, you will be provided with an introduction to the trading room at HEC Montréal and the resources found there. This chapter also goes through the organization of a generic trading room as it would be found in a major investment bank for example. We will also discuss the various types of employees who are working in a trading room.

Welcome to the Financière Banque Nationale Trading Room. We are sure you will enjoy it here.

## The trading room at HEC Montréal – an example

The Financière Banque Nationale Trading Room, from here on the SDM, is designed to resemble a state of the art trading room as it would look in the major financial institutions. It is one of the largest and best equipped trading rooms of any university in the world. No kidding! The SDM offers a unique way of teaching and it offers access to the very latest in terms of financial data and software. The direction of the trading room is continuously working on ensuring that the SDM has access to the latest technology and resources.

The room was fully renovated in 2007 and since then all computers were updated in 2009. Today the SDM has 20 trading desks each equipped with very powerful computers with 4 screens, 2 of which are controlled from the teacher's station. For presentation and teaching purposes 2 whiteboards are available which are linked to the teacher's station. The contents on these boards can be shown on the extra monitors at each of the 20 student stations. Finally, as all the computers are linked in a network it is possible to run simulations in the SDM.

In the SDM there is first of all access to Thomson ONE and Bloomberg, which are the two most important providers of data to the financial community. Through the SDM you will also have access to various types of software for quantitative analysis and for compiling reports. Finally, using the Financial Trading System trading simulation software it is possible to perform simulations of trading in the various markets used in real life.

### Bloomberg

Bloomberg is without doubt the best known provider of financial data, and clearly a trading room would not be complete without access to this service. It is rivalled only by Reuters/Thomson in terms of the market share of providing financial data and news. In 2001 Bloomberg reported that 156.000 terminals were leased in more than 100 countries worldwide. In addition to this data and news are available through Bloomberg's wire service, radio, television, internet, and through magazines and books published by the company.

With the upgrade in 2010 there are now 11 Bloomberg stations in the trading room. Whereas one is installed on the professor's station every second student trading desk is also equipped with the software. Bloomberg provides 24-hour current and accurate financial, economic, and government information covering all market sectors worldwide. The market data is available historically approximately twenty years back.

In addition to the current and historical market data on stocks, bonds and other securities Bloomberg also features analytics, company financials, statistics, and current news reports. Thus, it provides invaluable information when evaluating e.g. a stock and when performing a fundamental analysis of the company.

Although Bloomberg provides information about virtually every market historically it has been extremely strong when it comes to providing information on the fixed income market. Figure 1 shows a screenshot of the money market overview page, which shows the various types of

instruments available to investors in this market. Obviously, if you are participating in this market you need to understand each and every one of these instruments in detail. You also need to be able to use the appropriate trading strategies to make profit in this market if you want to succeed.

GRAB		Equity BTMM											
Change Country		US TREASURY & MONEY MARKETS										15:48:53	
<b>15:47 FED FUNDS</b>		<b>US T-BILL YIELD/PRICE</b>				<b>EURO\$DEP</b>		<b>REVERSE</b>		<b>REPO</b>			
BID/ASK	4 <sup>1</sup> / <sub>2</sub> 4 <sup>1</sup> / <sub>2</sub>	4W	4.42	0.00	4.36	4.35	3M	4.8500	4.9000	O/N	4.50	4.46	
LST/OPEN	4 <sup>1</sup> / <sub>2</sub> 4 <sup>1</sup> / <sub>2</sub>	3M	4.58	-0.02	4.48	4.47	6M	5.0100	5.0600	1W	4.46	4.41	
HIGH/LOW	4 <sup>1</sup> / <sub>2</sub> 4 <sup>1</sup> / <sub>2</sub>	6M	4.79	-0.02	4.62	4.61	1Y	5.1700	5.2200	2W	4.47	4.42	
DJIA	11150.92 +74.90	S&P 500 FUT	1308.90 +13.10	CCMP	2293.58 +26.55	1M	4.57	4.52					
<b>US BONDS YLD/BID/ASK/CHG</b>				<b>DEALER CP</b>		<b>90D EUR\$ FUT</b>		<b>FUNDS FUT</b>		<b>LIBOR FIX</b>			
4 <sup>5</sup> / <sub>8</sub> 02/29/08	4.641	99-30+	99-31	04+	15D	4.530	JUN	94.89	MAR	95.43	1W	4.57000	
4 <sup>1</sup> / <sub>2</sub> 02/15/09	4.701	99-14	99-14+	08	30D	4.640	SEP	94.86	APR	95.24	1M	4.75094	
4 <sup>1</sup> / <sub>2</sub> 02/28/11	4.678	99-06+	99-07	12	60D	4.720	DEC	94.90	MAY	95.11	2M	4.82625	
4 <sup>1</sup> / <sub>2</sub> 02/15/16	4.696	98-13+	98-14+	17+	90D	4.780	MAR	94.96	JUN	95.06	3M	4.91688	
4 <sup>1</sup> / <sub>2</sub> 02/15/36	4.707	96-21	96-22	26	120D	4.820	JUN	95.00	JUL	95.00	4M	4.96663	
					180D	4.870	SEP	95.01	AUG	94.97	5M	5.02025	
<b>SPOT FOREX</b>		CRB	326.97	3.98	<b>LONG BOND FUT</b>		<b>SWAP RATES</b>		<b>Key Rates</b>				
JPY	117.4800	<b>30Y MBS</b>			CBT	111-01	25	3Y	5.134	Prime	7.50		
EUR	1.2021	GNMA 5.5	99-17	99-18	12	<b>CRUDE OIL</b>		5Y	5.165	BLR	6.25		
GBP	1.7467	GOLD 5.5	98-11	98-12	13	NYMEX	62.90	-20	10Y	5.234	FDTR	4.50	
CHF	1.3020	FNMA 5.5	98-10	98-11	13								
MXN	10.6735												
CAD	1.1563												
Date Time	Event			Survey	Actual	Prior	Revised						
3/14 8:30	US	1)	Current Account Balance	4Q	-\$218.0B	-\$224.9B	-\$195.8B	-\$185.4B					
3/14 8:30	US	2)	Advance Retail Sales	FEB	-0.8%	-1.3%	2.3%	2.9%					
3/14 8:30	US	3)	Retail Sales Less Autos	FEB	-0.5%	-0.4%	2.2%	2.6%					
3/14 10:00	US	4)	Business Inventories	JAN	0.3%	0.4%	0.7%	0.8%					
<small>Australia 61 2 9777 8600 Brazil 5511 3048 4500 Europe 44 20 7330 7500 Germany 49 69 920410  Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2006 Bloomberg L.P.  H214-707-0 14-Mar-06 15:48:53</small>													

Figure 1 Screenshot from Bloomberg's money market overview page showing the vast number of different instruments available in this market.

It is very easy to use the Bloomberg terminal as this may be done either by using the mouse or by typing in simple commands and hitting the "GO" button. Say you want information on Alcan. By simply typing in Alcan the terminal will start to provide you with possible links to information that might interest you. To access either of these links you can either type in the code directly or simply click the link with the mouse.

## Thomson ONE

The 20 trading desks in the SDM all have access to the latest version of Thomson ONE, from Thomson Financial. Thomson ONE is a very powerful program with which you can obtain data on virtually every stock, index, fixed income instrument, currency, or commodity you may want. Although some of the data is delayed 15 minutes, much of it is available in real-time.

The main menu of Thomson ONE looks something like Figure 2. In the main menu you will find a number of pre-programmed lists with the most important tickers, i.e. identifiers of stocks, bonds, commodities, foreign exchange, indices etc. For each of these tickers represented in the

symbol column the lists provide you with additional information like the last price “Last”, the change “Chg”, open price of the day “Open” etc. By clicking on the symbol you may obtain additional information in the bottom display and a plot of the historical price in the graph although this may differ from setup to setup. In the column immediately next to the symbol normally you will find information about the frequency of the information. A “Y” means this is yesterdays price, a “D” means prices are delayed 15 minutes, whereas arrows up or down means this is real-time data and that the last price was up or down respectively.



Figure 2 Screenshot from the main menu of Thomson ONE. In the top left corner an overview the various stock markets is shown. The graph in the top right hand shows the evolution of the DJIA, and below this prices for various types of assets are shown.

In addition to the already available lists you may create your own. To do this simply right click on any of the existing lists and choose “new”. In the top left corner you may use the dropdown menu to choose from a number of existing layouts. Once opened, the list is empty. To get data on an asset simply click anywhere on the left column and write the ticker symbol. Typing SPX will give you information on the S&P 500 index. If the information you want is not available you may add columns by right clicking, choosing “Layout” and then “Edit”. Here you may choose from an extensive list of information. Note that all columns may not be applicable for all tickers. For instance it makes little sense to ask for dividend information on foreign exchange data.

## Financial Trading System

The Financial Trading System, or FTS trader, is a simulation software which allows us to set up a market place in the SDM on which students are responsible for trading. The software can be used to illustrate how trading is conducted in different markets. Various cases exist through the

FTS Interactive Markets which can be used to familiarize participants with the different markets for e.g. stocks and indices, bonds, foreign exchange, and even options and futures.

In these cases participants trade a small number of assets. In all cases the central concept is the problem of discovering a fair price for these assets. Each of these cases can be repeated a number of times. By trading only a limited number of assets over several independent trials it becomes possible to facilitate a particular teaching objective.

### Trading with the FTS software

The FTS software is made to resemble a real life trading platform. The figure below shows the interface available for a particular case, the FTS Trading Case RE3. This is an advanced case in which participants can trade two stocks and two types of options on the stock second stock. The goal of the case is to demonstrate that introducing options in the market may complete the market in such a way that price discovery is enhanced. To realize this, participants need to understand the concept of arbitrage portfolios, portfolios which has a payoff that is independent of the future outcomes. Because this portfolio is risk free the price should be the discounted value of the future payoffs, and if this is not the case there exist the possibility of arbitrage.

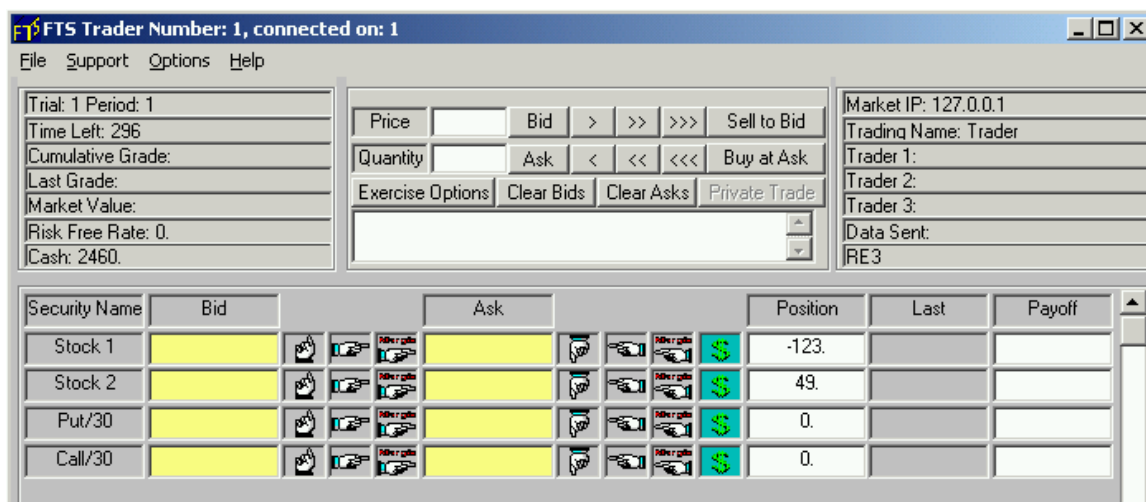


Figure 3 Screenshot of the trading interface used for the FTS Trading Case RE3.

The FTS software allows the participants to link to Excel with continuously updated data. This then means that arbitrage opportunities can be monitored in real time and this enhances participants' possibilities of executing profitable trades. Another benefit of linking with Excel is that the entire history of trades is recorded. With this it becomes possible to analyse all trades conducted and to evaluate these once the results of the case becomes available. In all, these features enhances participants learning experience.

### Using the SDM at HEC Montréal

Students and faculty at HEC Montréal all have access to the SDM and all the resources available in the room during regular opening hours provided that the room is not in use. To consult the

opening hours please check the SDM homepage at the following link: <http://www2.hec.ca/salledesmarches/index.html>. Moreover, in addition to this several courses are taught in the SDM at HEC Montréal, most importantly the courses “Négociation en salle des marches” and “Trading in Financial Markets” at the BAC level, and the same course in the MBA program. In fact if you are reading this document you are most likely taking one of these courses. However, the SDM is also used in the courses “Placements” and “Investment” at the BAC level, as well as in the courses “Analysis of Fixed Income securities” and “Common Stock Valuation” in the MBA program.

### **Studying in the SDM at HEC Montréal**

The two courses “Négociation en salle des marches” and “Trading in Financial Markets” aim at introducing the student to the use of the available trading platforms, to the principal financial markets, and to the interactions existing between these markets and the operations in trading room. Furthermore, in the course the students are introduced to issues such as the return on a position, the various trading strategies and their objectives, and the investment decision.

More specifically, during the course you will be introduced to the four major markets traders participate in: the stock market, the fixed income market, the currency market, and the commodity market. Each of these markets has special features when it comes to trading, and different trading strategies can be implemented. The course will also introduce how trading takes place and several simulations will be used to familiarize students with trading in these markets. Since derivatives are used all over by traders special attention will be put on this type of investment instruments and their use in each of the four main markets.

### **Working in the SDM at HEC Montréal**

If you have already taken the course “Négociation en salle des marches” or “Trading in Financial Markets” or are currently doing so you will also have noticed our team of operators who work in the SDM. These are students who are there to help and assist all the day to day users of the SDM. Just ask them – they are nice people and very helpful. The reason is that most of them really like working in the trading room.<sup>1</sup>

In fact, some of them liked to work in the trading room so much that they have gone on to pursue a career as traders in the private industry after finishing at HEC Montréal. If you come across any one of them, they will surely tell you that their experience from studying and working in the SDM was of very useful for them.

## **Organization of a trading room**

In real life there is more to a trading room than just a couple of fancy screens and some software. In fact the organization of a trading room involves several elements. Some of these are put in place to increase the efficiency and some to prevent errors or direct fraud. Thus, professional Trading Rooms are usually organized along the following lines:

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<sup>1</sup> In fact, if you want to join them send your CV to us!

1. Front-office
2. Back-office
3. Direction, Accounting, and Internal audit

In the following subsections we will go through each of these functions.

### **The front office**

The Front-office is widely deemed as having the highest-calibre employees in terms of intellectual and/or interpersonal capital. One may split the Front-office into two main areas: Investment banking and financial markets. This is where many people dream of working.<sup>2</sup>

Investment banking is the traditional aspect of investment banks and involves helping customers raise funds in the capital markets. Investment bankers prepare idea pitches that they bring to meetings with their clients in the hope of convincing these to put their business with the particular bank. Once mandated the bank will take care of the execution of the deal – subscribing, coordinating, or negotiating with potential investors. This part also includes the Mergers and Acquisition and it is sometimes referred to as Corporate Finance, as opposed to Financial Markets.

The financial markets section is split into different key divisions: Sales and trading, research, and structuring. Sales and trading is one of the most profitable areas. While trading is the act of selling and buying securities, sales actually refer to calling e.g. institutional investors in attempt to attract their business. The research division is the division which reviews companies and writes reports about their prospects followed by buy or sell ratings. This division generates no revenue as such. A final division, the structuring division, is a relatively new division and involves trading in e.g. derivatives. Specifically, it involves the creation of complex structured products which offers the potential for various risk and return tradeoffs. These products are often tailored specifically to a client or clients.

### **The back office**

The main reason for setting up a back office is to separate some of the tasks involved in trading. In particular, multiple examples have shown that it is problematic with joint front-offices and back-offices (see the boxed text). The responsibilities of the back-office are: the definition and formalization of the operating procedures, to monitor and examining the risks, and to conduct all the operations related to settlement.

Definition and formalization of the procedures involves the following important questions:

1. Who the bank do business with, on which markets, and which operations can be used?
2. For which amounts and who can authorize excess amounts and how?
3. Who can validate an operation?

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<sup>2</sup> For an interesting view of the world of investment banking take a look at the book “Monkey Business: Swinging Through the Wall Street Jungle” by John Rolfe and Peter Troob.

### The case of the Barings Bank

A classical example of what can happen when the tasks of trading and settling are not separated is the case of the bankruptcy of Barings Bank caused by Nick Leeson, one of its traders. Stationed in Singapore, Nick Leeson was responsible for the front- as well as the back-office. That is, he was both the trading floor manager and the head of settlement operations.

Being in charge of both offices basically meant that he reported all trading activities to himself and acted without any supervision. This allowed him to “cook the books” on the 88888 accounts to prevent the London office from receiving the standard daily reports on trading, price, and status. If you don't get any of this read the book!

Monitoring and examining the risks involves among other things the issue of counterparty risk which should allow for:

1. Immediate control of the operations.
2. Simultaneous entering of data in the management system and the accounting system.
3. Procedures for permanent evaluation of the results.

Finally, the settlement in the back-office involves:

1. Checking the transactions, confirmation of the operations, and initialization of accounting.
2. Checking the orders of the traders, the deposits, and the calls for additional cover.
3. Transferring of funds as well as monitoring the positions and calculation of the value at risk, the VaR.

### In between the two: the middle office

The middle office comprises departments of a financial services company that manage position-keeping (i.e. control representation of transactions within transaction-registering system of a company). These divisions make sure these transaction representations properly capture profit flows given the technological resources. The middle office is usually part of Operations division, which normally is also in charge of settlement. Due to their critical role, Middle Office always acts in tandem with Front Office work on open markets, and is supervised by Back Office managers responsible for risk and p&l controls.

### Direction, accounting, and internal audit

The direction defines:

1. The objectives to pursue for investment and the exposure limits.
2. The levels of delegation.
3. Finally, they determine the measures used for performance evaluation.

The accounting people are among other things responsible for:

1. Definition of the procedures used for accounting.
2. Preparation of rapports.

## Employees

The industry of investment banking employs numerous different categories of people. Some of the best known examples of these are:

1. Brokers
2. Traders
3. Sales people
4. Analysts

### Brokers

The broker is the intermediary between the buyer and the seller, i.e. between the customers of the investment bank and the traders, the dealers, or the market-makers. That is, in an investment bank the broker provides the link between the buy side of the market, the investors, and the sell side of the market, the dealers. It is important to note that the broker does not take any positions in the market on behalf of the bank. The broker is purely an intermediate agent and is remunerated by the commission on the transactions which he or she initiates.

Various different “types” of brokers exist and may be working at an investment bank. The *agency broker* works on the buy side, i.e. he or she acts for customers of the firm and helps execute their trades. The *inter-dealer broker*, on the other hand, works on the sell side. Specifically, the inter-dealer broker is responsible for ensuring that the traders of different institution can pass their transactions in a confidential way.

### Trader

The trader’s objective is to generate profit for the bank by buying low and selling high or by implementing other profitable trading strategies. This may be done by participating in *proprietary trading*, where the trader gives an opinion in the name of an institution. Alternatively, traders generate profit by carrying out an order at the market for the account of a customer. This is referred to as order driven trading.

The trader, particularly the proprietary trader, uses information from various sources. In particular the trader observes the quotes in the market using the various types of software which provide financial data. As support for their trades traders often use technical analysis or fundamental analysis, or both, and oftentimes, quantitative methods are used. These analyses are provided by the support team of analysts in house or through external sources such as Bloomberg or Thomson ONE.

### Sales people

The objective of the sales people is to generate activity for the bank. To provide them with the correct incentives to do this their remuneration is often in % of the sales and there may be an

additional bonus if a certain objective reached. The sales people provide a link between the services of the financial institution, commercial banker, back office, trader, and the customers.

In addition to this sales people may work on the buy side for different clients such as the corporative treasurers, the institutional investors, and the few fortunate private investors with sufficient resources.

### **Analysts**

The analysts put forth recommendation of investment possibilities by analysing the market and by providing macro analysis. More specifically, they use technical analysis, fundamental analysis, or quantitative analysis, or all of the above. The analysts support the brokers on the sell side and the funds on the buy side. Some of the most important qualities of an analyst include knowledge of the market, rigour, synthesis etc.

### **Summary**

The term trading room, or a dealing room, is widely used in financial markets to refer to the office space where market activities are concentrated in banks or brokerage houses. Such rooms are usually organized with the following functions; Front-office, Back-office, Direction, Accounting, and Internal Audit. A varied number of people work in or are connected to such a trading room; Brokers, Traders, Sales people and Analysts. At HEC we have a state of the art trading room from which you can have access to the most commonly used resources in a trading room such as Thomson ONE, Bloomberg, as well as various types of software for quantitative analysis and for compiling reports. In addition to this, in the trading room we can use the Financial Trading System trading simulation software. To conclude, the trading room at HEC is one of the largest and best equipped trading rooms of any university in the world. No kidding!