

0 Foreword & How to Use the “TG2” Series Most Profitably

So ya wanna be a trader?

The Three Envelopes Story

A derivatives trader is hired at an investment bank and on his first day at work is shown to his trading desk. The desk has the usual familiarity of clutter, phones, and screens, and also the obvious remnants of the hastily cleared-out workspace of the previous trader. On inspection of the drawers, our hero finds three envelopes, attached to which is a note that reads:

“In case of emergency: Envelopes 1, 2, and 3”.

More intrigued by the markets than by the envelopes, he begins trading. After a few months of making a bit of money, all of sudden “Boom” his P&L is down size, and panic strikes. But wait a minute, what about those “emergency envelopes”. Opening Envelope 1 he finds the following advice:

“Blame the previous trader”

So our man is in the boss’s office explaining, “there were some trades on the books from the previous trader, which nobody knew anything about, and they blew-up”. His boss simply says “no problem just go back to trading”.

Relieved at getting through that, he heads back to the routine of “yours/mine”. Sure enough after a few months of making a bit of money trading, all of sudden “Kaboom”, the P&L takes another beating ... “oh my God what to do?”. After a few seconds, he remembers the previous sage advice; and opening Envelope 2 he now finds:

“Blame systems”

Once again in the boss’s office, he is explaining “... oh those bloody quant guys and programmers wrote some code that had an error in the delta calculations and so the rebalances were wrong ... and there was no way to know”. His boss answers “don’t worry about it, just go back to trading”.

Becoming something of a veteran now, he returns to trading. A few months go by and he is making a bit of money trading, when all of a sudden “Whamo” the P&L is hugely underwater. Our hero immediately reaches for Envelope 3, which simply says:

“Prepare three envelopes!”

If you’ve just smiled (since you have “seen such things”), then you are probably a seasoned market professional.

0.1 Why the TG2 Series of Books?

“For every complicated problems there is always a simple answer, but usually its wrong”

There are “your amount” of books available that have one or more of the following properties:

- They describe contract definitions and specifications (e.g. “this is a future, and that is an option” etc).
- They describe certain quantitative techniques, but are almost always written by academics and are theoretical.
- They describe trade idea generation, but are limited to Technical Analysis, or rudimentary portfolio theory usually following Markowitz/Efficient Frontier methods.
- There are no books that provide comprehensive coverage of the trading problems from trade idea generation, structuring, executing/selling, position keeping over the holding period of the trade, and all while running a business with all of the idiosyncrasies of a real world trading operation.

Unfortunately, there is precious little information on: How to actually trade, and how to run a trading¹ business? Trading is a bit like the classic “iceberg” problem – establishing a trade is only a small fraction of the business. Just a few of the critical issues not found in the current literature include:

- How would you generate trade ideas for yourself and a wide range of (possibly sophisticated) client risk/return needs under many market conditions in many different asset classes and currencies?
- What selling and structuring requirements might be required to actually “close” the deal, even if a trade idea already exists?
- The bulk of the trading problem actually arises after the first transaction.
 - How would you manage positions?
 - How would you calculate risk, and rebalance that risk?
 - How would you relate a single rebalance, or a sequence of rebalances over a holding period, to your overall P&L strategy or mandate?
- How to differentiate reality from theory, and what methods are available to overcome the considerable chasm between your world and academia?
- How would you run a trading business?
 - How would you set valuation and risk objectives that are consistent with your mandate?
 - How to ensure the operation’s risk/return profile is maintained and that the trading strategies and methodologies are consistent with the mandate.
 - What portfolio issues must be considered and how to accomplish them?

¹ The word “trading” is sometimes used in the wider sense that includes all activities a trading floor, or at a hedge fund, such as structuring, selling, risk managing, and so forth.

- How would you run the business to fit in with other operations on a trading floor?
- How to handle the overwhelming onslaught the day-to-day minutia in the process of producing a decent P&L, not to mention the complications due to the highs and lows of the “glamorous and not so glamorous” aspects of trading.

It is these “reality impact” issues that are critical in running a trading operation. Notably, all aspects of the business revolve around Profit and Loss (P&L) and so all considerations must reflect the impact on (risk-adjusted) P&L as it occurs in a trading business. These books aim to describe and address all of these “ins and outs”, and all in a P&L optimising context.

0.2 What is, and is not, important, and who is this for anyway?

This is the first and “core” book in a Series of books intended to be a fully comprehensive reference set for market professionals. This Series of books is written by market professionals for by market professionals. Importantly, several of the books are also intended for those considering a career “in the business” or just starting out.

This “Read Me 1st” book has five main objectives:

- This book provides all of the necessary information and basics for neophytes interested in our industry of seeking a career in trading, sales, structuring, and risk management
- This book serves as a review for experienced market professionals.
- This book covers topics common to all the books in the Series to avoid duplication.
- This book establishes definitions, terminology, and concepts so that we may all “agree” on the meaning of words and ideas that are so heavily abused in our industry.
- This book is a “road map” for the rest of the Series.

Once you “plough through” this book, and you are beginner, you should have:

- A clear-cut understanding of the most important aspects of the “business”, at a basic level, and hopefully will recognise that first and foremost, it is a “business” and P&L is all that matters.
- Elevated yourself, at least, to be able to ask the “right” questions.

If you are an experienced professional, you should:

- Find that all the “bits and pieces” required to understand your business that you had to learn in a disparate and disjoint chaos, are now on available on a common and cohesive basis.
- Find that all aspects, ideas, responsibilities are now presented on “why do we need to that” context, and then providing the (real world) answers.

- and who knows, we might even surprise you and include something(s) you haven't thought of.

What is important includes:

- Making money.
- Not losing money (this is not the same as making money²).
- A clear and unambiguous understanding of the basics, and especially in the context of “running a business” where (risk-adjusted) P&L is everything.
- A clear understanding of the basic principles of valuation and risk.
- A clear understanding of the forces that drive prices (supply/demand, arbitrage, etc).
- A clear understanding of the key concepts and terminology.
- A clear understanding of the (pricing, risk, etc) tools and their characteristics, especially as applicable in the real world.

What is not important includes:

- We are not trying to impress anyone with fancy maths or obscure complications, since a deep understanding of those matters is not important. However, a qualitative understanding at the reality impact level is important.
- Posterity is not important, P&L is.
- ... get the idea?

0.2.1 Who is this (book/Series) for?

This first book is intended for both those entering or already in trading, sales, structuring, risk management, or even business management. The first book is required for “all”; either as a proper learning experience; or for the experienced market professional, to set the foundation (e.g. agree on terminology etc) for the “proper” trading, sales, structuring, and risk books required later in the Series.

This means that all of this Series is intended for:

- Real world trading floor/risk management environment.
- Though there is a slight bias towards market making and prop trading, the Series also provides deep coverage for sales, structuring, risk management, and managers.
- Most likely, you work (or plan to work) at a bank, an investment bank, a hedge funds/CTAs, the trading floor of sovereign or large corporate, or perhaps you are the treasurer of a large corporate.

² Indeed, many traders will tell you that they can quite easily generate profitable trades everyday; unfortunately, in that process they will also generate losing trades as well. So quite often, the “game” is not so much how to pick “winners”, but rather how to avoid “losers”.

- If you are new to the business, then you may need to go through everything (at least) twice. Remember, this is about making money, so good preparation is essential to avoid trading losses, and there is no such thing as a “stupid question”.

0.2.2 Pedagogical issues

This Series is written in an informal manner both in terms of “language” and in technicality (there are not very many rigorous mathematical derivations). This informality is used as part of the process of “teaching” the language and culture of the trading floor³, and also to be a bit more relaxing than some of the more “strict” technical books.

The Series has also been written with “the business” in mind from the outset. This means that there are parallel learning curves: the business, the contracts, trading, selling, etc. We have aimed to strike a balance at how these parallel streams are conveyed. Importantly, we have tried to format matters to provide the “best” learning experience to become a profitable member of a trading operation.

The Series has “repetition by design” and reflect the age-old teaching wisdom of “teach once, teach twice, and then teach it once again. In fact, some points may be “taught more than three times” since we are looking to make/save money rather than worry about posterity.

We would much rather have you get sick of hearing “something” over and over again in this Series, but have you get right on the trading floor, rather than provide an easy read, and have you get it wrong on the trading floor.

Sometimes, there will be items or ideas discussed before their formal introduction/definition, but don’t let that bother you. If something seems unfamiliar or too new, just keep reading to understand the context and the point at hand (in any case you will need to come back again anyway). For example, options or Vol/Vega trading is used in examples long before any formal presentation of options and options trading. So what! Don’t be worried if you don’t know what implied vol is, just focus on the context that it is presented in (e.g. such as “that managing a trading position is ultimately expressed in Cash, even if implied vol is one of the convenient intermediate calculations”). Then come back to it again later after you do know what implied vol is.

Some sections will seem overly easy, read them anyway, as they established terminology, (and who knows, you may learn something anyway). Similarly, some passage will explain a particular concept using a very simply example. The apparent “simplicity” of those examples should not be underestimated. For example, the description of the holding process of some commodity, say gold, is quite straightforward. However, a similar “holding process” belies options valuation as well, though it is not so obvious. The point is

³ Please bear in mind that a trading floor can be a place of “exuberant crudity”. We have tried to avoid being too explicit in this regard, but you should prepare yourself for this in case you are of a “sensitive disposition”.

to understand the “simple” things with absolute clarity, since any lack of clarity at this stage can come back to haunt you in unexpected ways when more complex matters are considered.

Some section may appear to provide a tad more quantitative analysis than you might think is required. On these occasions, please trust us. The key ideas in these books have also been presented to many (experienced) traders via our *ARTSchool Seminars* for market professional. On occasion, they too said that some of the descriptions (at first) appeared “too quanty”. However, we would hear from them some weeks or months later with gratitude and thanks that we did insist on spending the extra time on those bits, since exactly those issues arose in their trading and the extra effort helped to make/save money.

Throughout the Series there is “symbology”:



– this symbol is used whenever there are “more maths than you really need”. That is, there may be sections with a bit more mathematical derivation (included for completeness) than you really need to understand for traditional trading or sales. You still need to understand the qualitative aspects of those sections, and how they impact your P&L and risk, but you do not need to worry about being able to derive the equations yourself



– this symbol is used to indicate sections that “experienced” market professionals may safely skip, but read them anyway if you can.

Insets/Notes/Aside/Caveats – these labels indicate passages intended to bring to your attention a little glimpse of deeper and matters, and so to act as a warning, that more learning/knowledge/experience maybe required.

0.2.3 Notation, Grammar, Spelling

Invariably there may be “typos” that have gone unnoticed, and we would certainly appreciate your comments.

However, other areas of grammar, spelling, and notation are a question of choice (and indeed a matter of debate that we do not wish to engage in). For example, there is a debate over Oxford English vs. “printing practice English”, such as –ise vs. –ize (as in specialise vs. specialize) ... this book use the “printing practice convention” (–ise).

In addition, this book is intended to reflect the international nature of trading, and so the examples and sample calculations are provided in various currencies and settings, so CAD, EUR, GBP, JPY, USD etc all feature in this Series.

Wherever pronouns are appropriate, the Series tries to strike a balance between genders (so “his” and “hers” etc should occur about evenly) unless the specifics or facts require otherwise.

Finally, this Series intends to provide a very close and realistic presentation of real world trading environments. This means that the “terminology” or the “vernacular” of the industry must be represented. When this happens, just accept that there is a “lingua franca” of the industry (though as already noted, we have tried to keep the exuberant crudity of the trading floor to a minimum in this Series)

0.2.4 About Accompanying (free) software, and Commercial Software.

Most of the books in the Series are accompanied by supporting (free) EDUCATIONAL software. Notice the emphasis on EDUCATIONAL. The accompanying software has been written to illustrate certain points, and is NOT for commercial trading or risk management.

ART does produce commercial software, and those products are available separately.

In addition, much of the analysis throughout this Series relies on the PaR methodology, which can be implemented by the reader by following the discussions in the Series (e.g. see Chapter 12 of this Volume for an introduction). Some of the more advanced books in the Series include an EDUCATIONAL version of *ART's Pr/rO® XL lite*, which is an implementation of the PaR methodology.

The software has been tested for accuracy, but *ART* makes no warranties whatsoever, nor is the (fee, educational) software supported in any direct manner. Of course, we do appreciate our comments, findings, suggestions, and will make every reasonable effort to incorporate your wishes. You must agree not to use it in a commercial setting, nor alter or use it in any manner that is harmful

Your copy of the TG2 books should include instructions for registration and downloading the accompanying software. If you have experienced any difficulty, or have somehow not received your notification/instructions, then please email TG2Books@Arbitrage-Trading.com with a request for the instructions (note: you will need to supply a valid registration number that is sent with each book)

Those interested in obtaining any of the commercial grade software, such as:

Pr/rO® XL lite (Commercial)

Pr/rO® XL

Pr/rO® Ultra & Classic

may contact *ART* at ARTWare@Arbitrage-Trading.com

0.2.5 About these books and relationship to *ARTSchool*

This Series of books closely parallels the *ARTSchool Seminars* for market professionals. *ARTSchool* delegates receive copies of the relevant TG2 books in addition to the handout notes used during the seminars.

For additional information about *ARTSchool* please see

http://www.arbitrage-trading.com/serv_trainingARTSchool.htm

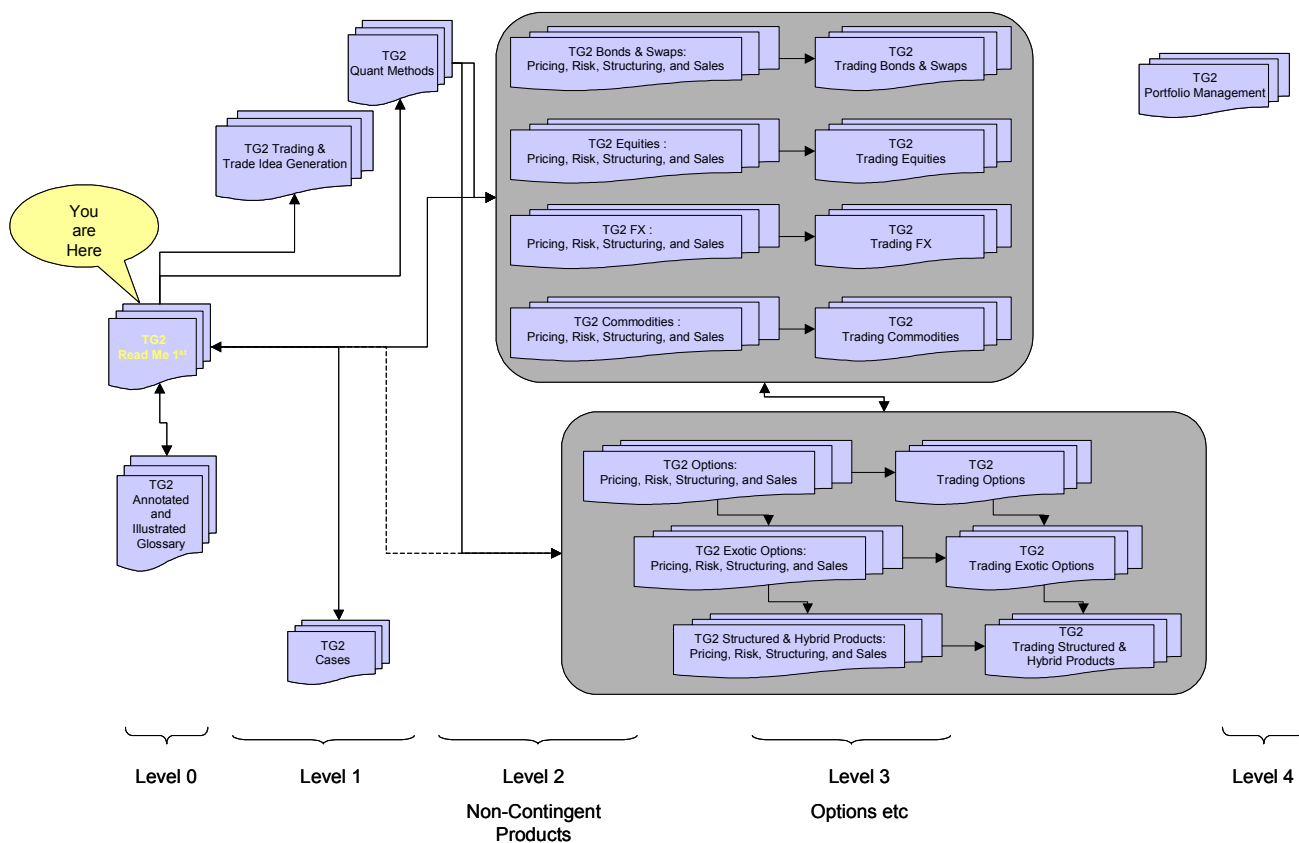
and

<http://www.arbitrage-trading.com/ARTSchoolRequestinfo.htm>

0.3 Future direction & Road Map for the Series.

The TG2 Series is represented by the schematic in the image below. The arrows and connectors indicate “prerequisites”. For example, before you reach the TG2 Bonds & Swaps – Trading, you need the TG2 Read Me 1st, followed by TG2 Bonds & Swaps – Products, with support from TG2 Quantitative Methods.

Many of the “books” are actually “sets of books”. For example, the TG2 Quantitative Methods “set” is a core “quant” book providing a good review of all the basic “stats & maths” you need to know (all of it presented in the context of trading and risk management examples). However, those topics that deserve more attention than a chapter in a book are provided in separate monographs (mini books). For example, the TG2 Quantitative Methods set includes monographs on the Monte Carlo method, Finite Difference method, and so forth. Similarly, the TG Options “sets” include core options books as well as monographs for IR options, and so forth (e.g. see the References Section at the end of this book).



Notice that each asset class is split into two sets of books: “product” and “trading”. The “product” books (e.g. [4]) provide description for how to price, risk measure, structure, sell, and so forth. There is much reality and experience included therein. The “trading” books (e.g. [4.a]) provide many step-by-step examples of establishing, trading, and risk managing real world positions/portfolios with a view to creating the “best” profits possible with the given constraints and risk requirements.

0.4 About the Authors

This Series of books has been written by *ART's* senior staff who are former heads of trading, sales, and quant groups from many well known investment banks and hedge funds, each with at least 16 years of “in-the-trenches” experience (and PhD’s as well). There have also been contributions by a number of senior investment bankers and traders from well-known institutions in Europe and North America. *ART* gratefully acknowledges their advice, opinions, and support.

0.4.1 Invitation for Contribution

If you are interested in contributing smaller or larger components to upcoming or yet to be announced books/monographs under the TG2 umbrella, please contact *ART* at TG2Books@Arbitrage-Trading.com

Please don't send any manuscripts or materials until an agreement warrants such.
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We are most interested in hearing from market professionals with at least 10 years in the business. We are interested in contributions that help our readers make/save money (we are less interested in materials that “show off how smart” somebody is). There are many possible ways to “structure” such contributions depending on the your level of skill, desire to be an author, compensation requirements, etc. Please feel free to enquire at TG2Books@Arbitrage-Trading.com with “TG2 Contribution” (or something like that) in the **Subject:** line.