BUSINESS MASTER OF SCIENCE CAPSTONE PROJECT SUMMARY

ETD Submission

Trading Limits Risk Management in an Electronic Trading World (MIFID II)

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I. Executive Summary:

Algorithmic trading is using computer code to predefined behavior for executing orders by defining trading instructions (Chen, James, 2020) . From 2008 to 2018, global markets were recovering from one of the largest financial crisis in 2008 since The Great Depression. Investors were struggling with regaining confidence in the markets, as well as adjusting to rapid changes in technology resulting from increased electronic trading.

With the adoption of electronic trading, more retail investors were able to join the market as lower costs resulted from economies of scale with increased overall market volumes. The shift toward automated and algorithmic trading also resulted in more frequent and large impact trading errors. Some of the trading errors, such as flash crashes or fat fingers, were all too significant to ignore.

Markets in Financial Instruments Directive (MIFID II) was introduced to restore investor confidence by providing consumer protection with trading transparency and controls. Its impact included all financial institutions - whether banks, funds, trading venues, brokers, or pension funds - all players who trade in European Union. In reality, MIFID II was an ambitious financial legislation to modernize E.U. financial institutions to compete with the United States (Stafford, Phillip, 2017).

MIFID II legislation became effective on Jan 3, 2018, however most firms prepared for its implementation for well over a year prior to 2018 by implementing enhanced trading software and infrastructure.

I moved to Budapest, Hungary in late 2016 and my main project focus for 18 months after my arrival was working on MIFID II changes and the support needed at the firm. More specifically, my responsibilities included building out the firm's existing trading controls to align with the regulatory requirements outlined in MIFID II.

While I am in the Technology department, I worked with traders and risk managers to interpret and implement MIFID II rules in our trading systems. This Capstone paper describes the general background drivers related to MIFID II, as well as, my continued work at the firm related to regulatory changes.

II. Evolution of Electronic Trading:

The traditional method of buying and selling stocks on an exchange using hand signals in person, called open outcry, started to cease from 1980s to be replaced by phone and electronic trading methods.

As technology became more widespread, electronic trading became attractive to market participants, since it lowered the commission costs for retail traders, resulted in faster transactions, provided better executions through exchange consolidation and economies of scale (Kowalski, Chuck, 2019). Barrier to entry lowered to include more retail investors, broadening the market participant pool, and introduced new trading methods: high frequency, low latency and algorithmic trading that we know today.

Risk management has increased focus as trading come under scrutiny in the past decade since 2010. The proliferation of electronic trading exploded onto the trading scene with limited controls. Electronic trading errors, not known during open outcry on stock exchange floors, caused significant embarrassment and losses for firms: Flash crashes, fat finger errors, runaway algorithmic trades become the fear of every trading organization and the obsession of regulators.

On Jan 3, 2018, the European Union rolled out a new legislative framework called MIFID II to regulate the financial markets. Its purpose was threefold: Set in place standards across financial industry, restore investor confidence and to improve investor protections by increasing transparency.

The main notable directive for trading risk monitoring in MIFID II pertains to trading controls, defined for Algorithmic Trading in MIFID II Article 17 for firms to support (ARTICLE 17 - ALGORITHMIC TRADING, n.d.):

- Effective risk controls
- Ensure systems are resilient
- Ensure systems have capacity
- Implement appropriate limits
- Prevent erroneous trades

The directives for trading risk controls are broken into:

- Pre-Trade Controls – to prevent erroneous orders as described more in details below
- Post-Trade Controls – to continually assess credit and market risk

Pre-trade controls define the risk measurements taken before an order goes out to market (pre-trade or before the trade), these include: price collars, max order value, max order volume, max message limit. While post-trade controls define credit and market risk monitoring, trade reconciliation.

For the entire 2017, 12 months prior to 2018 MIFID II effectiveness, my job was to implement technical controls defined by our Equity Trading Risk Management team as per MIFID II guidelines to completion. My role focused on ensuring the Pre-Trade Controls in algorithmic trading systems in the firm aligned with regulations. My full Capstone goes into high level system design and calculations pertaining to the Pre-Trade Control.

Works Cited

ARTICLE 17 - ALGORITHMIC TRADING. (n.d.). Retrieved from ESMA: https://www.esma.europa.eu/databases-library/interactive-single-rulebook/clone-mifid-ii/article-17

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