DERIVATIVES TRADING ACCELERATES THE INNOVATION PROCESS IN THE FINANCIAL MARKETS

If the term “derivative markets” were to apply, then this particular topic would be quick to deal with. In other words, if derivatives were merely an appendage of the established underlying markets – i.e. for shares, bonds, currencies, etc. – then their socioeconomic significance would at best be marginal. But that is not the case – thus the expression “derivatives markets” or derivative financial instruments can be highly misleading, and the function of derivatives requires an in-depth explanation.

Effects of the derivatives markets

One of course could take a purely theoretical approach to this examination and discuss in abstract terms the role of enhanced risk diversification, transparency and liquidity. But first, it is perhaps more illuminating to take a look at the history of derivatives: What changes have been triggered by the advent of trading in derivative financial instruments? Switzerland provides a wide array of examples in this regard. Two decades ago, the Swiss capital market was not only characterised by numerous frictions, a burst of innovation emerged at various levels as well – a development that can be deemed unique in an international context. How was a functioning derivatives market to evolve in an environment based on a location-specific and temporally fragmented market architecture (local exchanges, no continuous trading) as well as equity securities broken down into numerous categories with many restrictions on their transferability? The frictions were not just limited to shares; in the fixed income area there was neither a liquid money market nor a meaningful yield curve at the long end of the term structure.

When the Swiss Options and Financial Futures Exchange (SOFFEX) – the world’s first fully automated electronic exchange with integrated trading, clearing and settlement
systems – nevertheless commenced operation in the late ‘80s, that landmark event was only possible thanks to a fundamental reform of the underlying markets in terms of consolidation, deregulation and simplification. Later on, the Federal Act on Stock Exchanges and Securities Trading of 1995 also provided a modern regulatory framework. Hence the nascent derivatives market accelerated the developments in securities trading as a whole: The speed of data processing and trade settlement increased, trading efficiency and security were enhanced, and that ultimately translated into improved liquidity and market transparency.

Is that trend problematic? It would be pointless to pit both innovation processes against each other, as they are complementary and can only be understood in competition with each other, the one process accelerating the other. The success factors of exchange-traded derivatives – standardisation, simplicity, liquidity and transparency – ultimately encourage the differentiation afforded by OTC derivatives, i.e. their variety, flexibility, highly structured nature and occasionally extreme complexity in terms of risk and pricing.

This complementarity is a characteristic of most innovation processes. Hence, in the selection of a given securities exchange’s trading system, the key issue should not necessarily be whether a price- or order-driven system (i.e. an exchange structure that involves market makers as opposed to an auction mechanism) provides better market quality; rather, it should be a search for the architectural design that is capable of exploiting the benefits of both systems in different underlying markets and various market phases. This type of differentiation can exist between competitive exchange systems, but it can also be had within one and the same exchange structure.

Yardstick for innovation

There is growing criticism that the innovation process in the financial markets is stagnating, meaning more and more old wine is being offered in new skins – which, as long as it is the right wine, is not necessarily a problem. By no means does the criticism focus solely on the booming hedge funds.
and structured products, but also to an increasing extent on the derivatives exchanges themselves, where high trading volume is usually concentrated in just a few contracts that have already been traded for decades. Is this criticism justified?

The difficulty in answering that question comes from the fact that the criteria for assessing the economic relevance of a given innovation cannot be determined in an objective manner. It goes without saying that innovations ultimately should lead to an improvement in the efficiency of the financial system – but which criteria should be applied? Three aspects are considered below.

Broadened risks spectrum
1 – The first, generally accepted mark of true innovation lies in the improved distribution – or, in modern terminology, “transfer” – of risks. In this regard, the derivatives markets have fulfilled a function that has been thoroughly investigated by researchers and recognised in the public domain. Thanks to derivatives, complex risks can be broken down into their component parts and transferred to a broader circle of potential risk bearers than is the case in the underlying markets alone. Granted, the spectrum of “traded” risks has become progressively broader in recent years and, with the boom in credit and commodity derivatives, it has expanded even further. Has it really? Credit risks have been rated by agencies for decades and transferred between banks, insurers and reinsurance companies; moreover, commodity exchanges are considered the oldest standardised financial markets in existence. Thus if innovative significance is to be attached to the current boom in the transfer of these risks, then it must come primarily from the design of products and trading structures that increase liquidity and thereby facilitate a simpler transfer of the underlying risks.

Improved processing of information
2 – This leads us directly to the second characteristic – or a second requirement – of genuine financial innovation: an improvement in the decision-making and pricing process. Evaluating financial investments involves a complex information digestion process that is driven by numerous assumptions, estimates, trade-offs and interpretations of the various players. In the same way an on-board GPS system provides a driver with timely information on the collective behaviour of other drivers and on potential traffic jams or hindrances (and hence higher time costs or risks), players in the financial markets require signals in order to adapt their behaviour at the right time. The overall economic benefit lies in the improved coordination of relevant decisions and the reduction of frictions. In this process, derivatives markets play an extremely important role. For example, interest rate swaps in the Swiss capital market are now supplying reliable information on the long end of the term structure for the first time, which in turn vastly simplifies and improves pricing in the bond markets. In a similar way, the repo market facilitates not only better liquidity management at commercial banks,
it also leads to informational benefits at the short end of the yield curve. That simplifies banks’ liquidity planning, even as it supplies important information to the National Bank for use in steering its monetary policy.

Information processing is not an end in itself: Those who learn that there is a traffic jam on the motorway just as they are about to hit it can no longer alter their decision – the information is useless. Information that does not or cannot affect the decisions of players fulfils no productive purpose. It can even be the case that the private advantages gained through trading with information – e.g. via speculation – exceed the overall economic value of the processed information. This theorem, formulated by American economist Jack Hirshleifer, indeed sets limits on the informational merit of financial markets: Do inventive financial products spur private incentives for the societal overproduction of information which has no economic significance? This is an issue on which many economists’ opinions are split.

Intricately interwoven complexity

3 – Lastly, the third distinguishing feature lies in the multifaceted nature of true innovations. In this regard, the history of SOFFEX once again provides a wealth of illustrative material. Apart from the actual product innovation – namely the trading of standardised derivatives – the exchange represented a significant IT system innovation and induced lasting process innovations. The former was to be seen in the fully automated and integrated trading, clearing and settlement system that set new international standards. However, despite the internationalisation of the financial markets, this process grounded to a halt because the international architecture of payments systems is nowhere near as efficient as the domestic systems. In order to avoid the risk of a global payments crisis, innovative systems solutions that involve the world’s monetary authorities have to be found. As to the second aspect – the process innovations spawned by derivative financial instruments – market participants introduced a number of novel business processes, in particular standards for risk management and new investment flows. That in turn led to a marked acceleration of know-how that is virtually unprecedented in the history of the financial markets, especially in terms of responsible individuals’ analytical qualification profile. Suddenly, the innovative potential of theoretical financial market concepts – which first had to be understood, otherwise it would have been inconceivable to deal with the risks of the new financial instruments – was recognised and proactively exploited. I have no hesitation in maintaining that the key innovative force of the derivatives markets is the acceleration of know-how they have brought about in the financial sector. This applies today just as it did twenty years ago.

The following works address various aspects that are of significance in understanding the innovative functions of the financial markets:

- Information processing, creativity and speculation:
- Know-how, financial mathematics and rocket scientists:
- Institutional preferences, agency relationships and marketing:
- Securities exchange design and liquidity: