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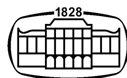

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THE LAW-FINANCE-TECHNOLOGY NEXUS IN THE 21ST CENTURY. IS THERE A NEED TO RETHINK THE LIMITS OF LAW?

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As readily proven by the Credit Crunch and the consequent 2008 Global Financial Crisis, our perception of what law and regulation can achieve to forestall financial calamities and to protect the integrity of the system was seriously mistaken. Besides the misjudged risks generated by financial innovation as well as financial pathology and general incomprehension of finance as such, two further misconceptions are of interdisciplinary nature. On the one hand, the risk-type that was brought to the surface by the Credit Crunch was systemic risk; a risk of complexity and dimensions that was corollary only to the Great Depression erupting in 1929. From a legal perspective, this meant unprecedented interpenetration of various branches of law, from mortgage and corporate to securities law. The central piece in the puzzle – asset securitization – was a synergic product of these. The first conclusion the paper draws is that in the light of this there is a need for a new legal discipline – the law of finance – that would spread over all these branches of law (internal inter-disciplinarity). On the other hand, both the Credit Crunch as well as the subsequent developments on financial markets show that understanding finance and the risks inherent to it are not only becoming increasingly problematic (not only for lawyers) but that some of the risks are unidentifiable ("unknown unknowns"). Finance is inherently complex, yet further exacerbating factors are the growing presence of technology, mathematization of finance (and economics) and the possible synergic effects of various, often seemingly not linked, financial products. The second claim this paper makes consequently is that legal scholarship should face, comprehend and reckon with the roles other disciplines increasingly play in finance (external inter-disciplinarity) and the fundamentally altered nature of finance. Subscribing to the conclusion – on an abstract and theoretical level – that the looming crises should be perceived as multi-disciplinary phenomena that as such require multi-disciplinary panacea and more cooperation from the affected disciplines would be easy. In reality, however, little seems to have changed. Suffice to take a look at law school curricula to realize that actually few have recipes for such seemingly simple but practical questions as how to teach the law of finance, especially where consensus has not been reached even on whether teach it at all. Equally heavy dilemmas are already presented for regulators or judges when deciding on issues from the realms of finance law.

Keywords: finance law, law versus regulation, inter-disciplinarity, financial innovation, mathematization

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1. POSITIONING OF THE PAPER

1.1. Why is this Paper Different from the Law and Finance Literature?

Given the reputation the law and finance scholarship gained around the world, we need to set out by clarifying that the focus of this paper is completely different. Here, our concern is **not** about which legal system's "[…] *legal rules best contributed to strength in the financial sector and thereby to economic growth*" (Dam 2006: 5).

As it has become quite widely known, the ultimate lesson the law and finance movement drew is that "*countries whose legal systems originated in the English common law have enjoyed superior per capita income growth compared with so-called civil law countries, whose law is based on European codes, especially those countries whose law is based on the Napoleonic codes and hence on French law*" (Dam 2006:5). Although the glorious days of this movement are gone and its findings have been rightly criticized,[1] the impact of the movement still dominates the *law and finance scene,* consequently one may mistakenly presume that nothing new could be talked of on the relation of finance and law.

Yet the most important contribution of the law and finance scholarship to understanding the role of law, which this article also subsribes to, is that law can, indeed, contribute to economic development. Moreover, this applies a *fortiori* to finance law focused upon here.

1.2. Open Issues about the Nomenclature

To avoid misunderstandings, it is of utmost importance to shed light on the key terms used herein. These include, firstly, meaning of *finance law,* secondly, the key differences between law and regulation, and thirdly ex ante versus ex post legal tools.

[1] The law and finance movement (scholarship) was criticized for the following two main reasons. On the one hand, empirical data did not support the findings as the economic performance of not a few civil law countries (both developed Western European and emerging economies) was superior or similar to their common law kin (see, e.g. Dam 2006: 5). On the other hand, the movement was criticized because of their methodology being centered primarily on the protection of minority shareholders and the protection of creditors in bankruptcy law. In other words, the choice of these criteria inevitably affected also the outcomes (Dam 2006: 33).

1.2.1. Meaning of Finance Law

To start with, in many countries (in local language) *finance law* actually is about tax law though sometimes coupled with accounting. However, this paper is NOT about tax law. The *finance law* for our purposes is an **emerging hybrid discipline** that spans from traditional banking with credit and credit securities through the most sophisticated financial devices known on the capital, commodities and financial markets. While a housing-mortgage might be a paradigm example from the left side of the spectrum, swaps or other derivative products might properly illustrate the opposite end.[2]

Contrary to the not-so-distant past – and in the less developed legal systems even today – when legal education could comfortably perceive the two as completely distinct, such approach might be outdated and thus mistaken today. Suffice to point to the increased role of such synergic products of financial (involving also legal) innovation as, for example, securitization. The calamity created crunch of the securitization-based financial system in 2008 is the so-called **systemic risk**, of magnitude surpassing even the 1929 Great Depression. No better example could be mentioned to support that legitimacy of a discipline that would spread over the **entire financial spectrum** and deal with its constituent elements not only separately but also with the synergic effects of these. This paper is devoted to such overarching discipline under the heading of *finance law.*

1.2.2. Law versus Regulation

In law sometimes basic terminology causes problems. Especially in international context when the connotations afforded to a formally and thus seemingly identical term meaningfully differ in various languages used in communications. We often do not realize that even though we converse, let's say, in English, comprehension gets distorted because we unwittingly employ the differing connotations engraved in us through our native or the language in which we had studied law (or finance). The tandem of law and regulation are of that kind. In many languages, law and regulation are rough equivalents or regulation is reserved for sub-legislative types of sources of law (e.g., agency regulations, rules in the United States or ministerial decrees in Europe).

[2] A proof that there is a practical need for such a discipline is the recent book of Alastair Hudson (2009). Hudson rightly began his Preface with the telling title of '*Creating the law of finance*.' His book, as phrased by him, is "*a comprehensive analysis of the law finance which can be taught and understood as a discrete legal field [...].*"

In the world of finance, however, law and regulation should be clearly distinguished as kin but radically different sources of law. More precisely, the term ‘regulation’ has a new meaning best illustrated perhaps with the US capital markets and securities regulation, where the term extends not only to the creatures of the Securities and Exchange Commission (SEC) but also to acts of the Congress (legislation). Although a lot has been written about regulation since the era of *regulatory states* has downed upon us somewhere starting in the 1970s, this conundrum of basic legal nomenclature has not been resolved properly. Moreover, what exactly is meant by regulation seems to differ not just from jurisdiction to jurisdiction[3] but varies also along the various fields of law being subjected to *regulation.*

Yet for our purposes, it suffices to say the following: to grasp the gist, one should not proceed from the traditional classification of sources of law to primary and secondary but rather from the *nature* of the discipline. Departing from US federal capital markets and securities regulation as the most tested model that could be taken as paradigm herein, *regulation* in the realms of finance law bears most importantly the following key features: *first,* it is dominated by mandatory rules, *secondly,* the panoply of legal tools employed is a hybrid collection made of borrowings from classical branches of law and idiosyncratic ones developed as a response to financial pathology, and *thirdly,* the remedies and protections provided are increasingly of ex ante rather than of ex post nature.

1.2.3. Tilting the Balance towards Ex Ante Legal Tools and a Prophylactic System?

Essentially all legal disciplines that are deemed to be *regulations* in the above sense came into being because the protections and remedies offered by classical branches of law were insufficient and inappropriate to tackle the specific problems, risks and injustices arising in the given field. The function of environmental law as a form of such *regulation*, for example, is not only to make the affected parties good for the losses suffered but more importantly it should forestall pollution and other to the environmentally detrimental activities – what can, however, be achieved primarily by legal tools having ex ante effects.

If one takes a look at the history and the building blocks of US capital market and securities regulation, one could easily realize the relevance of these

[3] Hudson, for example, found it also important to add a clarification yet he distinguishes ‘substantive law’ versus ‘financial regulation.’ He defines substantive law as including “*private law [contract, property, tort and so on), criminal law, and judicial review in public law*.” Financial regulation in his book, as opposed to that, is EU financial regulations as implemented by the UK. In other words, his explanation could be taken as being based on UK law only (Hudson 2009: 14).

points. The best example is the gradual empowerment of the SEC with powers as reflected in the big number of – at least from the perspective of other countries – court and administrative cases or investigations initiated by the SEC on a yearly basis. A similar tendency could be observed lately also in the other financial centers, in particular in the United Kingdom. One could add to that disclosure as a key building block of the system, the emphasis on the prophylactic nature of federal regulations or even the economic approach to the 'definition of security.' Although each of these examples contains both ex ante and ex post tools, the emphasis has over time clearly shifted to the former.

This, however, does not mean that the system does not reckon with the classical branches of law. Quite to the contrary, criminal, contract or tort law are still there to protect the investors and serves justice to them. Yet criminal law typically – notwithstanding its deterrent and thus ex ante effects – comes in only ex post facto or after a fraud has occurred on the market and investors have lost the investments. Moreover, the standard of proof of criminal law are everywhere the most onerous as a consequence of which it is hard to enforce financial crimes and eventually the incarceration of the fraudster may not necessarily end with the victims being compensated monetarily. The same applies to contract or tort law. Although often, indeed, these branches of law are resorted to by investors, litigation that may last for years is only a panacea that could be resorted to as well only ex post. The risks of collectability of the awarded monetary compensations come on top of all that.

The importance of the ex ante versus ex post legal tools is even of greater importance when the need for the protection of the integrity of the markets or the entire system is at stake as illustrated by the Credit Crunch and the resulting 2008 global financial crisis. Here, the primary function of law is prevention of the reoccurrence of the crisis or any financial pathologies. What this paper wants to suggest is that the traditional approach to law and regulation that rests on a presumption of some kind of false stability and predictability will hardly yield satisfactory results in the financial domain, which Hudson aptly described as a "*moving target*" (Hudson 2009: iii).

3. THE DISTINGUISHING FEATURES OF THE FINANCIAL LAW OF THE 21ST CENTURY

In understanding how and in what respects has the world of finance changed by now and thinking about what law can and cannot offer it should be in particular reckoned with the following developments. *First and foremost,* the law of finance has always contained, at least, a modicum of interdisciplinarity and economics as well as financial theory might have always surfaced in court cases even if in

some elementary forms. Yet while at the beginning of the twentieth century these were minimal, comprehensible to the legal mind and thus judges could resolve such disputes based on 'law,' a qualitative change occurred afterwards. Today more and more cases surface where the courts must rely either on the judgment of expert agencies (e.g., SEC) or experts of other types.

Secondly, finance is increasingly contingent on ever-speedier changing technologies. Moreover, often these are exploitable only by specific industries exclusively possessing the necessary know-how amounting to a non-transparent system. *Thirdly,* the tempo and increased complexity of financial innovation (with or without technological back-up) is not subsiding but is rather growing making finance even more an industrial privilege; something that those not part of the industry could neither learn about, nor (consequently) properly comprehend it.

Last but not least, finance (and economics) have become more mathematized than ever that in combination with technology has drastically changed the nature of risks corollary to financial markets. What is not yet clear whether this makes the job of regulators or judges easier or unprecedentedly complex? Although no precise quantitative data are available yet the number of court cases is conspicuously increasing.

To this one may add that finance has by now become global and thus even seemingly local calamities may have serious spillover effects on other parts of the world. For this reason, what follows is not of relevance only to developed financial systems even if indirectly only or if to a much less extent.

Let us devote a few lines to each of these topics that would obviously require more than these few short glosses.

3.1. On the Novel Types of Risks Created by Financial Innovation

It is a fact: financial innovation is a key factor driving the developments in the world of finance as well as financial law in the 21st century as never before. So much so that financial innovation was one of the factors blamed for the Credit Crunch and the ensuing 2008 Global Financial Crisis. If perceived so simplistically, indeed, prohibition of financial innovation and return to slow, orthodox banking might, if not completely forestall, then at least meaningfully decrease the number of future crises.

Financial innovation has, however, not been outlawed notwithstanding all odds. Truth be told, it is a huge question whether it could realistically be prohibited at all. For example, the exploitation of technological developments also inevitably leads to some form of innovation, sometimes only of minor yet at other times of more meaningful dimensions. It is an equally justified question whether it should

be prohibited as, for example, derivatives – that were talked of as stepchildren in the aftermath of the Global Financial Crisis – do play a useful role as well.[4] The ultimate conclusion is that therefore we should learn to leave with financial innovations and the risks, often of "unknown unknowns' type, they generate.

3.2. The Impact of Increased Technology-Dependence

The need for more ex ante-types of legal tools is obviously dictated by technological advancement. It suffices to take a look at the paradigm US cases from various periods of the last hundred years to see the interdependency and how technology (and financial innovation) affected the law and what was expected from law, regulators, judges or counsels. Roughly until the beginning of the utilization of computers in trading the court cases were about genuine legal issues like what dividends are and what rights are attached to them[5] or which kinds of unusual investment schemes deserve the protections offered by the regulatory system.[6] Courts faced by new, computer-based trading platforms, however, were already forced to rely on the expertise of the SEC and distancing themselves as "generalist judges" not being capable to properly understand and thus adjudicate such cases.[7] In other words, while during the Great Depression technology played a minimal role that began to increase with the application of computers in trading.

[4] As Lawrence Lessig (2012: 71) put it: "*Derivatives serve a valuable purpose. As with any contract, their aim is to shift risk within a market to someone better able to carry it.*"

[5] *See, e.g., Dodge v. Ford Motor Co.,* Supreme Court of Michigan, 1919, 204 Mich. 459, 170 N.W. 668. The case arose out of the dispute of Henry Ford (founder and controlling shareholder of the board) and the Dodge brothers as main shareholders of Ford Motor Company because – contrary to earlier practice – Henry Ford suddenly announced in 1915 that no dividends will be distributed to shareholders afterwards; rather the profits "*would be put back into the business for the purpose of extending its operations and increasing the number of its employees […].*" Even though the court admitted that it as "*judges are not business experts*" and thus are not in the position to estimate what the "*results of the larger business*" would be, they did decide on the main issue and in favor of distributions of dividends (i.e., in favor of the Dodge Brothers).

[6] The leading case is SEC v. W.J. Howey Co., decided by the US Supreme Court in 1946 [328 U.S. 293, 66 S.Ct 1100, 90 L.Ed. 1244]. The unusual investment scheme was "*an offering of units of a citrus grove development coupled with a contract for cultivating, marketing and remitting the net proceeds to the investor.*" The US Supreme Court found that this investment scheme, if its *economy* is taken into account, is similar to investments into company shares and thus declared that it qualifies as 'security' and through that the investors are entitled to rely on the protections afforded by the federal regulatory system.

[7] *See, e.g.,* Board of Trade of the City of Chicago v. SEC [US Court of Appeals, Seventh Circuit, 1991, 923 F.2d 1270]. The case revolved around the issue whether the so-named Delta alternative trading system (for trading options) – made purely of interlinked computers – qualifies as

Financial innovation, industrial practices and fraud continue to play a role yet the importance of technology has become increasingly more and more important. While the proportion to which technology's role in finance initially grew gradually, by 2015 this seems to have sped up. Today, in the second decade of the 21st century, when "e*xchange trading floors are fast fading into history because the trading of stocks and derivative instruments are moving to electronic communications networks (ENCs),*" (Markham – Harty 2008) all technology-dependency of finance has reached clearly unprecedented levels. This creates a radically new environment increasingly characterized by computer-glitches and "unknown unknowns" corollary to trading to ECNs that "*simply match trades by computers through algorithms at incredibly high speeds and volumes*."

3.3. Mathematization of Finance and Economics

One may intuitively think that mathematics has always been part of finance and thus there is nothing new under the sun. Indeed, as Hudson noted "*[f]inance is conducted in the language of finance theory and is based on the mathematics which banks and actuaries use to predict future market trends, to calculate risk, and to structure their products*" (Hudson 2009: lvii). The truth is, however, that the intensity with which mathematics is present in finance and thus inevitably should be of relevance to law as well, has not just increased but has changed qualitatively as well.

The math-finance-law interface is not only complex but also genuinely interdisciplinary spreading over at least these three disciplines. Although meritorious criticism has already appeared from under the pen of renowned thinkers on the role of math in finance and economics (see e.g. Mackintosh 2011), the question of what law has got to do in this new set of circumstances, however, seem to have escaped attention.

For our purposes here, two examples of the growing presence of mathematics need to be mentioned. One of them is related to changed trading practices best illustrated by the spreading of algorithms-based trading. While until the arrival of this new era, investment decisions were made by humans and thus investment and finance experts were in vogue, in the new era for forging algorithms not only experts

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an exchange or rather a clearing house? The interesting point for us is that the court eventually left the decision to the SEC which "*can determine better than we generalist judges*" what solution would be the most appropriate. The SEC position was that such alternative trading systems should not be registered as exchanges led most importantly by the consideration that the pertaining rules in effect would kill the [then] fledgling businesses.

of mathematics but even of quantum-physics are being hired on the Wall Street and elsewhere. The other aspect of the growing relevance of mathematics is its impact on finance theory and economics. With a level of simplification, the problem seems to be that finance theory and economics as well have become hostages of mathematical formulas and if something cannot be expressed by one of them, it cannot pass the threshold necessary for attraction by the mainstream (see Csaba 2009).[8] Mathematical formulas, however, inevitably elevate a factor or two as crucial and neglect others possibly also of relevance. It suffices here to refer to the work of Robert Skidelsky (2009) who, when trying to answer Queen Elizabeth's reportedly asked question of '*Why did no one see the [2008] crisis coming?*' stressed the urgency of the reduction of the mathematical component in economics.[9]

The suggestion here is not that because of these changes lawyers from now on must become experts in high mathematics, finance and economics as well. The point that needs to be noted is rather that the exact repercussions of these changes should be analyzed and properly reacted upon by legal scholarship. For example, on the level of adjudication it may be an issue presumably whether the novelties may affect liabilities?[10] Or, should the regulatory agencies as a result be staffed by mathematicians as well? However, perhaps the most important issue is how are these affecting the policy and law-makers?[11]

[8] As Csaba (2009: 2) put it "*[...] with the passage of time economics has developed into a mathematical discipline, where formalization, at least in the mainstream journals, dominates all other considerations.*" *See also* the title of a Financial Times article of James Weatherall (2013), professor at University of California and author of *'The Physics of Wall Street*:' It is not the Maths that Causes Crises but the Trust we Put in it. He pointed also to Warren Buffett's caveat: "*Beware of geeks bearing formulas*." *See also* the comment of Kenneth Rogoff and Carmen Reinhart, Harvard University professor in the Financial Times. As they wrote *"the recent debate about the global economy has taken a distressingly simplistic turn. Some now argue that just because one cannot definitely prove very high debt is bad for growth [...], then high debt is not a problem*" (Rogoff – Reinhart 2013).

[9] One of Skidelsky's sentences deserves quoting here as it gets to the heart of the problem: "*[t]he obvious aim [of the reconstruction of economics] is to protect macroeconomics from the encroachment of the methods and habits of the mathematician*."

[10] Let us quote here a concise but up to the point description of algorithms and the new risks they create: "*Algorithms have become a common feature of trading, not only in shares but in derivatives such as options and futures. Essentially software programs, they decide, when, how and where to trade certain financial instruments without the need for any human intervention. [...]. The nightmare scenario of an exchange being knocked out by algorithms running amok, and thus causing upheaval in the wider financial system, is seen as a real risk by many in the industry.[...]" (*Financial Times, 18 February 2010: 7).

[11] *See, e.g.,* the article by the French professor, Didier Cossin (2011), the title of which tells the essence: Financial Models Create a False Sense of Security. In his view, the Black and Scholes option pricing model is flawed because it simplifies complex choices.

3.4. Globalization

The term globalization has become a truism by now, books have been written about it, scholars and even students routinely refer to it, and yet its exact dimensions remain unclear. This includes what is key for our purposes: it is such a unique and complex risk factor corollary of the 21st century world of finance to which often unpredictable surprises are corollary as well. The further point of relevance is that, as best showed by the 2008 Global Financial Crisis, no economy could remain isolated from developments elsewhere anymore. The directly and indirectly affected institutions range from European universal banks having tapped the US capital markets to the colorful varieties of not-talked-of pyramid and Ponzi schemes crossing borders.[12]The fallacy is that many of the financial calamities notwithstanding their dimensions are simply not talked of; sometimes they are consciously swept under the carpet.

Globalization is also a reason why the law-finance-technology nexus should be of relevance also to less developed economies. On the one hand, the globalized world of finance works similarly to the Internet: if you want to exploit it and you plug in, you immediately are exposed to threats by viruses and whatnots. On the other hand, the law and the regulatory system functions similarly to the anti-virus and firewall programs of a personal computer. You either have it or not and it does not matter that you are an emerging market not having proper regulation and agency. The point in case of both – globalized finance and the Internet – is that you may never know when your economy (or personal computer) would be attacked. Contrary to earlier times, however, the new thing is that no economy could ring-fence itself to completely isolate oneself from the impact of developments elsewhere.

Mistaken presumptions abound and are often the result of ignorance. One of them is that the world of finance is only about exchanges with and organized trading floor. Therefore, as the simplistic and ignorant mind tends to conclude, systems which have no exchanges, or deep capital markets could not become victims of financial pathology abroad. If nothing more, a lot could be learned from the experiences of developed systems, either for dealing with local pathologies and risks, or to protect the local systems from the spillover effects looming from foreign markets. As an example of the former, suffice to mention the

[12] One telling example is the series of pyramid schemes originating in Russia under the designation of MMM and orchestrated by Sergei Mavrodi. *See, e.g.* Shuster (2011), or Rampell (2008). Financial pathology of the sort does not bypass even such emerging African countries as Ethiopia, where the Goldquest scheme became object of public talks somewhere in 2006. *See, e.g.,* the short report by Kiros (2006).

collapse of the entire Albanian economy and political system caused by the fall of local pyramid schemes, or the effects of the US Credit Crunch on the Swiss-Franc denominated mortgage-backed housing loans in Croatia, Hungary, Poland or Romania for the latter.[13]

4. FINANCE AND RETHINKING THE ESSENCE OF LAW

4.1. Finance Law versus Serving Justice as the Quintessence of Law

If one would like to come forward with a simple, one-sentence explanation what justifies and what the main function of law is, it seems to be fair to claim that the classical justification of law offered by legal theory, courts and scholars is that law exists to serve justice in society. While this paradigm faces serious challenge already if a professor of commercial law is faced with his/her students asking about the whereabouts of justice in commercial law, one may at least answer that in case of commercial law predictability is what denotes justice. Justice is served if things are predictable and the participants of the market may plan their activities.

Once a lawyer enters the field of finance law, especially the riskier, capital markets end of the finance law spectrum, he/she will quite soon realize that in this world the traditional justification of law will easily fail, including the one applicable to general commercial law. Here, different rules apply, which properly show the regulatory nature of the field. US law, at least, indirectly through the voice of courts spelled out that the function of capital market and securities regulation is to protect the investors and the integrity of the markets; elsewhere the mandate of the law is not necessarily clearly formulated. Yet – at least in the case of US secured transactions law – serving justice in individual cases may be sacrificed for the sake of predictability.[14]

[13] The introduction of foreign-currency denominated mortgage-backed housing loans was tolerated by the governments in these Central European countries somewhere starting half-way the first decade of the 21st century. Although Euro and Japanese Yen-denominated loans were also used, the overwhelming part of transactions used Swiss Francs. According to these contracts, debtors had to pay the monthly installments in local currency which was pegged to the then prevailing exchange rates. The collapse of this business model ensued when the local currencies were meaningfully devalued against the Swiss Franc as a result of the Global Financial Crisis. The Hungarian government seems to have taken the most radical steps to ease the crisis, among others even to repay the "unconscious" (unfair) part of the installments in 2015.

[14] The leading US case is *Knox v. Phoenix Leasing Incorporated* Court of Appeal, First District, Division 4, 1994 [35 Cal.Rptr.2d 141]. The court departed from the presumption that security interests and secured transactions are wealth-producing transactions. This, in other words,

The unnoticed trend is, however, about something else. If one takes a look at US federal securities regulation since its inception during the 1930s as a response to the Great Depression, one could realize that the movement – to a great extent unwitting – was towards prevention through legal tools having ex ante effects. This change towards increased reliance of legal tools having primarily ex ante effects was less radical in other financial centers. Even though this phenomenon is multi-dimensional and complex, suffice to take a look at European Union law and one of the key points noted in the Lamfalussy process according to which "*a key objective [is] to create a more flexible law-making process*" (Scott 2009: 224). In other words, instead of thinking of enlarging the arsenal of legal tools with ex ante effect, the solution is seen in speeding up the law-making process that is inevitably of ex post nature; a reaction on a financial pathology that occurred prior to law-making.

4.2. Finance Law and the Need for a new Perception of Risk

The other more general topic of fundamental importance that requires brief commenting in this short writing related to the perception of risk. As it is commonly known, law is essentially about bypassing or mitigating various kinds of risks. While this general statement equally applies to all branches of law, one has to realize that the risk law is facing in case of (let's say) sales[15] and finance law are fundamentally different. While this novel and pretty abstract topic would also require significantly more attention, the key difference seems to relate to the predictability of the existence and the nature of risks corollary to these two branches of law. With a great degree of simplification: while in case of sales law basically there is no risk that is not known, that is hardly so in case of the latter. This difference, moreover, does not emanate solely from the radically longer history of sales law but because of the differing nature of the two areas – and this is what needs to be understood.

means that it is "*important to [preserve] the integrity of the UCC's [i.e., secured transactions law] scheme for secured transactions, [encourage] compliance with [it], and thereby [ensure] a predictable system of creditor priorities,*" even at a price of occasionally harsh results for some debtors. As the court put it: "*the priority system reflects the legislative judgment that the value of a predictable system of priorities ordinarily outweighs the disadvantage of the system's occasional inequities*."

[15] Here we refer to classical sales law being one of the nominated paradigm contracts in civil codes in civilian systems or in Article 2 of the US Uniform Commercial Code – or (partially) covered by one of the Vienna Convention on International Sales of Goods (CISG). While admittedly the juxtaposition of the narrow sales law and the extremely broad finance law may seem problematic, they are perfect to express the divergence.

It is apt to describe the problem by classifying risks into three categories: 'known knowns,' 'known unknowns,' and 'unknown unknowns.' Out of these three the third is critical here. In Hudson's formulation this category of risks encompasses "*things which we have not even thought about yet, the risks which no one has yet been able to anticipate or to quantify.*"[16] This applied to our earlier comparison would mean that while in case of sales law one could hardly identify an 'unknown unknown'. Moreover, with the increased presence of technology as well as the growing speed and complexity of financial innovation, the divide between such classical branches of law as sales and the burgeoning new synergic discipline of finance law is widening. The gist of the problem is that this qualitative difference is, neither comprehended, nor heeded by law-makers and others shaping or applying finance law. Instead, following the unwritten logic of uncritical resort to analogy, the 'sales law-mindset' is often applied also to finance law.

A simple example may properly corroborate these claims. If one would take a look at textbooks used to teach finance law (even if under various other designations or scattered around more disciplines), one could hardly find caveats warning of the different mind-set and perception of risks. It seems that lawyers presume that this is a task of finance experts or economists and vice versa. Needless to say, the problem is graver in systems where education of finance is limited to tax law.

5. QUESTIONS IN LIEU OF CONCLUSIONS

As the above brief synopsis, filled with tentative thoughts suggests, no matter whether observed from the position of a counsel, regulator or an adjudicator, finance presents to law and lawyers already now hereinbefore unknown challenges. These range from problems with comprehending finance, the risks generated by the fast-pace development and increasing technology-dependency of financial innovations, various forms of fraud (pathology) through the realization

[16] *See* Hudson (2009: 831). It needs to be added that Hudson borrowed the tri-partite risk classification (aphorism) from US Defense Secretary Donald Rumsfeld. According to this, while "known knowns" are "*things that we know with certainty*" (e.g., enforceability of certain boilerplate contractual clauses like arbitration agreements), "known unknowns" are "*risks which have not been resolved but which we know are risks*." A known unknown, one of the lessons from the Credit Crunch and the 2008 global financial crisis, is the existence of systemic risk. At least we know that it exists and we know many of its parameters but we do not necessarily know everything about the next calamity that may endanger the entire system. *Id.* A suitable such recent example may be the "*federally guaranteed, privately funded student loans from the Federal Family Education Loan Program*" ranging to about $ 379 bn. *See* Dizard (2015).

that "unknown unknown-types" of risks should increasingly be reckoned with in this idiosyncratic large domain.

This paper posits that the ad hoc reactions to pathologies, innovations and risks that had characterized finance law so far are not just insufficient but rather inherently inappropriate for the 21st century. The fundamental deficiency is that the emerging and synergic branch of finance law rests on the presumption that law can properly tackle ***all*** the related risks. As especially the 2008 Global Financial Crisis or the struggle with finding the proper regulatory tools for dealing with the technology-dependent derivatives of the last few years show, we should pose for a longer moment and ask what can and what cannot law offer for this unique domain? The certainty that is inherent to, for example, such classical areas of law like – to take a simple example – sales law, namely, is conspicuously lacking in the financial arena. While in case of sales law raising the question what could law do with "unknown unknowns" borders ridiculousness, the very same query has become undoubtedly a key feature and problem for the other by the 21st century.

The question ultimately is then whether the true dimension of these changes is realized? Whether a consensus could be reached that instead of the usual reshuffling in our thoughts actually a mind-shift would be needed; a mind-shift that would then affect everything from regulators to teachers of finance law? Yet contrary to Hudson, who noted that – "*[o]nce a century there comes a financial crisis so great that it causes everyone to question whether our arrangements for organizing the financial system are adequate or even sensible*" (Hudson 2009: 830), it seems that we should not wait until the next-big-crisis. Before, and instead of merely agreeing on whether more or less regulation is needed for the next such eventuality retrospectively, we should rather start rethinking what finance law – the "moving target" – and its core features are, including its interdisciplinary pillars. So enlightened, it should then be reconsidered what law as one of the disciplines dealing with financial risks can and cannot do? Once we could agree on that, such more "mundane" questions as whether to add to the curricula of law schools such synergic courses as the above described finance law, what to cover and how, with or without a mathematical components or models of economics could also be more easily addressed. Until consensus shall have been reached, however, we could satisfy ourselves by realizing how intensively inter-disciplinary finance law is; that might be a good starting point.

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