March 28, 2011

The Patentability of Financial Methods: The Market Participants’ Perspectives

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Available at: https://works.bepress.com/stefania_fusco/1/
In the last few years, there has been a renewed interest in the validity of patenting business methods. The issue appeared to be settled in 1998 with the State Street decision. However in 2008, the Federal Circuit, responding to a more restrictive approach toward the patent system adopted by the Supreme Court, began questioning the soundness of the policy to extend patent protection to business methods.

The Federal Circuit’s adjustment of its position occurred explicitly in In re Bilski when the court decided to rehear the case en banc and reconsider the conclusions previously reached in State Street. The Supreme Court subsequently granted certiorari on this case and its decision in June 2010, exacerbating an already heated debate on the patentability of certain subject matters.

Ultimately, this quandary about patentability revolves around the empirical question of whether the patent system in a specific sector is “doing its job” or, more specifically, whether the patent system is fostering the creation of additional business methods. To answer this question, I conducted an empirical investigation that involved structured interviews with market participants about the production and consumption of financial methods as a subset of business methods.

The data collected in this study reveals that market participants are ambivalent about the benefits that both the financial market and their companies can derive from having exclusive rights on financial inventions. The data also provides a description of the financial market and its dynamics that is difficult to reconcile with the protection of business methods, as currently provided by the patent system. Thus, it raises serious doubts that, in the ten years between State Street and In re Bilski, patent protection has had any impact on innovation in the financial industry.

† I have many individuals to thank for contributing to this work in progress. I have benefited significantly from collaboration with my advisor, Mark A. Lemley, whose comments helped me carefully rethink and refine my position of these issues. I am also thankful to Timothy F. Bresnahan, G. Marcus Cole, Graeme B. Dinwoodie and R. Anthony Reese for their precious comments. I have also benefited greatly from my discussions with the employees at MSCI. Thanks to this study’s interviewees, as well, for their invaluable contribution. Finally, I am grateful to my husband, Davide Negri, for his encouragement and support. All the remaining mistakes are mine. The work was funded by the Ewing Marion Kauffman Foundation. The content of this publication is solely the responsibility of the Grantee.
INTRODUCTION

Should there be patents on financial methods? While the past decade has witnessed the development of a growing debate about what the boundaries of patentable subject matter are, one of the most argumentative of these discussions revolved around the patentability of financial methods.

The patentability of business methods and financial methods received judicial imprimatur through State Street Bank and Trust Co. v. Signature Financial Group, Inc. that upheld them under the very lenient “useful, concrete and tangible result” test. However, with its 2008 decision In re Bilski, the U.S. Court of Appeals for the Federal Circuit (Federal

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3 In re Bilski, 264 F. App’x 896 (Fed. Cir. 2008).
Circuit) has questioned the soundness of the policy of extending patent protection to this type of subject matter and concluded that Bilski’s method for hedging the consumption risk deriving from selling a commodity at fixed price was not patentable. Through this decision, the court significantly restricted the ability of inventors to obtain patents on financial methods as well as on several other inventions in different fields. Indeed, after In re Bilski, to secure a patent on a process was no longer sufficient to show that an invention produces “a useful, concrete and tangible result.” An applicant would now need to demonstrate also that her invention was either tied to a machine or transformed an article into a different state or thing. In response, Bilski petitioned for a writ of certiorari that the Supreme Court granted. The resulting decision, however, did not shed much light on the many issues raised by Bilski. On one hand, the Court reaffirmed the patentability of business methods but, on the other hand, it did not produce significant guidance on the proper way to identify patentable processes. Specifically, the Court clarified that, although the Federal Circuit’s machine-or-transformation test is not the sole test for determining the patentability of certain inventions, it represents an “important clue” to accomplish this task. Finally, the Court invited the Federal Circuit to develop other “limiting criteria that further the purposes of the Patent Act.”

Consequently, investigating into the aftermath of State Street, most significantly its impact on innovation in the financial industry, becomes very important. Indeed, such an investigation can generate useful information on how the patent system operates in certain areas and contribute to an informed design of the aforementioned “limiting criteria” i.e. contribute to the design of limiting criteria that, in practice, further the purpose of the Patent Act of incentivizing creative efforts. One way to accomplish this task is to discuss patent protection with individuals involved in the production of financial inventions.

Given this argument, the objective of this research is to use structured interviews with financial innovators as a way to provide the market participants’ perspectives about the patentability of financial methods. Part I of this article discusses the methodology adopted for this series of interviews. Part II describes the collected data and attempts to reconcile patent theory with reality. Finally, the conclusion provides a summary of

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4 Id.
5 Id.
6 561 U.S. at 3228 (2010).
7 Id. at 3232.
my interviews, results and analysis and points to their significance for determining patentable subject matter.

I. THE INTERVIEWS

Qualitative investigations have the advantage of providing results that can increase our understanding of participants’ viewpoints.\(^8\) I therefore decided to conduct a qualitative study that included interviews with market participants to expose the significance of patent protection for individuals engaged in financial innovation. Although not generalizable, the resulting data is still useful for the way it represents a range of perspectives on the incentive patent protection has provided to inventors in the financial industry after State Street.\(^9\) The next Part provides a full description of this qualitative investigation.

A. Method

Before moving on to a detailed analysis of the conducted interviews, it is important to note that for this project “market participants” will refer to individuals in the U.S.\(^10\) who occupy positions requiring a certain degree of knowledge about the creative process of financial methods. The logic behind this recruitment of participants operating within the U.S. was due to the fact that is where the State Street\(^11\) decision is expected to have produced the strongest effect.\(^12\) This means that regardless of whether their companies operate at an international or a domestic level, the creative process in which the subjects are involved occurs primarily within the U.S. The characteristics of this study’s participants and their companies are provided in the next Subpart.

1. Participants

To perform a qualitative investigation, I created a non-random sample of individuals working in the U.S. for different types of financial

\(^8\) Id.
\(^9\) See State St. Bank, 149 F.3d 1368.
\(^10\) It is worth mentioning that the U.S. is virtually the only country in which financial methods can be patented.
\(^11\) See State St. Bank, 149 F.3d 1368.
\(^12\) In order for patent protection to constitute an incentive, individuals must know about the possibility of obtaining a patent for their inventions. Thus, it is plausible to infer that the result of a decision such as State Street has higher chances to be known and, thus, to produce the desired effect, within its legal system.
companies. Since the goal of this part of the research is to provide a wide range of financial innovators’ perspectives, I recruited interviewees who held positions that impinged upon different levels of the financial methods’ creative process. A complete list of the roles held by this study’s participants is reported in Table 2. It includes top managers, portfolio managers, product managers, quants, investment bankers, investment advisers and business managers. Figure 1 illustrates the distribution of the interviews in relation to the interviewees’ positions.

To avoid reporting the viewpoint of just one segment of the targeted industry, I also recruited individuals working for companies of different kinds and sizes. In fact, the significance of patent protection for a local commercial bank can be substantially different from that of a multinational brokerage firm: the former may be interested in acquiring a patent to attract investors, the latter to defend itself from its competitors. Table 3 presents a summary of the participants’ companies, including investment banking and securities dealing companies, commercial banks, software publishers and securities brokerages firms. Blackrock,13 JP Morgan,14 Moody’s KMV,15 MSCI16 and UBS17 are represented, among others. These companies are classified as small, medium and large, depending on whether their revenues volume is less than $100 million, between $100 million and $1 billion or over $1 billion dollars. As illustrated in Figure 2, 17% of the companies contacted were small, 39% were medium and 44% were large. Figure 3 describes the percentage of the sample that the contacted companies occupy, in relation to their industries. The two most prominent industries in the sample are “Investment Banking and Securities Dealing” and “Securities Brokerage.”

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<td>Interviews on Consumption of Financial Methods</td>
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13 http://www2.blackrock.com/global/home/index.htm
14 http://www.jpmorgan.com/pages/jpmorgan
15 http://www.moodyskmv.com/
16 http://www.mscibarra.com/
17 http://www.ubs.com/
Table 2. Participants’ role

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Figure 1. Distribution of Interviews by Interviewee’s Role

Table 3. Participants’ companies

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S = below $100 millions of revenues  
M = between $100 millions and $999,999 millions of revenues  
L = over $1 billion in revenues  
I = number of interviews  
P = interviews on the production of financial methods  
C = interviews on the consumption of financial methods

18 “Portfolio Management” and “Securities Brokerage” are two separate industries. In this case the company belongs to both of the specified industries with equal weight.  
19 Id.  
20 Id.
Table 4. Classification of companies

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<thead>
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<td>William Blair &amp; Co (50%)</td>
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\(^{21}\) The classification of the participants’ companies has been inspired by the North American Industry Classification System (NAICS). “The [NAICS] is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.” See [http://www.census.gov/eos/www/naics/](http://www.census.gov/eos/www/naics/) (last visited 04/04/2010).
Finally, a total of 29 interviews were conducted, of which seventeen were about the *production* of financial methods and twelve were about the *consumption* of financial methods. Snowball sampling\(^{22}\) was used to recruit participants for this study. A full description of this process can be found in Subpart 3. Figure 4 additionally summarizes the distribution of the interviews in relation to company size whereas Figure 5 describes the distribution of the interviews in relation to the companies’ industry. More than 50% of the interviews were conducted with individuals working for either investment banking and securities dealing companies or for portfolio management companies. A detailed description of the questions used to interview the participants is reported in the next Subpart.

**Figure 2.** Companies’ Size

\(^{22}\) *See infra* Subpart I.A.3.
Figure 3. Companies by Industry

Figure 4. Distribution of Interviews by Companies’ Size
**Figure 5. Distribution of Interviews by Industry**

- Investment Banking and Securities Dealing: 35%
- Investment Banking: 14%
- Commercial Banking: 25%
- Portfolio Management: 10%
- Securities Brokerage: 10%
- Software Publisher: 3%
- Investment Advice: 3%
2. Material

As mentioned in Part I.1, I conducted structured interviews with financial market participants in order to collect the necessary data. Structured interviews require the creation of a set of questions that are then administered to the informants during the interviews. The interviews are strictly limited to the predetermined questionnaire, with no flexibility for impromptu digressions or follow-up questions. The advantage of this particular method of interviewing is that it provides comparable data from which themes and patterns can be identified. However, because of its rigid format and the fact that the researcher herself prepared the questionnaire, structured interviews also present a higher risk of producing data that is biased by the investigator’s a priori theories. To reduce this risk, I adopted a two-step process involving a series of informal pilot interviews with a smaller group of individuals. The results of this initial investigation were subsequently used as a basis for formulating the questions adopted in the final set of interviews. Thus, input separate from my theories explicitly informed the questionnaires.

More specifically, two questionnaires were created to perform this research. The first focused on the production of financial methods and involved twelve questions that explored the following issues:

- the interviewee’s viewpoint on financial innovation;
- the interviewee’s viewpoint on incentives to innovate in the financial industry;
- the interviewee’s opinion about the level of competition in the financial market, and
- the interviewee’s knowledge of the possibility of patenting financial methods and her opinion about the effectiveness of this measure in fostering innovation in the financial industry.

The second questionnaire focused, on the other hand, on the consumption of financial methods and involved six questions that explored the following issues:

- the interviewee’s viewpoint about financial innovation;

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24 Id.
25 Id.
26 Id.
• the interviewee’s viewpoint about the sophistication of today’s financial market compared to the past, and
• the interviewee’s opinion about the level of competition inherent in today’s financial market.

The complete list of questions used in both sets of interviews is included in the Appendix.

Finally, Figure 6 reveals that more than 50% of the interviews about the production of financial methods were conducted with individuals working for companies whose industry was either “Investment Banking and Securities Dealing” or “Commercial Banking.” No interviews exploring the consumption of financial methods were conducted with individuals working in the “Investment Banking” or the “Investment advice” industry. As evidenced by Figures 8 and 9, the majority of the interviews on the production and on the consumption of financial methods were with individuals working for large companies.
Figure 7. Interviews on Consumption of Financial Methods by Industry

Figure 8. Interviews on Production of Financial Methods by Companies’ Size
3. Procedure

As mentioned in Subpart 2, snowball sampling was used to recruit the study participants. Snowball sampling is a technique in which an initial group of individuals is sampled for a first round of interviews.\footnote{See Johnson \textit{supra} note 23 at 90. See also Leo A. Goodman, \textit{Snowball Sampling}, Annual of Mathematical Statistics 32, 148-170 (1960) and Douglas D. Heckathorn, \textit{Respondent-Driven Sampling: A New Approach to the Study of Hidden Populations}, 44 N.2, 174-199 (1997).} Then, a sample for the second round of interviews is created by recruiting individuals identified by the participants in the first round.\footnote{Johnson \textit{supra} note 23 at 90.} Subsequently, the second round participants identify potential new interviewees, and the sample for a third round of interviews is selected.\footnote{\textit{Id.}} The investigator repeats this process as many times as necessary to reach the desired number of total participants for the specific study.\footnote{\textit{Id.}} Thus, from round to round, the overall size of the study’s sample grows like a snowball.\footnote{\textit{Id.}} The main advantage of this technique is that it uses the participants’ relationships with other individuals to identify interviewees of interest to the research, and thus facilitates the recruitment of
knowledgeable interviewees. Nevertheless, the sample selected in this way most probably will not be a representative one. In fact, this lack of randomness is the main limitation of snowball sampling. Thus, this technique is mostly used for qualitative studies such as this one.

Specifically, in this case I began recruiting participants by building on the personal relationships I have with three individuals who work for financial companies and whose positions require them to be involved in the production and/or consumption of financial products. I conducted the first round of interviews with these participants and, at the end of each meeting, I asked them to recommend two contacts working for financial companies of a possibly different kind and/or size. I repeated this process three times. At the end of the third round, I had completed a total of 29 interviews with both producers and consumers of financial methods. Most of the interviews were conducted either in person or by phone. A few participants asked to answer the questionnaire by email. I stopped recruiting additional participants when the criterion of redundancy was met.

In qualitative researches the sample size is considered to be sufficient when the criterion of redundancy is satisfied (i.e. “when the inclusion or recruitment of an additional respondent does not significantly add new information or understanding”).

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32 Id.
33 Id.
34 Id. at 187.
35 As pointed out by Henckathorn, “ideally, a randomly chosen sample serve as initial contacts, though in practice ease of access virtually always determine the initial sample.” See Henckathorn supra note 27 at 174. This means that the initial sample can be biased by the specific characteristic of the research’s personal network (school, place of work, personal relationship etc.) i.e. all the individuals in the initial sample might have similar characteristics other than the one for which they relevant for the specific study that can bias the data they provide. And, because the other participants are referred by those initial individuals the same bias can spread throughout the entire sample of the study. To mitigate this problem I used three independent sources for the initial recruitment.
36 Although at the end of each interview I asked for two additional contacts ultimately most of the participants provided contacts with a number of individuals that varied from zero to four.
37 Since for this project I opted for structured interviews, the fact that a few of the participants requested to answer the questionnaire by email did not represent an obstacle for the collection of the data for this study. Indeed, as mentioned in Subpart I.A.2, in this case no room was left for impromptu transitions and follow-up questions that benefit the most from in person or by phone interviews. Also, all of the individuals who completed questionnaire by email afterward offered to further discuss their answers either by phone or in person.
38 See Johnson supra note 23 at 188.
39 Id.
The interviews’ results and their detailed analysis form the subject of the next Part.

II. THE MARKET PARTICIPANTS PERSPECTIVE

The decision to conduct interviews with producers and consumers of financial methods was dictated by the desire to “test” the effect of patent protection introduced in the financial industry in terms of both higher incentives and higher levels of knowledge in the market. In fact, it is expected that if patent protection had any impact on innovation during the time between State Street and In re Bilski, both sides of the financial methods production process – the demand and supply side - should be able to acknowledge such an outcome. The results of the interviews with both groups and their analysis are reported in the following Subparts.

A. Interviews about the Production of Financial Methods

The results of the interviews on the production of financial methods, with respect to the extension of patent protection to them are presented here. The first part of the questionnaire administered to the interviewees involved questions that sought to determine interviewees’ viewpoint on financial innovation in general, its dynamics and the specific innovative process of their companies. The second part of the investigation involved a number of questions that focused on the participants’ understanding of the mechanisms of patent protection and its extension into the financial industry. Finally, the interviews concluded with the participants’ assessment of the level of competition in today’s financial market compared to the pre-State Street era.

The interviewees unanimously agreed that the past ten years have been a period of significant increase in financial innovation. Participants identified several reasons for this phenomenon, ranging from increased liquidity and lower interest rates to increased computing

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40 See State St. Bank, 149 F.3d 1368.
42 See App. I, p.34, Question 1 of the Questionnaire on the Production of Financial Products: “Do you think that the number of new types of securities and new types of financial processes has increased over the past ten years?”
43 Interview with P10, Investment Banker at Investment Banking and Securities Dealing company (Feb. 2010) (on file with the author).
power and a better understanding of sophisticated analytical models, to reduction of operational costs of making portfolios and posting collaterals, to globalization and changes in regulations. However, the cause that emerged most consistently from the interviewees’ answers was client’s demand for products that could generate new sources of revenue and more sophisticated instruments to transfer risk. Only one of the interviewees mentioned the extension of patent protection to financial methods as one of the causes of innovation in the financial industry.

Furthermore, when asked about the factors that specifically drove their companies to innovate, these study participants reported that the main factor was the need to satisfy clients’ demand and generate profits. Other answers pointed more generically to the search for opportunities to: increase investment returns, build a profile and search for ways to get around regulations and competition. Again, only one of the interviewees mentioned the prospect of obtaining a patent as a motive to innovate in his company.

The majority of the interviewees were ambivalent about whether financial industry R&D spending is justifiable in terms of the return that

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44 Such as the Black & Scholes’ model.  
45 Interview with P5, Top Manager at Investment Banking and Securities Dealing company (Feb. 2010) (on file with the author).  
46 Interview with P1, Investment Adviser at Investment Advice company (Nov. 2008) (on file with the author).  
47 Interview with P8, Product Manager at Software Publisher company (Mar. 2009) (on file with the author).  
48 See Interviews about Production of Financial Methods supra note 41.  
49 Interview with P6, Top Manager at Commercial Banking company (Nov. 2008) (on file with the author).  
50 See App. I, p.34, Question 4 of the Questionnaire on the Production of Financial Products: “In your opinion, what are the specific factors that drive your company to innovate?”  
51 See Interviews about Production of Financial Methods supra note 41.  
52 Interview with P12, Portfolio Manager at Portfolio Management company (Mar. 2009) (on file with the author).  
53 See Interview with P5 supra note 45.  
54 See Interview with P1 supra note 46.  
55 Interview with P4, Top Manager at Commercial Banking company (Nov. 2008) (on file with the author).  
56 See Interview with P6 supra note 49.  
57 Twelve out of seventeen; see Interviews about Production of Financial Methods supra note 41.
companies receive from innovative products. 58 Two of them emphasized that investing in innovation only makes sense for major Wall Street firms. 59 One of the participants seemed to be open to this option, but only for those products for which there is a clear and significant client demand. 60 On the other hand, five out of seventeen interviewees were in favor of R&D spending, 61 because, as one of them explained, this kind of strategy puts companies ahead of the learning curve for a few years and, by the time other producers became competitive, innovators have a chance to consolidate their hold on clients, to the point that it becomes inconvenient for them to change providers. 62

With respect to the issue of financial companies holding the exclusive right to sell their innovative products, 63 interviewees were split. 64 Those in favor of this solution emphasized the importance of being able to charge monopoly prices. 65 They also stressed that “without patent protection small businesses would be defenseless.” 66 Two of the participants wanted patent protection for this subject matter, but only for a short period of time. 67 In contrast, those who did not support exclusive rights for financial innovations were concerned about the fact that such rights would ultimately divert their company’s focus away from maintaining satisfied clients, 68 who liked “open architecture with the ability of using best practice rather than proprietary solutions.” 69

58 See App. I, p.34, Question 5 of the Questionnaire on the Production of Financial Products: “Do you think that the return a company receives for its innovative products justifies its R&D spending? Why or why not?”
60 See Interview with P4 supra note 55 and Interview with P13, Portfolio Manager (Mar. 2009) (on file with the author).
61 See Interviews about Production of Financial Methods supra note 41.
62 Interview with P11, Quant at Portfolio Management plus Securities Brokerage company (Nov. 2008) (on file with the author).
63 See App. I, p.34, Question 7 of the Questionnaire on the Production of Financial Products: “Do you think your company would benefit (= increase its value) from having the exclusive right to sell its innovative products?”
64 Eight interviewees were in favor of having the exclusive right of selling their product and eight were not. One of the participants was not sure about this option.
65 Interview with P15, Quant at Investment Banking and Securities Dealing company (Apr. 2009) (on file with the author).
66 See Interview with P6 supra note 49.
67 Interview with P9, Product Manager at Investment Banking and Securities Dealing company (Nov. 2008) (on file with the author); See Interview with P5 supra note 45.
68 See Interview with P1 supra note 46.
69 Interview with P3, Business Manager at Portfolio Management plus Securities Brokerage company (Nov. 2008) (on file with the author).
Furthermore, a top manager of one of the biggest U.S. investment banks did not think that exclusive rights on financial inventions would increase her company’s value. As she explained it:

[I]f … products were easily patentable, on the whole [her company] would have lower revenues, as [it] would be prevented from trading securities/derivatives invented by others for an extended period. [Indeed], while profit margins decline when all the big banks figure a structure out, there is still a profit margin. She added that if [her company] could not trade credit default swaps until 2015 because another bank was able to persuade the patent office that they had been the ones to invent the product in 1998, it would make a serious dent to [its] revenues. (Not to mention really hurt customers due to the monopolistic pricing).  

The interviewees were also substantially split on the issue of the temporary absence of competition for certain financial products. Three participants were unsure about their position on this point; specifically, one of them explained that it really depends on the period of time during which the monopoly persists. She asserted that financial firms “tend to accrue some short-term benefit from being the inventor of a really good product,” both because of the reputation that they develop with certain clients and because it takes months for their competitors to acquire the relevant information about the new product and fully understand it. In her opinion, a monopoly that lasted for an amount of time equivalent to that needed for competitors to catch up with the innovator, i.e. something on the order of six months, would probably not do much harm to the market or the clients. However, she doubted that this solution would be workable from an administrative point of view because she expected

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70 See Interview with P5 supra note 45.
71 Eight were in favor and seven were not; three were unsure; see Interviews about Production of Financial Methods supra note 41.
72 See App. I, p.34, Question 8 of the Questionnaire on the Production of Financial Products: “Do you see any problem with a temporary absence of competition for certain products sold in the financial markets?”
73 See Interview with P5 supra note 45.
74 Id.
75 Id.
76 Id.
endless disputes to originate from the issue of whether a financial product “is ‘innovative enough’ to deserve protection—regardless of how well-written (and seemingly precise) [the patent] statute [is].”77 She concluded that by the time the “how innovative” problem was resolved, the six-month period would have long expired.78

The main concern of the interviewees who opposed a temporary monopoly power on certain financial products rested on the likelihood of hurting consumers’ interests.79 They pointed to the fact that in this sector, consumers’ protection is weak and competition mitigates this problem.80 They emphasized how an absence of competition not only results in inefficient pricing81 but also reduces the companies’ incentive to improve existing products.82 Finally, from the companies’ perspective, they pointed out the fact that:

It is difficult to build a market for a product if there is little or no competition. Having competition [is thus advantageous because]:

- competitors help with marketing the benefits of a product;
- competitors allow [companies] to differentiate;
- competitors validate that there is a need for the product in the marketplace and
- institutional clients are wary of taking a risk with a firm […] if there is no comparable product [offered] by a competitor.83

Other participants did not envision any problem with a monopoly on financial products84 for two reasons. Firstly, they considered the absence of competition to be simply equivalent to a regular first mover-

77 Id. participant P5 explained that defining “‘how innovative’ something needs to be to get protection would be very difficult [because] [o]n a constant basis, trades are done which build on multiple different precedents, or tweak just a few things from a previous trade.”
78 Id.
79 See supra note 64.
80 Interview with P7, Product Manager at Investment Banking and Securities Dealing company (Nov. 2008) (on file with the author).
81 See Interview with P12 supra note 52.
82 See Interview with P14 supra note 59.
83 See Interview with P1 supra note 46.
84 See supra note 64.
advantage and, secondly, they believed that many of the downsides associated with patent protection would be ultimately cured by licensing.

Six out of seventeen interviewees were unaware of the fact that securities and financial processes could be patented. Table 5 summarizes the roles and industries to which these participants belong.

<table>
<thead>
<tr>
<th>Interviews</th>
<th>Role</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3</td>
<td>Business Manager</td>
<td>Portfolio Management + Securities Brokerage</td>
</tr>
<tr>
<td>P4</td>
<td>Top Manager</td>
<td>Commercial Banking</td>
</tr>
<tr>
<td>P7</td>
<td>Product Manager</td>
<td>Investment Banking and Securities Dealing</td>
</tr>
<tr>
<td>P8</td>
<td>Product Manager</td>
<td>Software Publisher</td>
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<tr>
<td>P11</td>
<td>Portfolio Manager</td>
<td>Portfolio Management</td>
</tr>
<tr>
<td>P12</td>
<td>Quants</td>
<td>Portfolio Management + Securities Brokerage</td>
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</tbody>
</table>

No particular element emerges from their profiles that could explain their lack of knowledge regarding patent protection in their industry; thus, this result does not appear to be related to either the industries or the roles of this study’s participants. The interviewees who knew about patent protection for this subject matter acquired this information principally from in-house seminars and from their companies’ patent activities. Again, the viewpoint of a top manager of one of the major U.S. investment banks is significant:

Yes, [I knew about the possibility of having patents on financial methods]. But nobody takes that seriously. In my area of expertise, Wall Street firms have in years past taken out patents, and nobody respect them. Nor do patent-holders ever litigate them to my knowledge. They probably expect they would lose since we’d show the judge all the building blocks to the trade were widely

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85 Interview with P17, Investment Banker at Portfolio Management plus Securities Brokerage company (Nov. 2008) (on file with the author).
86 See Interview with P6 supra note 49.
87 See Interviews about Production of Financial Methods supra note 41.
88 See App. I, p.34, Question 9 of the Questionnaire on the Production of Financial Products: “Did you know that securities and financial processes can be patented? If so, what made you aware of this fact?”
known. It seems firms only get patents for purposes of marketing to clients: ‘we invented this – look, we got the patent.’ This game seems to be over for now – I haven’t heard of anyone taking out a patent in my area in 3-4 years, while I heard of a few instances before then.99

In addition, of those who were aware of patent protection for financial methods, only four90 were convinced that it could foster innovation in their industry.91 One of these subjects indicated the role that the patent system played on the “explosion” of data processing as one example of what she expected to happen in finance after State Street.92

Finally, although virtually all of the interviewees agreed93 that today’s financial market is more competitive than it was ten years ago,94 only two of them were concerned about their competitors’ patenting strategies.95 In this respect, one participant specified that the real problems “come not from [their] true competitors, but from ‘patent trolls.’”96 The causes identified for the increased competitiveness in the financial market ranged from the higher involvement of foreign banks in the U.S. (and vice versa),97 to a larger number of financial instruments present in the market and to a change in investors who are much more demanding today than they were in the past.98

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89 See Interview with P5 supra note 45.
90 See Interviews about Production of Financial Methods supra note 41.
91 See App. I, p.34, Question 10 of the Questionnaire on the Production of Financial Products: “If yes, do you think that patent protection is effective in fostering innovation in your industry? If so, can you provide some specific examples? If not, why not?”
92 See Interview with P6 supra note 49; and See State St. Bank, 149 F.3d 1368.
93 Sixteen out of seventeen interviewees; see Interviews about Production of Financial Methods supra note 41; P17 said that “it depends on the financial product offered;” see Interview with P17 supra note 85.
94 See App. I, p.34, Question 12 of the Questionnaire on the Production of Financial Products: “Do you think that the market in which your company operates is much less competitive today as compared to ten years ago? If so, can you provide some examples?”
95 See App. I, p.34, Question 11 of the Questionnaire on the Production of Financial Products: “In your opinion, is your company concerned about its competitors’ patenting strategies? If so, how would you define the risk that your company faces in this regard? Are there any countermeasures that your company is adopting or is considering adopting? Briefly, what are they? If not, why not?”; See Interview with P4 supra note 55 and Interview with P8 supra note 47.
96 See Interview with P1 supra note 46.
97 See Interview with P5 supra note 45.
98 See Interview with P15 supra note 65.
B. Interviews about the Consumption of Financial Methods

This subpart summarizes the results of the interviews exploring the consumption of financial methods in the ten years between *State Street*\textsuperscript{99} and *In re Bilski*.\textsuperscript{100} The first part of the questionnaire used for this investigation consisted of two questions designed to determine participants’ sense of the financial innovation that has emerged in the past ten years. The second part of the interview was dedicated to the interviewees’ understanding of the financial market and of its players. Finally, the last question focused on the competitiveness of today’s financial market for product providers.

There was little variation in the interviewees’ answers with respect to the consumption of financial methods. The participants concurred fairly consistently on one of the possible outcomes. In fact, they stated unanimously\textsuperscript{101} that the number of new types of securities and new types of financial processes had increased over the past ten years.\textsuperscript{102} With the exception of one participant,\textsuperscript{103} they also concurred\textsuperscript{104} on the fact that the products available today are different from those in the past.\textsuperscript{105} According to interviewees, the main difference between present and past products has been the explosion of derivatives\textsuperscript{106} that characterized the present period. Specifically, one participant said that “various new securities were invented to cover specific investment needs.”\textsuperscript{107}

\textsuperscript{99} *See State St. Bank*, 149 F.3d 1368.

\textsuperscript{100} *In re Bilski*, 264 F. App’x 896 (Fed. Cir. 2008).


\textsuperscript{102} *See App. I, p.34, Question 1 of the Questionnaire on the Consumption of Financial Products: “Do you think that the number of new types of securities and new types of financial processes has increased over the past ten years?”

\textsuperscript{103} Interview with C9, Portfolio Manager at Portfolio Management company (Mar. 2009) (on file with the author). The interviewee said that “in essence” [we have today] the same kind of securities and financial processes.”

\textsuperscript{104} *See Interviews about Consumption of Financial Methods supra note 101.

\textsuperscript{105} *See App. I, p.34, Question 2 of the Questionnaire on the Consumption of Financial Products: “Do you think there is any difference between the types of financial products (securities and financial processes) available on the market today and those that were available ten years ago? If so, what kinds of differences have you noticed?”

\textsuperscript{106} Eight interviewees out of twelve thought that the financial market has become more sophisticated; two of the interviewees disagreed with this statement and two others did not know; *see Interviews about Consumption of Financial Methods supra note 101.

\textsuperscript{107} Interview with C10, Quant at Investment Banking and Securities Dealing company (Apr. 2009) (on file with the author).
different perspective, she added that, “[today’s] processes are more complex and mathematically oriented.”

Most of the interviewees thought that the financial market had become more sophisticated in the last ten years compared to past decades. The reasons for such a change ranged from client’s demand for certain kinds of products, to an increase in the amount of money present in the market, to more competition.

However, two participants disagreed with the rest of the sample because, as they explained, the term “sophistication” also meant to them that something had improved, i.e. had become “more in tune with their needs.” They found today’s market being characterized by more products that are more complex but that are not necessarily of higher quality. Thus, according to them, today’s market is definitely more difficult to understand than it was ten years ago but it is not necessarily more sophisticated.

Furthermore, nine out of twelve interviewees thought that in order to be competitive, a company today needs more advanced products, “[because] mature [financial] markets allow little potential to outperform peers … [and] the use of innovative instruments can [help]… generat[e] marginally greater returns.” Some good examples of this situation are exchange traded funds (ETFs) and advanced quantitative products (quant

\[ \text{id} \]

\[ \text{Id.} \]

\[ \text{Id.} \]

\[ \text{Id.} \]

\[ \text{Id.} \]

\[ \text{Id.} \]

\[ \text{Id.} \]

\[ \text{Id.} \]

\[ \text{Id.} \]
funds). One of the participants who disagreed with the majority of the interviewees, however, emphasized that, at this time, in order to be successful, what is needed is the “right” kind of products rather than the more “advanced” ones, but also more regulation and enforcement thereof. Another interviewee whose business is market-neutral equity strategy did not think that there was a need for more advanced products, “[because]… value is created via the underlying asset the security represents … more than … by purchasing incrementally more sophisticated products … to manage risk.” Finally, one of the interviewees said that the need for more advanced products depends on the consumers and market segment.

From a different perspective, financial product providers were considered to be sufficiently innovative by 50% of the interviewees. Of these participants, two thought that providers could be even “too innovative,” to the point of creating risk that investors did not foresee. Four interviewees out of twelve did not have a clear position on this matter, while two did not find providers innovative enough. One of them explained this by pointing to the high complexity of today’s instruments and markets, and how better tools are needed more than ever before to successfully deal with them. Indeed, since returning to a simpler stage of financial development is not realistic anymore, the best course of action would certainly seem to be developing better i.e. more sophisticated products that can be fully understood.

Finally, the interviewees were markedly unanimous about the level of competition faced by financial product providers today. They are of

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118 See Interview with C10 supra note 107 and Interview with C4, Product Manager at Investment Banking and Securities Dealing company (Nov. 2008) (on file with the author).
119 See Interview with C9 supra note 103.
120 Interview with C2, Business Manager at Portfolio Management company (Feb. 2010) (on file with the author).
121 Interview with C6, Investment Banker at Investment Banking and Securities Dealing company (Feb. 2010) (on file with the author).
122 See App. I, p.34, Question 5 of the Questionnaire on the Consumption of Financial Products: “In your opinion, are your financial product providers sufficiently innovative? If so, in what way? Does your company seek more advanced products?”
124 See Interview with C2 supra note 120 and See Interview with C5 supra note 112.
125 Interview with C11, Quant at Software Publisher company (Apr. 2009) (on file with the author).
126 Id.
the belief that because a significant growth in the demand for sophisticated products can generate greater returns, more subjects entered the financial market in the past ten years than in past decades. Indeed, as one of the interviewees emphasized, “the pie [got] larger and attracted more market participants.”

C. Discussion

This section provides a brief analysis of the investigation summarized in the previous Subparts. From the perspective of the production of financial methods, a first observation is that the results of the interviews confirm the presence of significant financial innovation in the ten years between *State Street* and *In re Bilski*. The interviewees identified several financial causes for this phenomenon, the most important of which appeared to be client demand for more advanced products. This fact emerged for the market in general and for the individual companies; furthermore, it is consistent with the financial literature. On the other hand, patent protection – the focus of this research - has been reported by only one interviewee as a possible incentive to innovate in the financial industry.

Conflicting opinions revolved around the issue of exclusive rights on financial products. From the companies’ perspective, some interviewees did not see a clear advantage to having patent protection because they feared a loss in revenue derived from the ability to trade their competitors’ products. In other words, according to them, it is more advantageous in this industry for a company to be able to copy their competitors’ products than to have the exclusive right to sell its own

128 See App. I, p.34, Question 6 of the Questionnaire on the Consumption of Financial Products: “Do you think that in today’s market financial product providers face more or less competition compared to ten years ago? If you think there has been a change, to what do you attribute this change in competition?”
130 See Interview with C8 supra note 117.
131 See *State St. Bank*, 149 F.3d 1368.
132 *In re Bilski*, 264 F. App’x 896 (Fed. Cir. 2008).
products. The reason for this is, firstly, that, innovators do enjoy an initial\textsuperscript{134} \textit{de facto} monopoly on their inventions and, secondly, that the profit margins in dealing with new products still exist even when competitors begin to copy them.

Furthermore, from a product perspective, patent protection does not appear to be optimal because clients are reluctant to invest in very “exotic” inventions for which there is no established market. In this regard, interviewees expressed a concern about driving their clients away not to mention hurting them. According to this study’s participants, competition (i.e. copying) is necessary in the financial market because it makes the products both known and widespread. However, there were conflicting opinions, because a number of interviewees did not see much difference between having a legal monopoly and having a \textit{de facto} one, i.e., a first-mover advantage for innovative products.

Moreover, since the interviewees were also ambivalent about the benefit of investing in innovation (i.e. higher returns for their companies derived from active R&D spending), it appears plausible to conclude that, in this industry, the interest in the main tool used by other sectors to recoup these kinds of expenses is not of great significance. The lack of interest for patent protection is also evidenced by the fact that about one-third of the interviewees did not even know about the possibility of patenting their inventions. Among those who did know, only two were somewhat worried about their competitors’ patent activity. One of the participants explained:

[We are] not concerned about it. It seems to be a farce, just a marketing ploy. We’ve never had our legal counsels advising us that we need to be careful not to infringe on a patent (naturally we ask them to take a look), and the whole Street has executed structures on which one bank markets to clients that he holds a patent.\textsuperscript{135}

\textsuperscript{134} The duration of this period is probably different for different products. Both P5 and P11 discussed this point but with a different length of time in mind; P5 talked about a six-month periods whereas P11 considered a couple of years of first-mover advantage. A possible explanation for this result is that probably the amount of time needed to reverse a security is different than the one required for an investing model or other products; see Interview with P5 \textit{supra} note 45 and Interview with P11 \textit{supra} note 62.

\textsuperscript{135} See Interview with P5 \textit{supra} note 45.
Some relevant deductions can also be made from an analysis of the interviews about the consumption of financial methods, the most important of which is the general consensus that characterized the interviewees’ opinions on the issues discussed.

Similar to the interview results on the production of financial methods, results from the investigation on the consumption of financial methods confirmed that the past decade has been a period of great financial innovation, in which the new products that emerged were not only more numerous, but also significantly different, from their predecessors.

From this investigation it appears that the financial market has become much more sophisticated than in the past and that companies need to really on advance products in order to successfully operate in it. Nevertheless, the participants were ambivalent about the issue of whether providers of financial products are innovative enough. Thus, a possible assessment of today’s condition of the financial market is that, notwithstanding the recent explosion of new products, there is still a significant need for innovation. From a different perspective, it is interesting that the entrance of many more players was not sufficient to completely satisfy this need for innovation.

Finally, and more specifically for the purpose of this study, it is possible to say that in considering the increased competitiveness of the financial market, the persistent demand for more advanced products and the primary purpose of patent protection to foster innovation, significant doubts begin to emerge about the role that the patent system had in this sector after State Street.  

D. From a Different Perspective: Reconciling Theory and Reality

Over the years, several theories have been advanced to explain the purpose of the patent system. For this investigation, prospect theory and its insight into the advantages of patent protection over trade secrets is of particular interest. This is because, before State Street, the
financial industry relied almost exclusively on trade secrets to protect inventions.\textsuperscript{139}

The prospect theory shows that patent protection is superior to trade secrets because it “avoid[s] duplication of effort, create[s] incentives to invest in development, lower[s] the cost of contracting complementary resources ... and lowers the ... cost of maintaining control over valuable discovered resources.”\textsuperscript{140}

Nevertheless, the results of the interviews discussed in this article seems to indicate that innovators in the financial industry did not entirely appreciate the benefits provided by patent protection and, supposedly, continued to operate (at least up to a certain level) through trade secrets.

In conclusion, is it possible to “reconcile” the results of this investigation with prospect theory? To answer this question it is necessary to understand whether the advantages produced by the patent systems and highlighted by prospect theory constitute real pluses for the financial industry as they are for other fields.

While it is possible to argue that the financial industry could operate more efficiently if its companies would reduce duplicative investments in finding solutions for their clients and share information with their competitors, other aspects associated with patent protection are more questionable.

In particular, it seems that financial companies have less of a need to reduce the costs derived from entering into contracts with firms that possess complementary information and resources.\textsuperscript{141} This is because most of the required information and resources are provided directly by their clients who, as discussed in the previous part, are the driving force of innovation in this field--not only in terms of supplying “inspiration” for additional inventions but also in terms of financing and accessing markets.

Similarly, clients are the main incentive for investments in improvements.\textsuperscript{142} In these cases, acquiring control over the main invention through a patent does not determine additional R&D investment in the development of related financial methods, unless clients demand them.

\textsuperscript{140} Grady & Alexander supra note 137 at 315.
\textsuperscript{141} Kitch supra note 137 at 277.
\textsuperscript{142} Id. at 276
Finally, of limited relevance is the saving derived by not having to maintain the secrecy of an invention.\textsuperscript{143} This is because, as this study has showed, financial companies want their competitors to copy them and, in this way, signal to the market that their products are valid and needed.\textsuperscript{144}

It is therefore possible to conclude that the case of the superiority of patent protection over trade secrets is highly questionable in the context of the financial industry.

**CONCLUSIONS**

Over thirteen years after the issuance of the *State Street* decision, the patentability of financial methods remains controversial. *In re Bilski* brought the importance of correctly determining the boundaries of patentable subject matter to everyone’s attention. For several years, this aspect of the patent system has been almost completely disregarded. At the heart of the problem is the question of whether the patent system in the specific sector is “doing its job” or, in other words, whether that patent system is fostering the creation of additional business methods.

To answer this question, an empirical study is required. For this reason, I conducted structured interviews with market participants about the production and consumption of financial methods as a subset of business methods.

\textsuperscript{143} Id. at 279.

\textsuperscript{144} The fact that financial companies want their competitors to copy them appears to be somewhat in tension with the previous discussion of financial companies relying on trade secrets to protect their inventions see Merges supra note 139. However, this study indicates that financial companies enjoy on average a six months first-mover-advantage in which the invention is kept as a “secret” and monopolist profit is made see e.g. Part II.A supra page 21 and Interview with P5 supra note 45. Subsequently, innovators “expect” their competitors to copy them and, in this way, signal to the market that their invention is valid see e.g. Part II.A supra page 25 and Interview with P1 supra note 46. Furthermore, in 2003 Herrera and Schroth showed that the advantage enjoyed by the first mover mainly comprises information asymmetry and not the invention per se. In other words, they showed that financial innovators retain an advantage over their competitors even when the invention is copied. This is because of the information they acquire from dealing directly with their clients in the development of the invention i.e. because of their higher understanding of the invention and/or their clients’ needs; see Helios Herrera & Enrique Schroth, *Profitable innovation Without Patent Protection: The Case of Derivatives* 6 (Feb. 25, 2003) (unpublished manuscript, on file with the International Center for Financial Asset Management and Engineering), available at http://ssrn.com/abstract=384822. Consequently, it appears that in the financial industry trade secret protection is relevant for a few initial months after the issuance of the invention in the market.
The results of this investigation do not provide direct evidence of the impact of patent protection on financial innovation, but they are quite significant. From this study, it appears that patent protection has not been responsible for the innovation that occurred in the financial industry between State Street and In re Bilski. Indeed, the interviewed market participants were ambivalent about the benefits that both the financial markets and their companies could derive from having exclusive rights on their inventions. During the interviews about the production of financial methods, participants expressed concerns about the possibility of hurting their clients, of not having a market to attract them and ultimately of not being able to produce revenues from trading on their competitors’ products. In substance, they provided a description of the financial market and of its dynamics that does not align with the protection of business methods, as currently provided by the patent system.

On the other hand, the interviews about the consumption of financial methods provided useful information about the level of competition in the financial industry and the need for additional innovation and more creative producers. However, no specific effect from the patent system has been identified.

Also, an analysis of this study’s results through the lens of prospect theory raises doubts about the superiority of patent protection over trade secrets in the financial industry.

If patent protection did not represent an incentive in the financial industry, though, why did inventors submit so many applications? One of the interviewees suggested that patent protection has been used as a marketing tool to boost companies’ profiles. Alternatively, a previous investigation suggests that these patents could not be real financial patents but software patents with a financial component. In this latter case, it would probably make more sense to explore the effect of patents in the software industry rather than in the financial one. Clearly, more investigation is necessary to shed light on this point.

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145 See Duffy supra note 1.
146 In a previous article I investigated patent application submitted and patent issued on securities in the ten years between State Street and In re Bilski. Most of the claimed inventions assigned to the subclasses of interest (subclasses 35, 36R and 37 of class 705) represented categories of financial innovations other than securities. Specifically they were technological implementations of different financial processes; see, Is the Use of Patents Promoting the Creation of New Types of Securities? 25 Santa Clara Computer & High Tech. L.J. 266 (2009).
Finally, it is important to spend a few moments addressing the significance of this study’s results, as they relate to the recent Supreme Court decision on Bilski. As previously discussed, the present investigation shows that after State Street, patent protection did not appear to have produced additional innovations within the financial industry. The obvious consequence of this finding is that the Federal Circuit was right in deciding In re Bilski because in the past ten years, proprietary rights have been granted on financial knowledge, but society has not received anything meaningful in return. Thus, the Supreme Court should have supported a full application of the machine-or-transformation test.

Unfortunately, though, this conclusion does not take into account the way that Bilski involves processes in general and not just financial methods. Because of this, it can have significant implications for innovation in many fields, other than the financial industry, that are of great importance for society and, potentially, could derive significant benefit from patent protection. Now, the Supreme Court has given the Federal Circuit a new opportunity to address this issue in a way that goes beyond the specifics of one industry and more closely reflects the goal of the patent system: to foster innovation.
APPENDIX

QUESTIONS FOR PRODUCERS OF FINANCIAL METHOD PRODUCTS

1. Do you think that the number of new types of securities and new types of financial processes has increased over the past ten years?

2. If you answered yes to Q1, in your opinion, what is the main cause for this increase in financial innovation?

3. If you answered no to Q1, do you believe that there are an adequate number of incentives in the financial industry to engender innovation?

4. In your opinion, what are the specific factors that drive your company to innovate?

5. Do you think that the return a company receives for its innovative products justifies its R&D spending? Why or why not?

6. In your opinion, what is the main source of income for your company?

7. Do you think your company would benefit (= increase its value) from having the exclusive right to sell its innovative products?

8. Do you see any problem with a temporary absence of competition for certain products sold in the financial markets?

9. Did you know that securities and financial processes can be patented? If so, what made you aware of this fact?

10. If yes, do you think that patent protection is effective in fostering innovation in your industry? If so, can you provide some specific examples? If not, why not?

11. In your opinion, is your company concerned about its competitors’ patenting strategies? If so, how would you define the risk that your company faces in this regard? Are there any countermeasures that your company is adopting or is considering adopting? Briefly, what are they? If not, why not?
12. Do you think that the market in which your company operates is much less competitive today as compared to ten years ago? If so, can you provide some examples?

QUESTIONS FOR CONSUMERS OF FINANCIAL METHOD PRODUCTS

1. Do you think that the number of new types of securities and new types of financial processes has increased over the past ten years?

2. Do you think there is any difference between the types of financial products (securities and financial processes) available on the market today and those that were available ten years ago? If so, what kinds of differences have you noticed?

3. Do you think that the financial market has become more sophisticated in the last ten years compared to the past? If so, what do you think are the reasons for such sophistication?

4. Do you think that to be competitive in today’s market firms need more advanced financial products? In other words, do you think that there is a need in the market for more innovation? Why or why not?

5. In your opinion, are your financial product providers sufficiently innovative? If so, in what way? Does your company seek more advanced products?

6. Do you think that in today’s market financial product providers face more or less competition compared to ten years ago? If you think there has been a change, to what do you attribute this change in competition?