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Introduction
Quantifying the financial impact of reputation

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When *Rembrandts in the Attic* was published in 1999 the possibilities seemed limitless. No longer would intellectual property be a legal backwater. Rather, a chief executive officer need only rummage through the attic to uncover priceless patent assets and turn years of unfocused research and development into significant new revenue streams. Of course, the reality turned out to be much more complex.

First, monetising patents is much more complex than calling a few potential licensees or sending out a couple of threatening letters. For most companies, monetising their ideas means knowing their customers and what their customers need; coordinating the efforts of internal groups such as manufacturing, marketing, research and development and finance with those of external groups such as suppliers, customers and joint venture partners; having a process in place to capture raw ideas about how to address customer needs and to turn those ideas into products and services that customers want to buy.

Second, and perhaps more importantly, the narrow focus on intellectual property — and even more narrowly, patents — increasingly seems to be a red herring. Of course, monetising intellectual property is a worthy goal. However, an even better goal is making sure that the intellectual property that your company creates supports the company's larger strategic goals and direction — that is, intellectual property is a means to an end, rather than an end in itself. As such, a better way to think about intellectual property is that it is just one intangible asset out of many that companies need to identify customer needs, develop solutions and earn a profit.

This chapter asks several questions:
- Given the stated goal of taking a broader view of intellectual property, is there a metric available that quantifies this more holistic view?
- Does that IP metric correlate with more traditional measures of financial strength or, ideally, does it have any value as a predictor of financial strength?
- What actions can various stakeholders take based on the answers to the first two questions?

As this chapter demonstrates, there is a quantitative measure of intangibles — the Steel City Re Reputation/Intangible Asset Index. Moreover, a study of 144 public companies has found that the index is a leading indicator of the trend in credit default swap spreads for those companies. Based on these findings, this chapter will suggest ways in which stakeholders such as investors and the companies themselves can use the Steel City Re index.

Given a more holistic tool for measuring intangibles, this chapter asks, "so what?" Does the Steel City Re index provide any insight or information that would be useful to one or more classes of stakeholder? To answer that question, the author analysed a group of 144 public companies to ascertain the relationship between the index and companies' financial strength, as measured by credit default swap spreads. As detailed below, the answer is yes — effective intangibles management translates into better financial strength as measured by credit default swap spreads. This chapter closes by suggesting ways in which investors might profit from those insights and companies might better manage their credit costs by listening to what the markets are implying about their prospects and taking appropriate reputation-enhancing action.

Background
Steel City Re Reputation/IA Index

Nir Kossovsky, founder of Steel City Re, has argued for such a strategic and holistic approach to intangibles. In his framework a company's intangibles include its processes for producing safe, high-quality, innovative, ethical and sustainable products and services. A company's reputation is the sum total of stakeholders' perceptions of how the company manages those intangibles.

Starting from the premise that what cannot be

measured cannot be managed, Steel City Re has developed a quantitative measure of reputation. That measure — the Steel City Re Reputation/Intangible Asset Index — uses forward-looking equity market-based measures of various stakeholders' assessments of the company. Specifically, the index incorporates proxies for customers' views, suppliers' views and investors' views. In addition, a measure of the company's effectiveness at communicating its actions and intentions is included. Taken together, these parameters produce a percentile ranking of companies' reputations — that is, the aggregate view of stakeholders as to how effective each company is at managing its intangibles.

Traditionally, reputation has not been measured *per se*. Rather, a variety of qualitative surveys have been carried out on a periodic basis to assess the relative strength of one company's reputation versus that of another. For example, each year Harris Interactive publishes its Reputation Quotient[sm], which is based on surveys with thousands of US consumers, first to identify the 60 most visible companies and then to rank these companies based on their reputation in six different categories: emotional appeal, products and services, social responsibility, vision and leadership, workplace environment and financial performance. Steel City Re reports a 62 per cent correlation between its index and the more widely known Harris Reputation Quotient, suggesting that the opinions expressed in annual surveys are captured in the Steel City Re index.

Credit default swaps

Credit default swaps are contracts in which one party (the protection buyer) makes periodic payments to a counterparty (the protection seller). In turn, the seller pays the buyer if a reference credit instrument defaults. That reference credit instrument is typically a bond or a loan. The credit event that triggers payment may also be the restructuring, bankruptcy or downgrade of the reference company's credit rating. Credit default swaps are typically traded among institutional investors such as banks and insurance companies. Credit default swaps are similar in many respects to insurance, but unlike insurance, the protection buyer need not necessarily own the underlying bond or loan and need not even have an insurable interest upon the credit event (ie, the protection buyer will not necessarily suffer a loss in the event of a triggering event). For this analysis, credit default swap spreads are used as a proxy for the markets' assessment of a company's financial strength — a widening credit default swap spread implies a weakening credit, whereas narrowing spreads imply that a company's financials are improving.

Methodology

As a means for exploring the correlation between intangibles, as measured by the Steel City Re index, and financial strength, as measured by credit default swap spreads, data was gathered for 144 public companies (listed in Appendix A). The data for each company comprised credit default swap spreads every two months between December 2005 and April 2009 (21 dates). In turn, the Steel City Re index was calculated as of each of those 21 dates.

Because the credit markets as a whole have been relatively volatile, the credit default swap spread data was normalised using a log (base 10) transform of the credit default swap spread relative to the average credit default swap price for the Standard & Poor's 500 for the corresponding period, as follows: relative credit default swap = log (credit default swap spread/average credit default swap price for Standard & Poor's 500).

In other words, if the credit default swap spread for a given company were equal to the average for the Standard & Poor's 500, this transform would yield a value of zero. Above-average credit default swap spreads would have values greater than zero and below-average credit default swap spreads would have negative values.

Results

In order to assess the extent of the correlation between reputation and financial strength, the transformed credit default swap values were plotted against the Steel City Re index rank, which ranges from zero (worst relative reputation) to one (best relative reputation). The results are shown in Figure 1. As would be expected, companies with stronger reputations (higher index values) tend to have lower credit costs, reflected in lower credit default swap spreads, since their strong reputation translates into better performance in the marketplace. The converse is also true. The relationship between the two variables is strong, with 49 per cent of the variance in the average relative credit default swap cost explained by the average index values.

Having established a strong correlation between relative reputation and average relative credit default swap cost, the data was then analysed to determine whether variability in either variable correlates with the other — that is, do companies whose index values are volatile see corresponding volatility in market-based measures of credit risk? As illustrated in Figure 2, which plots variance in average relative credit default swap cost against index variance, that is indeed the case. Once again there is a strong correlation, with nearly half (46 per cent) of the variance in credit default swap pricing explained by variance in the Steel City Re index.

## Figure 1: Credit default swap cost v Steel City Re Reputation Index

$y = -2.901x + 2.2144$
$R^2 = 0.4922$

Relative credit default swap cost (ln (CDS/SPAVG))

Steel City Re Reputation Index Rank (whole market)
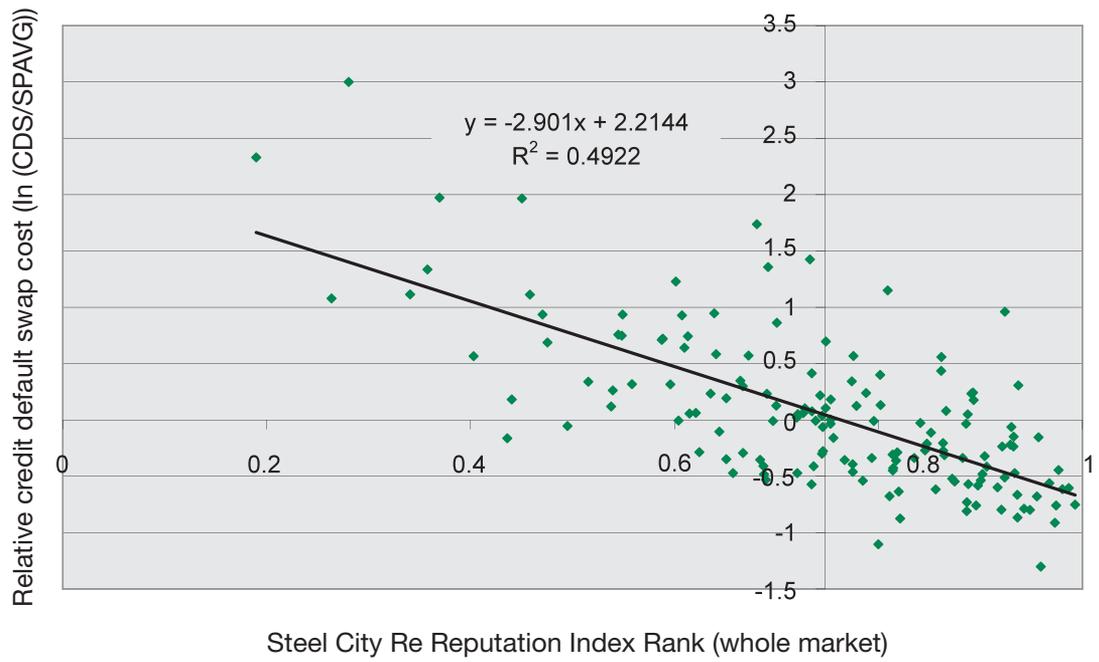
Figure 2: Credit default swap cost variable v Steel Credit Re index rank variable

$y = 6.8709x + 0.0834$
$R^2 = 0.4643$

Relative credit default swap cost (ln (CDS/SPAVG)) variable

Steel City Re Reputation Index Rank (whole market) variable
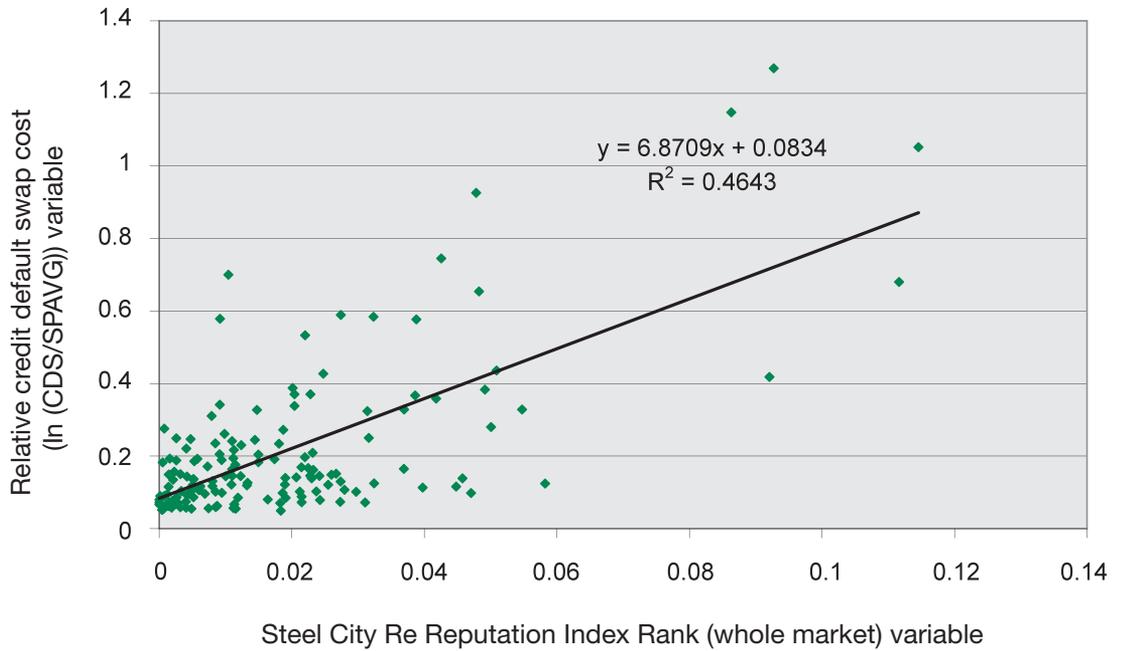
| Table 1: Distribution of credit default swap and reputation correlation			
Correlation between Steel City Re index and credit default swaps	Baseline	Intangible asset leads	Intangible asset trails
-1.00 >< -0.75	15	10	14
-0.75 >< -0.50	38	38	26
-0.50 >< -0.25	32	40	25
-0.25 >< 0.00	28	25	30
0.00 >< 0.25	20	22	30
0.25 >< 0.50	9	8	16
0.50 >< 0.75	2	1	3
0.75 >< 1.00	0	0	0

While correlation does not necessarily imply causation, this result is interesting nevertheless. Although the index incorporates several parameters, it is largely based on equity analysts' forecasts of those parameters. Credit default swap spreads, on the other hand, reflect a market-based assessment of the risk inherent in a company's debt. To the extent that the relationship between the two perspectives deviates from the expected pattern, a potential arbitrage may exist.

The question was then posed of whether the Steel City Re index was a leading or lagging indicator of credit default swap spreads. Table 1 lays out the frequency with which the correlation between the index and the relative credit default swap spread falls into certain ranges for all 144 companies studied (negative one is a perfect correlation between high index values and low credit default swap price).

In the baseline scenario, the correlation was calculated when the index and relative credit default swap spread were evaluated on the same day. In the intangible asset leads scenario, the correlation between the index on a given date and the relative credit default swap spread two months later was evaluated. In the intangible asset trails scenario, the correlation between the index and the relative credit default swap spread two months earlier was evaluated. If, as theorised, changes in the index lead to changes in the relative credit default swap spread, the distribution of correlations for the intangible asset leads scenario should be similar to the distribution for the baseline.

Figure 3: Distribution of correlations
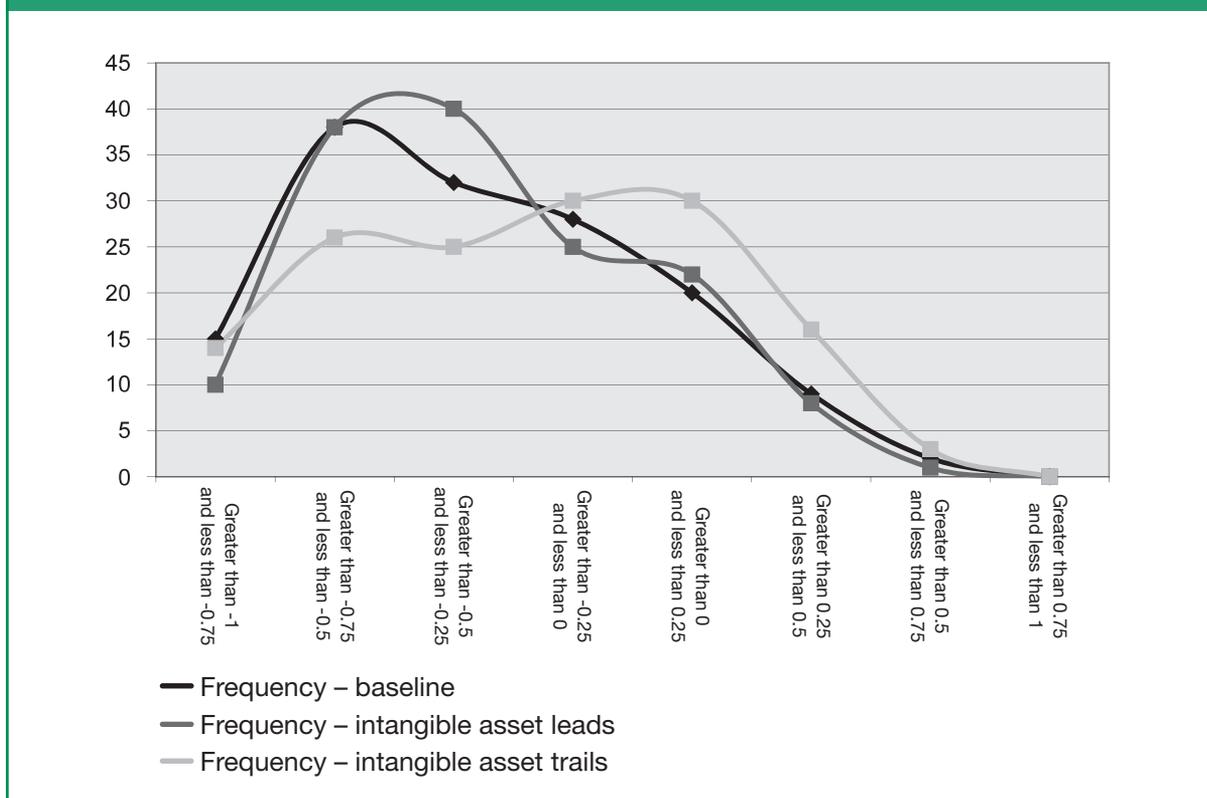
Frequency – baseline
Frequency – intangible asset leads
Frequency – intangible asset trails

> ❝ **Traditionally, reputation has not been measured *per se*. Rather, a variety of qualitative surveys have been carried out on a periodic basis to assess the relative strength of one company's reputation versus that of another** ❞

As the data in Table 1 shows and Figure 3 demonstrates graphically, the distribution frequency is not materially changed when the index data precedes the credit default swap pricing data by two months (the leading indicator). However, this distribution frequency is materially changed when the index lags the credit default swap data by two months (the lagging indicator). This data suggests that the index is indeed a leading indicator of credit default swap pricing.

Financial and operational implications

While the observed correlation between relative credit default swap spreads and the Steel City Re index is intriguing, more research is needed, both over a longer period and across industries. Nevertheless, one could ask why such a correlation should exist. In essence, credit condition correlates with the expectations of adequate free cash. Cash is more abundant in companies with superior reputations because, on average, they sell more products, sell those products for higher prices, get better terms from vendors and have lower operating frictional costs.

How might investors use this insight — particularly if changes in the index are leading indicators of changes in relative credit default swap spread? One could imagine a strategy of being a net credit protection seller if the index suggests credit default swap spreads will narrow for a given company. Assuming spreads do in fact narrow, the position could be unwound at tighter spreads which would result in a net profit. Conversely, one could pursue a strategy of being a net protection buyer if the index suggests that credit default swap spreads will widen for a given company. Alternatively, one could create market-neutral portfolios by combining those two approaches for a range of companies — that is, being a net protection seller for a range of companies whose credit default swap spreads are expected to narrow and being a net protection buyer for those whose credit default swap spreads are expected to widen.

Companies themselves might take a bigger-picture, holistic approach to managing their credit costs by listening to what the markets are implying about their prospects and taking appropriate reputation-enhancing actions. These include, but are not limited to, the following two actions. First, they can take steps to ensure that the whole business network conforms with best practices for safety, quality, ethics, security, innovation and sustainability. Second, they can take steps to ensure that the conformity they desire is communicated transparently to stakeholders.

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Marc Lucier focuses on asset finance, investment and risk transfer involving intellectual property and other intangible assets. Prior to joining Deutsche Bank in March 2007, Mr Lucier was founder and president of Intangible Edge, an IP consulting firm that provided IP valuation and analytics, raised IP-based capital and arranged sales and licences of trademarks and other intellectual property. Mr Lucier holds an MBA from Columbia University and a BS from the University of Southern California.

Appendix A – List of companies

No	Name	No	Name	No	Name
1	Alcoa Inc	49	Duke Energy Corp	97	McKesson Corp
2	American Electric Power	50	Eastman Kodak Co	98	Metlife Inc
3	Aetna Inc	51	Eastman Chemical Co	99	Altria Group Inc
4	Allstate Corp	52	Emerson Electric Co	100	Monsanto Co.
5	Amgen Inc	53	Exelon Corp	101	Motorola Inc
6	Aon Corp	54	Ford Motor Co	102	Marathon Oil Corp
7	Apache Corp	55	FedEx Corp	103	Morgan Stanley
8	Air Products & Chemicals Inc	56	FirstEnergy Corp	104	MeadWestvaco Corp
9	American Express Co	57	FPL Group Inc	105	Northrop Grumman Corp
10	AutoZone Inc	58	Gannett Co Inc	106	Norfolk Southern Corp
11	Boeing Co	59	General Dynamics	107	Newell Rubbermaid Inc
12	Bank of America Corp	60	General Electric Co	108	Omnicom Group
13	Baxter Inti Inc	61	General Mills Inc	109	Pitney Bowes Inc
14	Black & Decker Corp	62	Corning Inc	110	Procter & Gamble
15	Baker Hughes Inc	63	Gap Inc	111	Progress Energy Inc
16	Bristol-Myers Squibb	64	Goodrich Corp	112	Pulte Homes Inc
17	Burlington Northern Santa Fe Co	65	Goldman Sachs Group Inc	113	PPG Industries Inc
18	Boston Scientific Corp	66	Goodyear Tire & Rubber Co	114	Prudential Financial Inc
19	Citigroup Inc	67	Halliburton Co	115	Ryder System Inc
20	ConAgra Foods Inc	68	Home Depot Inc	116	ReynoldsAmerican Inc
21	Cardinal Health Inc	69	Hess Corp	117	RadioShack Corp
22	Caterpillar Inc	70	Hartford Finl Services Group	118	Raytheon Co
23	Chubb Corp	71	Heinz H.J. Co	119	Schwab Charles Corp
24	Cooper Industries Ltd (Bermuda)	72	Honeywell Inti Inc	120	Sealed Air Corp
25	CBS Corp B	73	Starwood Hotel & Resort World	121	Sears Holdings Corp
26	Carnival Corp	74	Hewlett-Packard Co	122	Sherwin-Williams Co
27	Constellation Energy Group	75	Intl Business Machines Corp	123	Sara Lee Corp
28	CIGNA Corp	76	Intl Paper Co	124	SLM Corp
29	CIT Group Inc	77	Interpublic Group Cos	125	Simon Property Group
30	Cummins Inc	78	Sun Microsystems Inc	126	Staples Inc
31	Centerpoint Energy Inc	79	Penney J.C. Inc	127	Sempra Energy
32	ConocoPhillips	80	JP Morgan Chase & Co	128	Supervalu Inc
33	Campbell Soup Co	81	Nordstrom Inc	129	Safeway Inc
34	Computer Sciences	82	Kellogg Co	130	AT&T Inc
35	CSXCorp	83	Kraft Foods IncA	131	Target Corp
36	Century tel Inc	84	Kroger Co	132	Tenet Healthcare
37	Centex Corp	85	Lennar Corp A	133	Tyson Foods Inc A
38	CVS Caremark Corp.	86	Lilly Eli & Co	134	Time Warner Inc
39	Chevron Corp	87	Lockheed Martin	135	Textron Inc
40	Dominion Resources Inc	88	Lincoln National Corp	136	Unum Group
41	DuPont E.I. de Nemours	89	Lowe's Cos Inc	137	Union Pacific Corp
42	Deere & Co	90	Limited Brands Inc	138	United Technologies Corp
43	Dell Inc	91	Southwest Airlines Co	139	Valero Energy Corp
44	Danaher Corp	92	Macy's Inc	140	Williams Cos Inc
45	Walt Disney Co	93	Marriott Inti A	141	Waste Management Inc
46	Diamond Offshore Drilling	94	Masco Corp	142	Wyeth
47	Dow Chemical	95	Mattei Inc	143	XL Capital Ltd A (Bermuda)
48	DTE Energy Co	96	McDonald's Corp	144	Xerox Corp

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