The ICE age: A case study on profiting in fragmented markets

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Jeffrey Sprecher started the Inter-Continental Exchange (ICE) in 2000, headquartered in Atlanta, Georgia. In 23 years, the market capitalization went to 72 billion euros, testifying newcomers can make it big. Just like any business, stock exchanges are also susceptible to mergers and acquisitions. Within these 23 years, ICE bought several exchanges, including the New York Stock Exchange (NYSE) in 2014. When ICE bought the NYSE, Jeff Sprecher indicated that he had never traded, worked at a bank, lived in New York, or worked on Wall Street. He has colleagues who have no background in financial services. His basic philosophy is that being an outsider allows him to take a fresh perspective on a business, and by asking questions, he can find new ways of solving old problems. And this adds value. ICE has recently acquired the software and analytics company Black Knight for 12 billion dollars (Mccoll, 2023).

This case study highlights how ICE creates value in increasingly fragmented markets, with caution on the risks. The case study first presents the concept of market segmentation and recent literature. Then it shows key performance indicators at ICE (drawing on publicly available secondary data), explaining how ICE improved the sustainability of the business model in its three main business lines. Third, it presents key risks that ICE manages through its innovative approach. Lastly, this case study concludes by showing how the current context is conducive for innovative businesses like ICE.

Market fragmentation means that various parts of the market may not behave similarly. For example, if stocks are traded on multiple exchanges, on any one exchange, there may not be sufficient depth of transactions to permit price discovery (Brab, 2023). However, if the investors can split orders over two exchanges, they can get better prices (Chen & Duffie, 2021). There is evidence that fragmentation improves market efficiency (Aitken, Chen, & Foley, 2017), but this may be only for large stocks (Haslag & Ringgenberg, 2023). Further, fragmentation allows one to take more risks and invest in higher returns and more disruptive innovative ventures (Baden-Fuller, Dean, McNamara, & Hilliard, 2006). Moreover, heterogeneous investors may like to have a choice of exchanges (Gomber, Sagade, Theissen, Weber, & Westheide, 2017). Another example of market fragmentation could be banks with different default probabilities in various jurisdictions (Vari, 2020). Fragmentation also arises from the diversity of legislation between countries. This diversity could be because of timing differences in the implementation of laws, inconsistent approaches to implementing standards, or even a difference in the perceived necessity for regulatory oversight (Greenwood, 2023; Hill, 2020). This regulatory diversity is a source of market fragmentation (Hänseler, 2022; Vari, 2020), even between countries of the European Union (Brab, 2023).

While all the above work helps us understand why markets are fragmented and what their benefits and costs are to traders, there is little work in the academic literature on how platforms such as ICE exploit financial market fragmentation to create value for their customers and shareholders.

Adding Value: Sustaining the ICE

ICE is competing with other exchanges such as those operated by Chicago's CME Group (market valuation of about $74 billion), the Nasdaq Inc. (market capitalization of about $37 billion), the London Stock Exchange Group (market cap of about £49 billion) and many exchanges in other countries[1]. Like other exchanges, ICE increased trading during COVID-19, leading to a substantial increase in market capitalization. Since then, the value halved before coming back to pre-COVID levels. Therefore, the fundamentals that are driving the business seem to be sound.

Within ICE, there are three major business lines. The exchanges form the most significant business line. This line includes stock exchanges, commodity exchanges, energy exchanges, futures and options, listings, and data and connectivity services. A second business line is fixed income and data services, including data analytics, execution, and Credit Default Swap clearing. These data services are very extensive and high quality, allowing customers to get insights that drive decision-making. The third business line, which is relatively new, is mortgage technology, including origination technology, closing solutions, and analytics. In this business line, ICE's strategy has also been to digitalize the entire mortgage process to reduce cost and increase efficiencies

Table 1 provides a breakdown of total revenues and operating profits in the three broad business lines. We can see that the mortgage technology revenues are relatively new and shooting up (starting from a lower base), although there was a slight decline in 2022. We can also see that Exchanges still represent two-thirds of the revenues. Although The Mortgage technology business has grown, the operating profit seems very sensitive to sales, indicating that it is close to the break-even point.

[1] All market capitalization figures taken for Yahoo Finance on January 31, 2024

Table 1: Consolidated revenues and earnings of ICE: 2019 to 2022

Millions of Dollars, For the year	2022	2021	2020	2019	CAGR
Revenues:					
Exchanges	6,415	5,878	5,839	4,652	11%
Fixed income	2,092	1,883	1,810	1,756	6%
Mortgage technology	1,129	1,407	595	139	101%
Total Revenues	9,636	9,168	8,244	6,547	14%
Operating Income:					
Exchanges	2,862	2,523	2,389	2,167	10%
Fixed income	719	529	492	439	18%
Mortgage technology	57	397	152	67	-5%
Total Operating income	3,638	3,449	3,033	2,673	11%
Net income	1,498	4,069	2,108	1,960	-9%
Net income divided by Revenue	16%	44%	26%	30%	

Source: ICE Annual Report of 2022 and 2021, CAGR = Compound Annual Growth Rate

ICE has significant strengths that it leverages: world-class digital technology, risk management expertise, broad distribution across many countries, and diverse product offerings. For example, ICE has proprietary real-time and historical pricing data in its exchange business. This proprietary data is a source of value. In addition, ICE has order book and transaction information for the global future markets and the NYSE, which is also valuable. Moreover, it has connectivity services that connect those exchanges with clearing houses, thus reducing time and costs, and increasing efficiency. Future contracts reduce risks for traders since they provide a hedging mechanism against market volatility, adding value. The confidence in such mechanisms increases if the price discovered using futures resembles the price at that time. Research has shown that price discovery using ICE trades in the natural gas futures market is more efficient for long-term price determination than physical trading at various European hubs (Schultz & Swieringa, 2013). Moreover, price discovery using future trades is even more efficient in gasoil using ICE futures than in other markets such as crude oil, heating oil, and natural gas using CME data (Kuruppuarachchi, Premachandra, & Roberts, 2019). Finally, in carbon emissions allowance trading, price discovery is based on futures, and, once again, ICE in London seems to be more efficient in price discovery than EEX in Leipzig (Stefan & Wellenreuther, 2020). However, in currency markets, it was found that CME was better at price discovery than ICE because it had higher trading activity, more volatility, and lower transaction costs (Li, Chen, & Nguyen, 2022).

In the fixed-income and data services business, ICE offers real-time prices on millions of fixed-income securities across 150 countries and eighty currencies. This offer includes sovereign, corporate, and municipal bonds and asset-backed securities. ICE also provides reference information for all these securities, allowing clients to decide on buying, holding, and selling.

In the mortgage technology business line, ICE has been applying machine learning and artificial intelligence to the entire loan origination process, thus increasing the efficiency that customers value. This efficiency is further improved by artificial intelligence-driven real-time risk analysis for the US residential mortgage market. ICE also provides industry benchmarking tools. This comparative analysis allows decision-makers to evaluate transactions.

The key strategy of ICE is to innovate and expand its networks to address the rising demand for transparency and efficiency. For this, it continuously develops its technology and risk management infrastructure while increasing distribution. A strategy focus on technology disrupts the market by offering lower-cost products to underserved markets (Christensen, Raynor, & McDonald, 2013). Entrants can overtake incumbent firms because they invest more heavily in innovation (Lerner, 1997). NASDAQ disrupted the market in the last part of the 20th century by automating the over-the-counter market and reaching out to high-technology firms. The technology-based strategy led ICE to reinforce the attractiveness of NYSE to counter the NASDAQ. It is useful to consider a perspective of disruptive innovation in the case of ICE, as it exemplifies a process of technology-induced market change (Nicholas, 2021) and illustrates the inter-plays between disruptors and incumbents.

Parallel to this innovation-driven internal growth, ICE strengthens its competitive position through select acquisitions and strategic relationships. These acquisitions could be buying young companies with rapid growth potential or mature companies that need to be reinvented, often through the digitalization of their processes. For example, the NYSE was losing to NASDAQ, and ICE went in to replace the legacy technology with light, modern, and efficient technology. This digitalization allowed ICE to modernize the NYSE and make it relevant again. The reduction in paper transactions (because of digitalization) that ICE has achieved in several areas reduces transaction costs and increases efficiency (Business Wire, 2023). It may also create a green image that could attract socially responsible investors. Another example of acquisitions and consolidation would be from ICE's mortgage business line. ICE has made a series of acquisitions: Mortgage Electronic Registration Systems in 2018, Simplifile in 2019, Ellie May in 2020, and Black Knight in 2023. ICE considers that the acquisition of Black Knight would enable it to obtain synergies and offer a more complete suite of services to its customers in the mortgage industry (Stafford & Asgari, 2022). The ensemble of services would enable ICE to lock in its customers.

Risky business: can the ICE crack?

We can classify the risks ICE faces into those emanating from the broader financial environment in which it operates, legal and regulatory risks in the countries where it operates, operational and liquidity risks common to digitalized businesses, and business model risks.

With globalization, global businesses have been subject to market risks emanating from the international business environment. Some of these, like COVID-19, affect all companies, although the direction of the risk could be positive or negative. In ICE's case, we have already noted that COVID-19 gave a positive boost since more people started trading because they had the time. ICE could capitalize on this because it had already digitalized, allowing it to provide services anytime, anywhere.

A second global phenomenon has emerged from conflicts. These have resulted in inflation, interest rate increases, and financial market volatility, which impact trading. As we can see, ICE's market capitalization fell post-COVID but has gradually returned to normal. Although fluctuation in currency rates could impact ICE's results since it is present in 150 countries, some of this could neutralize, except that most of ICE's business may still be in a few countries. An example of a global risk that impacted ICE is the fallout from the Russia-Ukraine conflict and EU sanctions. As a result of these sanctions, Russia started selling oil to the EU through third countries. Therefore, the EU decided to place caps on petrol and gas originating in Russia. These caps reduce volatility. Since traders and speculators seek volatility, reducing volatility owing to caps could adversely affect ICE's gas trading business (Stafford & Hancock, 2022). Although ICE threatened to move the gas trading platform out of the EU, the EU still imposed the caps and even started to develop a new index for liquefied natural gas.

A third level of business risks is specific to the industry in which ICE operates. For example, all clearing houses are exposed to risks related to the defaults by clearing members. ICE is also impacted by risks relating to investing margins and guarantee funds as well as the cost of operating clearing houses. If margins are linked to volatility, they can amplify procyclicality. However, competition among exchanges may limit margin levels to attract more trading (Park & Abruzzo, 2016).

Legal and regulatory risks emanate from the possibility that laws change, and this change in regulation impacts a business negatively. For ICE, such regulatory changes across 150 countries create market fragmentation and must be monitored carefully. ICE would need to make decisions on entering or withdrawing from countries if its business model can take the opportunity or is no longer viable, respectively. Change in the legal environment often requires changing operations and new reporting obligations, which require updating the systems. These regulatory changes, or even judicial decisions, may harm the operating model of ICE. An example could be risk relating to the administration of Indices such as LIBOR. Another example could be a political event such as Brexit, which could adversely affect ICE's business. ICE moved EU carbon trading from London to Amsterdam in the wake of Brexit (Stafford & Hancock, 2022). In 2018, ICE transferred trading in energy futures contracts from London to the US to mitigate the burdens of new Mifid II rules in Europe(Stafford & Hancock, 2022). Therefore, the geographical presence of ICE allows it to move its operations to offset such risks.

A different recent example of regulatory risk could be the crash of cryptocurrencies and a significant player like FTX going bankrupt. As a result of this bankruptcy, the US may promulgate new laws increasing the supervision by the US Security and Exchange Commission. These new laws would then have an impact on ICE. As a result, ICE is lobbying that the NYSE be allowed to move into tokenized trading, thus providing transparency and security to investors, obviating the need for new laws (McCrank, 2022). Of course, by entering the cryptocurrency market, ICE's overall risk may increase, but growth may also increase. The final value added would depend on the relative increase in risk and growth.

Another type of risk that impacts ICE is inimical to digitalized businesses. These businesses are vulnerable to cyber-attacks, hacking, and other cyber insecurities. These could result in wrongful manipulation or wrongful disclosure of data, allowing fraudsters to profit and harm the clients of ICE. Therefore, ICE clients could be unable or reluctant to use the electronic platforms. In countries where electricity supply is not regular, an interruption of services may lead to similar losses for clients. In fact, any significant computer failure or communication system failure could cause losses for clients and, eventually, for ICE. Digitalised businesses rely on servers that contribute to the planet's heating, which could, therefore, adversely impact ICE's reputation.

Finally, there are business risks related to growth strategies based on external acquisitions in a time of volatile interest rates. ICE's decision to acquire Black Knight was based on the extremely low-interest rates in early 2022. In late 2023, interest rates had increased by the time ICE got approvals for the merger. Therefore, the value of the acquisition could be lower. Higher interest rates could also upset the mortgage market, providing ICE’s mortgage technology business line a double whammy. Finally, if the merger of Black Knight disrupts ICE’s earlier acquisition in the mortgage technology section, it could even be a triple whammy.

Profiting from a VUCA world

It is often said that we are living in a volatile, uncertain, complex, and ambiguous (VUCA) world, a term attributed to the US Army and first used in management by Bennins and Nanus (1985). These four characteristics are heightened by market fragmentation. While they may threaten specific businesses, they are also opportunities. In the case of ICE, it can be argued that the VUCA world supported its development of disruptive innovation (Millar, Groth, & Mahon, 2018).

Speculators and traders like volatility. This suits platforms like ICE that provide exchange services and see an increase in transactions in volatile conditions. Other customers like hedging services such as futures contracts that can reduce the risk of volatility, providing ICE with a second market. The low transaction costs and high number of future transactions permit customers to hedge their risks and discover prices in an uncertain future. Finally, by diversifying its businesses, often through acquisitions, ICE has managed to reduce its dependence on volatility and uncertainty in transactions on any one product line.

Globalization, the development of financial markets, and the fragmentation of markets have increased complexity. This complexity creates an opportunity for operators who can provide more transparency and lock in customers by providing inter-connected services. By providing information along with benchmarks, ICE is able to simplify decision-making and attract customers who are saved from the trouble of having to search for information. Using the latest technology allows ICE (and its leading competitors) to stay ahead of other exchanges. Moreover, ICE seems to thrive in buying out exchanges in new segments, providing them with digital technologies and business process innovation. This allows it to add value to businesses that were becoming too complex to manage. If the acquired businesses are servicing different customers, ICE can further offer its services to them.

Finally, ICE is forced to embrace ambiguity because the technologies it uses and the businesses it operates have ambiguous terms that have not yet been interpreted by courts in many countries. Operating in over a hundred countries, ICE faces these legal ambiguities and geographical fragmentation of the markets but is able to shift venues to profit from the differences in regulations.

Can ICE go further? ICE's sustainability report mentions its Corporate Social Responsibility (CSR). This includes financial inclusion with a focus on financial education and financial literacy (ICE, 2022). It supports programs across the US, the UK, Israel, and India – providing education modules to youth and women about budgeting, investment, and data science. Beyond that, ICE could consider supporting value chain actors in developing countries to manage risk. For example, African farmers direly need commodity futures to protect them from volatility. By leveraging its experience and technology in developed markets, ICE could reach out to under-served customers in developing countries.

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