Although investors have long regarded local stockmarkets as a key element of global capital markets the legal, regulatory, and ownership structure of national stock exchanges has remained virtually unchanged since the 19th century. Only recently have exchanges, their members, and their regulators started to lift them into the new millenium. The key driver in this development has been technological progress in the form of electronic trading that led to more competition among exchanges and, more recently, direct competition from purely electronic trading platforms. In response, exchanges have demutualized and listed themselves becoming for-profit enterprises.

Note that write-ups and presentations espouse the different perspectives of each bank. Here are the details:

- **Write-ups** (from each party’s advisors) consist of executive memos to the parties’ senior management (e.g., from the senior investment banker advising on the transaction to each board). You are an associate at a major investment bank and your Managing Director has requested your opinion on how she should advise members of either board. She has requested that you identify potential opportunities and pitfalls, summarize your bidding and valuation strategy, and what you think the best possible outcome would in light of your analysis and findings.

- **Presentations** (to the boards of the respective companies) consist of valuation, bid recommendations, and an analysis of the strategic implications of the proposed transaction.

To gain a better understanding how the market assesses the transaction you might want to carry out simple event studies of the various events and look at their impact on shareholder wealth. As a reminder, a typical event study proceeds as follows:


2. Identify important announcements in the exit and acquisition process and determine the precise announcement date from the case materials or news wires, company websites, etc.

3. Collect and organize the required stock market data into date-matched continuously compounded returns.

4. Estimate a *market model* of stock returns analogous to the CAPM

\[
R_{it} = \beta_{0i} + \beta_{1i}R_{mt} + \epsilon_{it}
\]

where \(R_{it} = \log \frac{P_t}{P_{t-1}}\) is the firm’s continuously compounded daily return and \(R_{mt}\) is the continuously compounded return of an appropriate market index such as the S&P 500.\(^1\) Use

\(^1\)Carefully motivate your choice of index for the market model on the basis of the supplied data.
at least 180 data points but stop 50 days before each announcement under investigation. If you have closely grouped event dates, do not re-estimate the market model.

5. Analyze the price reaction of parties’ stock prices around (1) the initial expression of interest, (2) the announcement of competing interests, (3) the announcement of the acquisition terms, and (4) the completion of the transaction. Obviously, you need to identify the requisite announcement dates. Present your findings in a table containing the event, its date, the event’s \(\text{CAR}_i(-1,0)\) and \(\text{CAR}_i(-1,1)\), their respective statistical significance, and their wealth effects \(W_i(-1,0)\) and \(W_i(-1,1)\) for all firms.

(a) Identify the precise dates corresponding to the various events.

(b) Compute daily abnormal returns around the announcement date \(AR_{it} = R_{it} - \hat{R}_{it}\) from, say, 5 days prior to the announcement/event to 5 days after, i.e., \(t = -5, -4, \ldots, -1, 0, 1, \ldots, 5\). Given that you estimated a market model by regression methods, you need to use the corresponding market returns around the announcement date to derive predicted normal returns \(\hat{R}_{it} = \hat{\beta}_{0i} + \hat{\beta}_{1i}R_{mt}\). On the basis of your parameter estimates \(\hat{\beta}_{0i}, \hat{\beta}_{1i}\), plug in the market return realization \(R_{mt}\) to obtain the predicted normal return \(\hat{R}_{it}\), and, finally, calculate the abnormal return as \(AR_{it} = R_{it} - \hat{R}_{it}\).

(c) Fix an event window around the announcement date, e.g., from 2 days prior to 2 days after the announcement, say, and calculate the cumulative abnormal return \(\text{CAR}_i(-2,2)\) by summing the abnormal returns over the event window: \(\text{CAR}_i(-2,2) = \sum_{t=-2}^{2} AR_{it}\). You are asked to carry out this procedure for the two and three day windows from one day before to one day after the announcement, i.e., \(\text{CAR}_i(-1,0)\) and \(\text{CAR}_i(-1,1)\).

(d) Finally, to see the total shareholder wealth effect you compute cumulative abnormal wealth created by multiplying the appropriate \(\text{CAR}\) with the company’s market capitalization \(K_{i-11}\) on \(t = -11\), i.e., the eve of the event window around the announcement date: \(W_i(\tau_1, \tau_2) = \text{CAR}_i(\tau_1, \tau_2) \cdot K_{i-11}\).

6. Assess the statistical significance of \(ARs\) and each \(\text{CAR}\) by calculating the standard error of the \(\text{CARs}\) and their statistical significance (\(p\) values).

7. Finally, to see the total shareholder wealth effect you compute cumulative abnormal wealth created by multiplying the appropriate \(\text{CAR}\) with the company’s market capitalization \(K_{i-11}\) on \(t = -11\), the eve of the event window around the announcement date: \(W_i(\tau_1, \tau_2) = \text{CAR}_i(\tau_1, \tau_2) \cdot K_{i-11}\).

The following questions are meant to assist you in your group discussions and guide your analysis.

1. Analyze recent trends in global equity markets. What is the state of the industry at the time of the merger? It challenges? Its opportunities? To what degree have recent attempts at consolidation between competitors contributed to the transaction? Does it make sense in light of the sector’s technological evolution?

(a) What are the barriers to entry? How have they changed? What upstarts are challenging the long established incumbents?

(b) How has regulation changed? How has the decision to demutualize affected the competition among exchanges?
(c) Is there any difference between the exchange industry and other segments such as industrials or banking? What do recent mergers and further bids tell you about state of the industry?

2. Discuss the considerations for a company thinking of listing on NYSE or the Euronext. How would a merger of the two change such a decision? What other clients and stakeholders do exchanges have to consider when making strategic decisions?

(a) How do the different regulatory frameworks which apply to companies listed on either exchange play into the technology discussion?

(b) To what extent does the merger affect a young firm’s IPO decision. Discuss why listing on either exchange is a positive or negative for a company considering an IPO. What factors do companies consider when selecting an exchange to list on?

(c) Are there any limits to exchange consolidation? Do you think local investors prefer local exchanges? Why or why not?

3. Identify the partner’s respective strengths and weaknesses and research their (recent) corporate history. What do they bring to the table? Where is the fit and, if so, what do the parties need to do in order to make the merger a success? What about their respective (i) regulatory regimes, (ii) trading platforms, (iii) products, (iv) success at integrating acquisitions.

4. What are typical sources of synergies for exchange mergers? In addition to the usual revenue and cost synergies you might also want to look at diversification gains that arise from a larger pool of listings and investors.

(a) How does scale and technology fit into the synergy picture? Describe the respective cash and settlement platforms used by the exchanges and consider possible synergy losses due to integration costs and incompatible technology and/or regulation. Will these platforms complicate or facilitate integration with the NYSE?

(b) Investigate the scope for other (operational) synergies between the two parties. Where would you expect the synergies to come from?

5. Carry out a full-fledged valuation exercise for the two parties. In particular, value Euronext on a stand-alone basis, i.e., derive the target’s intrinsic value before any synergy considerations, growth opportunities, and diversification or restructuring gains. Next, value the acquirer, i.e., NYSE; finally, derive an estimate of the synergy gains. As a preliminary step, you obviously need to calculate and carefully document the appropriate costs of capital for both partners.

(a) Carefully derive the cost of capital of the two exchanges and fully document your analysis.

(b) What is the value of Euronext and NYSE, respectively, without any acquisition-related benefits and costs on a stand-alone basis? Fully document your analysis and assumptions. From a bidding perspective, what does the intrinsic value correspond to? How would the stand-alone value of the parent firms affect their stance in the merger transactions?

(c) Analyze the synergy gains carefully distinguishing between (i) cost synergies, (ii) revenue synergies, (iii) dead-weight losses due to regulatory constraints and lack of operational integration, (iv) diversification gains. What type of options, if at all, do they correspond to? How would you analyze diversification gains? What investments, if any, will be needed to unlock the synergy gains? Are they recurrent or one-off expenses?
(d) Are they very uncertain? Very certain? What is the track record in banking when it comes to realizing potential synergy gains from large-bank mergers? How would you expect the nature of synergy gains to affect the price and potentially competing bids?

6. Carry out a full real-options analysis of synergies and other growth or disposal options created through the deal.

(a) What possible synergies exist between the parents and where are they expected to come from? Are they realistic and what would be a good benchmark to judge them? What are the growth options?

(b) Analyze the expected synergies, their nature, origin, and unlocking costs on the basis of the supplied information for each bank. What is their present value, their net present value? Carefully document your sources and assumptions. Study the relationship between the current value of these assets $V_0$, estimates of the cost to unlock them $K$, and the implied synergy or growth option premia $c_0$.

(c) Which party stands to gain more from an acquisition from a pure synergy and growth opportunity point of view?

7. Analyze the political implications present in cross-border exchange mergers that would not be present in other industries. Given your findings above, is this truly a merger of equals or has it been simply labeled one to clear the merger through political channels? What about the competition and, in particular, Deutsche Börse’s half-hearted pursuit of Euronext.

8. How much should NYSE bid for Euronext? How should the bid be structured (cash, stock, combination thereof)? What is the minimum price that Euronext should hold out for? Investigate the pricing of the deal and to what degree the hoped-for synergies can justify the premium NYSE is paying.

(a) How large do the synergy gains need to be to justify the premium? To what degree does the realization of synergies depend on factors beyond the partners’ control?

(b) Does the exchange industry seem to suffer more or less from winner’s-curse phenomena than banking industry seem? How does buyer’s curse enter into exchange mergers in general, and the transaction under consideration in particular?

9. Use the supplied market data to analyze the market reaction to the transaction. Identify key dates (expression of interest, announcement of the deal, announcement of competing interests, completion of the acquisition) and carry out an event study of the stock-price reaction for Euronext, NYSE and Deutsche Börse. What does the market think? Who gains, who loses and by how much? Why?

1 Groups 1, 3, 5, 7

You are the senior i-banker advising John Thain, CEO of NYSE. Why and how should Mr. Thain convince the board of this merger’s strategic merits? What are the alternatives? How does the takeover battle for the London Stock Exchange (LSE) enter into the equation? What about Deutsche Börse’s competing bid? Advise your client.
2 Groups 2, 4, 6, 8

As a managing director of the investment bank advising Euronext, you are to lay out the strategic options to your client regarding the future of the institutions. Can Euronext go it alone as number three in the European market? Is a merger with the NYSE going to address your client’s long term interests and needs of are they simply trying to take advantage of your client’s vast cash trading and settlement technology platform? What are the alternatives to the transatlantic deal? Advise your client on how to proceed through the negotiation and deal process.

Please note the following ground rules for the case write-ups:

- the maximal group size is 5; every group member gets the same grade
- at most 2 pages of analysis and 6 pages of technical appendices;
- show your work, staple the pages together and be professional;
- late write-ups will not be accepted for any reason; they are due at the beginning of class for which the discussion is scheduled;
- graded write-ups will be available a week later.