

Case Study

Building an Office Tower in Manhattan

“The whole magic of our industry is twofold. One is to build a beautiful building but, more important, it’s got to be successful. The only way it becomes successful is if you start collecting rent. The sooner you start collecting rent, the sooner the building becomes more successful. The minute you start collecting rent, all the sins of the father are forgiven. Everything that we’ve done wrong, they forget – we’re all friends again.”

Marvin Mass, HVAC Contractor, Worldwide Plaza, **Skyscraper**, p. 306

Consider a real estate developer who is looking for opportunities to create value by constructing buildings. If the estimated value of the newly created space is worth more than the expected development costs, then there is a development opportunity. For an office building, the value will be based upon the leases that can be obtained for the office space. The development costs will include the cost of the land, preparation of the site, design & engineering, construction, and possibly various costs related to the approval process. For example, in return for building a new entrance to a subway station, the developer may be allowed to build more intensively.

In Manhattan and other urban centers, land becomes a very expensive resource, which causes strong economic pressures for intensive development. In very general terms, the value of a building will be proportional to the usable space that it contains, i.e. the space that can be leased to clients. Doubling the size of the building will therefore roughly double the usable space and therefore double the value of the building. On the other hand, development costs are not at all proportional to the size of the building. The price of the land depends upon the local real estate market, not the value of what you intend to build; whether you build a single story warehouse or a 50-story office building, the cost of the land will be the same. Moreover, whether that office building is twenty, fifty or eighty stories tall, it will require access to local streets, a lobby and a roof. Adding stories will, for a large building, simply mean replicating the designs and materials used for one story over and over again. While certain structural components will need to be stronger for a taller building, the added costs will be rather minor for a steel-framed structure.

Since there are economies of scale in building, the incremental cost of adding another story will be well below the average cost, while the incremental value of another floor of leasable space will not diminish (assuming the space can be leased!). Hence, adding more stories and maximizing the usable space on each story will increase the value of the project while reducing the average cost/square foot of the project. The developer therefore has a strong incentive to build the largest possible building.

There are various constraints to the size of the building that can or will be built:

- Zoning regulations may limit the portion of the site that can be developed or the total floor area ratio (FAR, the ratio of floor space to the area of the site).
- Technological capabilities may limit the height (although the limit is obviously more than 100 stories and seldom if ever a real limit today).
- Market considerations may limit the amount of space that the developer wishes to make available today.

Karl Sabbagh, in a highly readable book called “Skyscraper”, described the re-development of an entire block in Manhattan during the mid-1980s. The site, which had formerly been occupied by Madison Square Garden, was between 49th and 50th streets and 8th and 9th Avenues, a location in a rather rundown area somewhat west of the prime office locations in Manhattan. Developing the site as an upscale office building was somewhat risky, not because the rents would be lower than in the best locations, but because it might not be possible to rent the space at any price. Bill Zeckendorf, the developer, bought the land for \$100 million, but only when he was reasonably sure that the site would be able to attract tenants to what he called the “Worldwide Plaza”.

The zoning regulations called for a FAR of 12, which was increased by the city to 14 as a bonus for Zeckendorf's agreeing to make some improvements to the subway station on the site and to provide an acre of open space as part of the project. This provided an opportunity for 1.9 million sq. ft. of usable space, of which 1.5 million was in a 50-story office tower. Zeckendorf expected to be able to lease the space in the office tower at rates of \$20-\$30/sq. ft./year, with possible increases to \$40 in the future. These estimated lease rates were discounted by about \$5/sq. ft. from the rents achievable a few blocks toward the other side of Manhattan. At \$20/sq. ft., the annual rent would be \$32 million for the office tower; at \$30/sq. ft. the annual rent would be \$48 million.

The estimated costs for the entire project were expected to exceed \$500 million, and the costs for the office tower were estimated to be \$370 million (Table 1). The basic plan was to use a construction loan to cover the construction costs and to refinance to a 30-year mortgage at a lower interest rate once the building opened. The construction loan would have a high interest rate, because of the risks of delays and overruns in construction and the possibility that it might not be possible to lease all of the space. If all went well, the building space would be leased at favorable rates to long-term tenants, and the lease payments would be more than enough to justify a mortgage sufficient to repay the construction loan.

Table 1 Projected Costs of the 50-Story Office Tower

Cost Element	Estimated Cost
Land acquisition (office tower portion of the site)	\$58 million
Preparation of case for development (architects and lawyers)	\$5 million
Architects, engineers and borrowing costs	\$145 million
Construction cost	\$145 million
Project management	\$17 million
Total	\$370 million

Interest rates and lease rates were the keys to the success of the project. Interest rates were likely to be on the order of 10% or more for the construction loan and on the order of 8% for the mortgage. The costs of the construction loan were included in the estimated cost of the building, but delays and unexpected expenses could lead to higher interest payments. With an interest rate of 10% on the construction loan, the monthly interest on a balance of \$370 million would be about \$3 million (10% per year/12 months/year)(\$370 million).

If the construction costs were indeed on the order of \$370 million, and if Zeckendorf could obtain an 8% mortgage, then the annual mortgage payments would be approximately \$33 million:

$$\begin{aligned} \text{Annual payment} &= \$370 \text{ million } [A/P, 8\%, 30] \\ &= \$370 \text{ million } (0.0888) = \$32.9 \text{ million} \end{aligned}$$

If the building could indeed be rented at \$30/sq. ft., then the \$48 million annual revenue would seem to provide enough cash to cover this mortgage payment plus some operating expenses for managing the property. However, if the average lease rate were only \$20/sq. ft., then the cash flow would be about the same as the mortgage payment, with no reserve for managing the building. Thus, to have a successful project, it would be essential to complete the project on time and on budget, to secure long-term leases with favorable rates, and to secure long-term financing sufficient to cover the costs of construction.

The building was actually constructed for about \$380 million, as there were minor overruns in several areas related to construction or material problems. It was rented at rates of \$26 to \$32/sq. ft., with the lowest rate going to a major tenant who became a part-owner of the building and committed to leasing 600,000 square feet of space at the outset of the project. The next largest tenant obtained a rate of \$29/sq. ft., which was lower than the owners wanted, but it was accepted in the uncertain aftermath of the stock market crash of October 1987, just before the building was ready for occupancy. Smaller tenants paid rates of about \$32/sq. ft. By the end of the project, monthly interest costs were close to \$3 million and deferring rentals was costing close to \$4 million per month.

The building was constructed on a “Fast Track” basis in order to minimize borrowing costs during the construction period and to begin lease payments as soon as possible (Table 2). The projected lease payments were sufficient to justify a permanent mortgage that enabled Zeckendorf to repay the construction loan. Despite the unexpected downturn in the Manhattan real estate market, the building project was successful.

Table 2 Project Timetable for the World Wide Plaza

Event	Date
Site Acquisition	1985
Secure major tenant as co-owner	1985
Ground-breaking ceremony	November 12, 1986
Initial target for making space available to tenants	November 25, 1988
All tenants in the building, working on finishing their space	March 1989
Tenants start to move in	May 15, 1989
Permanent mortgage obtained for the entire project	May 31, 1989

The overall viability of the building depended upon being able to complete construction close to budget without major delays and being able to rent the building at something close to the expected rates. Both of these requirements were met. However, the objectives of the different actors were not based upon the overall perspective:

“In this particular building you have a pretty characteristic group. You have the architect, who has the design as his main consideration. He wants to put up a monumental building, something everybody is going to see and say, ‘Hey, wow! That’s great!’ It’s his entry into posterity. The construction manager, HRH, they’re interested in having a building up that they don’t get sued over, that’s going to stay in place. Each of the individual trades have the same interest as the construction company. The only difference is, each of the trades says, ‘I’m only going to do so much. The rest is someone else’s responsibility.’ So then you have to argue out who’s actually doing what part of the interface between the various trades. The consultant is working to represent the interest of the owner. Again, he’s after a viable building, something the guy can make money with. He’s not investing money to lose it. He also wants to make sure it’s sound. I tell you, he has about the same interest as the construction manager.”¹

Other participants would include the banks that provide the construction loan and the permanent mortgage. For them, the project involves providing a large sum of money up front in the hopes of receiving a larger sum a few years in the future (when the construction loan is repaid) or receiving an annuity that will provide a guaranteed return over a much longer period (via mortgage payments over a 30-year period). The banks take care to ensure that the size of the mortgage is limited by the ability of the owners to make mortgage payments; the banks will offer lower interest rates if they are more certain that the project will be successful.

¹ Sabbagh, op. cit. p. 199

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