

# Tianjin case study essay sample

[Finance](#)



Although business risk is low due to contractual obligations, and so is financing risk (despite high debt levels), Tianjin Plastics project carries material currency risk, both for its cash flows as well as dollar-profitability of Maple, the main sponsor. However, this should not turn the project unprofitable. Broadly defined political/country risk must be considered and accepted by Maple, if project is to happen. Hedge possibilities for those two risk categories are limited. We recommend going on with the investment - NPV for Maple is around \$ 12 Mio assuming constant RMB/USD rate, and remains positive under all plausible FX scenarios. On the basis of profitability considerations, we reject full Rmb financing option. With some reservations, we support back-to-back deal with Wintel. Introduction. Project's Risk Assessment.

While analyzing Tianjin Plastics project, we were mainly using capital budgeting tools, in particular the Net Present Value concept, applying it from the equityholder (Maple Energy) point of view. In short, we obtained cashflows for each year as Operating Margin net Interest Expenses net Taxes, corrected for formerly deducted depreciation (non-cash expense) and not included so far principal debt repayments (cash outflows, although no income statement event). The cash flows are discounted at the rate of 17%, which is explicitly mentioned by Maple as expected return and as such approximates the cost of equity. It exceeds Maple's hurdle rate by 2 p. p., which should already be perceived as adjustment for general projects risk (see section: Country/Political Risk). We account for Maple's initial outlay of \$8, 085Mio. The project has no salvation value - at the end of operating it is passed to Chinese authorities and no equity can be repatriated.

We use the risk matrix approach to assess the materiality of various risks associated with the project, with both business and financing side in mind. It visualizes risk types as products of two measures: probability of a risk occurrence and severity of harm it can do to the project. The full risk matrix and description of main risk types, can be found in Appendix 1. The risk matrix is the effect of qualitative analysis, which points out to those hazards that are of greatest importance for the project. Then, we go on to quantitatively evaluate the impact of major risk types (red and orange fields in the matrix) on the projects profitability. -32804101938020Chart 1: Scenarios for future Renminbi depreciation. 00Chart 1: Scenarios for future Renminbi depreciation.

We want to stress that currency risk (risk of unfavorable changes of RMB/USD rate) is imminent in the project and appears both on the project level (financing risk) and well as Maple's level (profitability in dollar terms). Therefore, we account for FX risk in all further analyses, most frequently applying selected scenarios. FX rate prediction 24 years ahead is cumbersome, but we identify 4 representative scenarios for possible RMB/USD developments (see Chart 1):(1) the depreciation trend continues at an annual average rate (1969 – 1996) of 1. 15%, (2) the exchange rate remains constant following the improvement of the current account balance showed in the 90's (3) the currency appreciates at a rate of 1. 15%, (4) a worst case in which the currency depreciates at an annual rate of 4%.

Capital Structure. Financing Risk Focus.

There are two financing options available for post-completion phase of the project: (1) dollar-denominated syndication loans + Rmb loan, and (2) 100% <https://assignbuster.com/tianjin-case-study-essay-sample/>

dollar-collateralized Renminbi loan from Bank of China. The choice has significant implications for project CFs sensitivity to Rmb depreciation. Under dollar-denominated debt from syndication loans, interest expenses and principal payments are subject to FX risk, caused by Rmb depreciation. Weaker inflows currency, increases dollar-fixed outflows (although payment is done in Rmb – lending banks assume convertibility risk, but not currency risk). This is a major channel of FX impact on project's NPV (even before Maple translates its profits into dollars). Dollar-debt gets more costly, as Rmb weakens. Conversely, Rmb financing could virtually insulate project cash flows (in Rmb terms) from FX exposure – Rmb debt obligations are not subject to FX-induced volatility. This reduces the volatility of overall project cash flows, and decreases financing risk.

It is easily to be seen in Chart 2 – slope of the curve for dollar-financing is higher than for Rmb financing, reflecting its greater sensitivity to currency risk. Chart2: NPVs as a function of annual Renminbi depreciation rate. In terms of profitability however, it is important to notice that the absolute interest expenses are higher for Rmb financing, as long as the annual Rmb depreciation rate remains below approx. 4%. Hence, the NPV for the project is generally lower. For high Rmb depreciation rates, FX effect on dollar-denominated debt obligations becomes huge, and the opposite holds (notice respective curves cross in Chart 2). Most of all however, dollar-collateral places great financial burden on Maple, as \$ 101.5 Mio should be arranged and serviced by the company itself. 4% interest on this deposit and the possibility to draw funds as the loan amortizes do not outweigh the cost of

borrowing this amount in U. S. dollar market. As a result, the NPV becomes negative for any plausible exchange rate scenario, which (from business viewpoint) rules this solution out. So despite risk mitigating properties, we do not recommend embarking on this solution. 18815052089150Critical Level

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-4902202643505Chart 3: Debt service ratios under different FX scenarios. In 2010-11 the ratios will be the same (and highly positive) for all scenarios, as only Rmb debt will be left. 00Chart 3: Debt service ratios under different FX scenarios. In 2010-11 the ratios will be the same (and highly positive) for all scenarios, as only Rmb debt will be left. Tianjin Project is financed with 85% debt, while the average leverage ratio for the power projects at that time is known to be 73, 07%. Project financing allows high levels of debt, if the cash flows are very predictable, which decreases the credit risk lenders are facing. In this case - due to contractual obligations, sales and operating costs are thought to be fixed and EBIT is expected to grow at 3% p. a. over 20 years of operating the plant, so also longer-term debt agreements can take place. Tianjin project benefits from tax deductions and the fact that debt is less costly than equity - implied equity cost is at least 15%, whereas WACC at the start of the project operational phase can be estimated at above 9%.

Whether Tianjin Project would be able to make the debt-service payments depends on cash flows it generates. We analyze Debt Service Coverage Ratios for the 12 years of repaying the syndication loans. It turned out that (in each of our four FX scenarios), there is enough cash flows to cover debt obligations (principal payments as well as interest expenses). Ratios get closer to 1 in case of extreme Rmb depreciation, but still remain well above

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it. We conclude is that debt servicing for the project is relatively safe.

Business Risk Focus.

The major conclusion from the NPV analysis (as seen in Chart 2) is that for the recommended financing option, under virtually all plausible currency scenarios, the project generates positive discounted cash flows (although Maple's profits magnitude is obviously affected) and should be pursued. However, this statement takes into consideration only FX risk. We expanded the analysis to cover for other risks deemed important in our risk matrix. Important assumption of the project is that the construction phase will last 4 years, immediately followed by positive operating margins. To quantify this major operational/completion risk in the project, we analyze the impact of 1-year construction delay on the NPV. In other words, we assume that in its 5th year, the project doesn't generate any operating inflows, but generates outflows linked to debt obligations due this year. Such a situation results in net loss for the year and significant reduction of NPV. However, less extreme FX developments this NPV still remains positive (see Chart 2 – red curve represents the NPV under this scenario as a function of Rmb depreciation).

Political Risk

Country/ Political Risk

The country risk of a state like China is hard to quantify, but material for any foreign investor. A way of incorporating this risk is inclusion of a premium in the required discount rate. The market risk of the project can be estimated by adjusting cost of equity by the country's beta and also increasing it by the premium of e. g. government bonds, cost of insurance from multinational institutions or using Political Risk Ratings. Considering the Chinese market

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risk relationship with the US of 1.03 and an average bond spread for A bonds of 150 basis points, the required rate of return for the project is 17%.

This discount rate was applied in the NPV model - hence we can conclude that all NPV results presented above already account for some general political risk. Chart 4: Tax rate effects on NPV under different FX scenarios.

00Chart 4: Tax rate effects on NPV under different FX scenarios. Here, we try to drill political risk down to more directly measurable categories. Relatively high political and economic instability could be reflected in e. g. tax regime changes. Current corporate tax rate equals 40%, but as the project is granted 6 years tax vacation, it effectively starts having taxes obligations in 10 years from now - the tax rate at that time cannot be taken for certain.

We present our estimates in Chart 4. Tax rate increase to 50% reduces the NPV by \$1.4Mio under constant Rmb rate, and not much differently for moderate appreciation/depreciation scenarios. However, even such a change has a potential to turn project unprofitable, should massive depreciation happen. We notice that odds of depreciation and tax increases could be positively correlated - one unfavorable event could entail another, wrecking up profitability of the investment. Project profitability for Maple - risk worth taking? Recommendations. Prospects for the project are favourable, but after positive cash flows are generated Maple has to decide about their remittance. After adjusting profits for the 17% ROI restriction, Maple as a 49% shareholder is entitled to repatriate its share of project-generated Rmb cash flows. In fact, when they are exchanged into dollars, the company exposes its all profits from the project to the currency risk. If further projects of this kind in China are probable, it is worth considering keeping the profits

in Rmb, bearing in mind possible future investments in this currency. In the absence of any FX derivative instruments able to hedge this exposure, the back-to-back loan with Wintel could serve as a substitute of partial hedging, and we believe that as such should be considered. Table below briefly outlines major aspects to account for.

Benefits	Risks
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Reduction of currency risk for the 6 years. Assuming no LIBOR changes, interest payments would hedge in total nearly Rmb 7 MM plus Rmb 70 MM of principal at the end of the contract. The loan would be serviced with the excess of the Rmb 70MM.

Cheaper than borrowing Rmb locally – 10.5% versus ~13%. Important credit risk. Wintel might not be able to repay the principal at the end of the deal or service the interest expenses. No information about creditworthiness of this partner. Exposure to interest rate risk through LIBOR (floating leg received). Could be avoided using interest rate swaps in the US with a long position in the fixed leg. If swap US fixed rate will be 7.2% (5.75+1.45), LIBOR effectively becomes constant for Maple. Currency risk at the end of the 6 year contract in case the project won't generate sufficient revenues to cover the interests and principal. This is a minor risk – expected cash flows for the first 6 years are way above the amount due to Wintel (principal Rmb 70 MM and Rmb 7MM of interest).

For Maple to go on with this project seems strategically important due to the magnitude of the future demand for energy in the Chinese market.

Participating now could benefit the company and give it a competitive edge in the medium and long run, whenever similar projects are executed. The



Chinese government has shown signs of increasing openness towards foreign investment. In addition, the Chinese financial markets have been showing improvements and have become more important in the global economy, with the exchange rate tending to a more flexible regime. We recommend closer inspection of prospects for tapping the Chinese market potential.

## References

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