Presale Discounts and Risk Sharing: Theory and Evidence from the Hong Kong Real Estate Market

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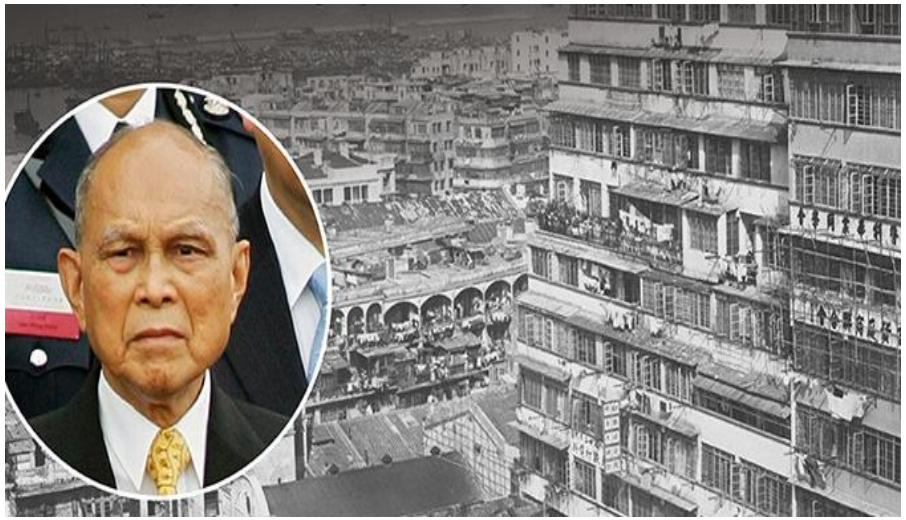
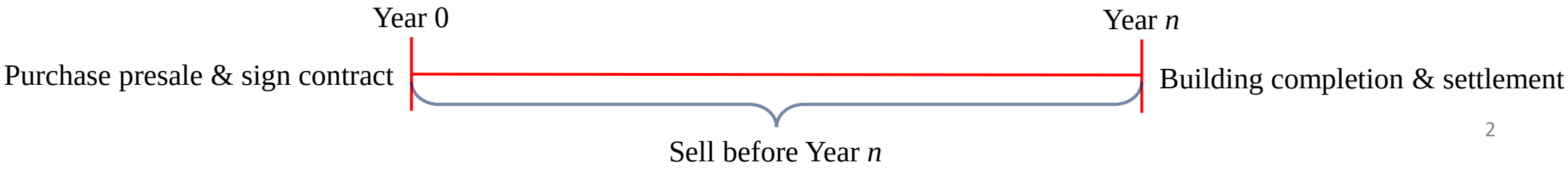
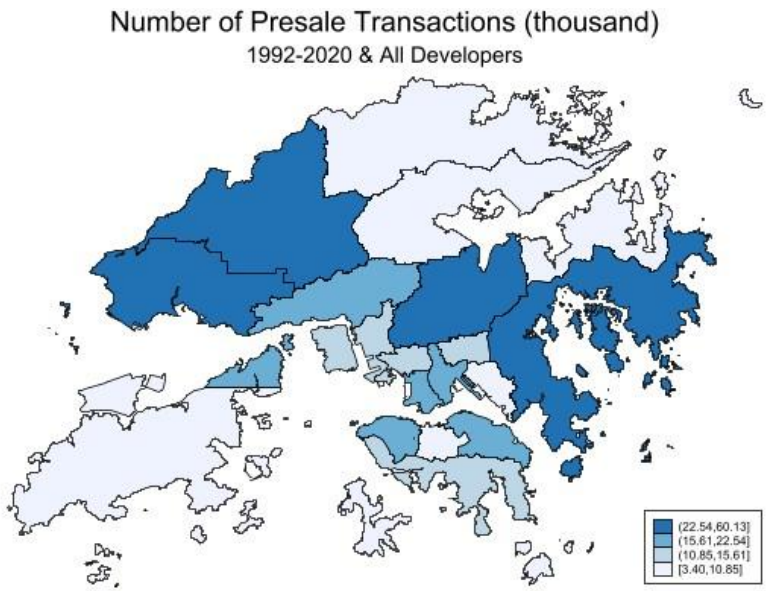
Background – Presales

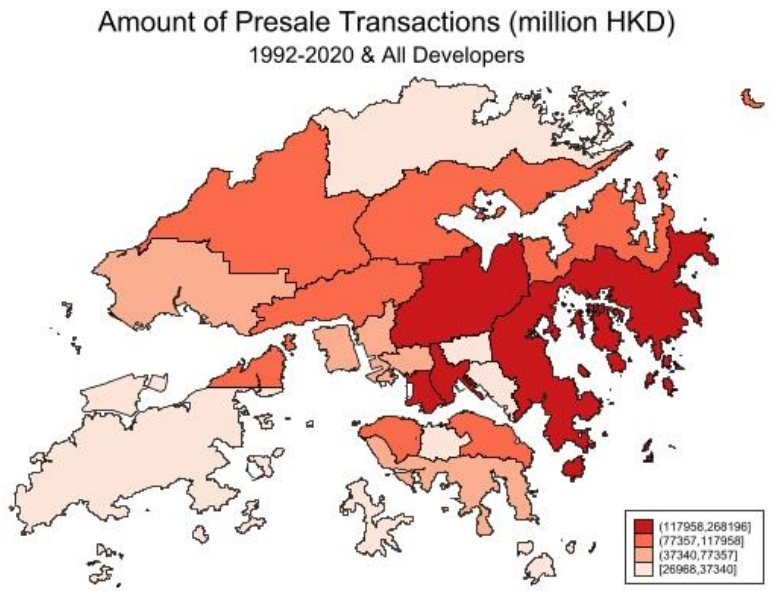
- **Presale is an innovation from Hong Kong residential property market.**
  - Presale is first introduced in Hong Kong by Dr. Henry Fok in 1954.
  - Presale becomes more popular around the world, and it is also called as “off-the-plan residential property”.
  - Developers: start to sell and receive cash inflows before construction.
  - Buyers: lock the price and pay the upfront deposit (e.g. 10% in the Hong Kong SAR) when contract is signed.
  - In most countries, they only settle the remaining payments at completion. (e.g. 2~3 years later in the Hong Kong SAR)

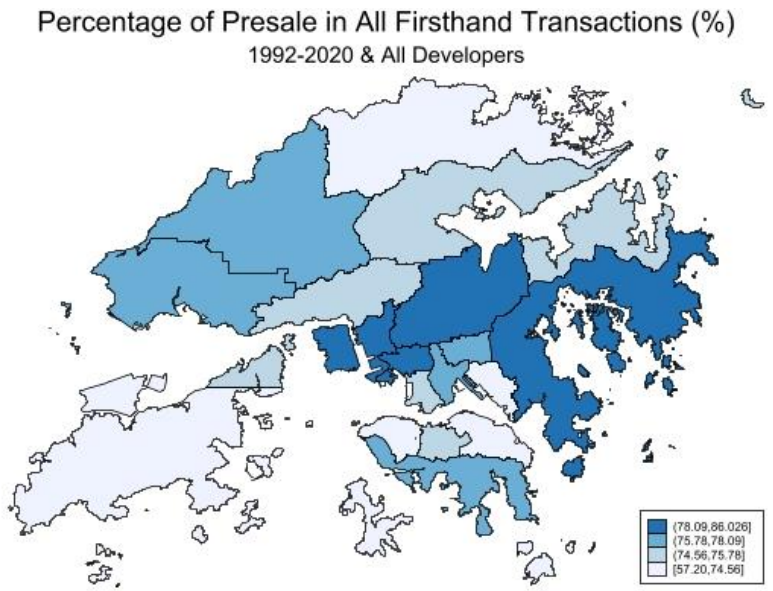




Background – Presales in the Hong Kong Presale Market







Background – Presales and Risks

What we know about Evergrande's 'black-box' restructuring

Beijing's orchestrated collapse of the indebted property developer is an attempt to limit contagion

Evergrande formally defaulted in December after months of missing payment deadlines © Noel Celis/AFP/Getty Images

One district asked for presale revenue from a stalled residential development to be moved so that 'homebuyers' interest can be protected and project construction continued' © Aly Song/Reuters

Evergrande is delaying repayments and requested to place presale revenue into a stat-controlled custodial account:
Real estate developers face significant risks in managing new developments, and the cash inflows generated by presale are crucial for a developer's survival and deserve attention from both academic researchers and market regulators.

This Paper – Motivations

- **Motivations**
  - New real estate developments involve considerable risks, such as, developers are usually highly levered with construction loans, the market condition upon construction completion is largely uncertain when a development project commences, etc.
  - A presale contract is a risk sharing instrument helping developers to mitigate uncertainty in property sales and improve their financial position. (Lai et al. 2004, Gan et al. 2022)

This Paper – Research Questions

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- **Research Questions**
  - How real estate developers utilize presale contracts to manage risks and shift them to buyers?
  - What factors drive the variations in behavior among real estate developers regarding the use of presale contracts?

This Paper - Methodologies

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  - What factors drive the variations in behavior among real estate developers regarding the use of presale contracts?
- **Methodologies**
  - Theoretically: propose a closed-form model to analyze the tradeoff between the developers' risk shifting motive and the presale price.
  - Empirically: use a comprehensive dataset on presale contracts in the Hong Kong real estate market from 2001 to 2020.

This Paper – Main Findings

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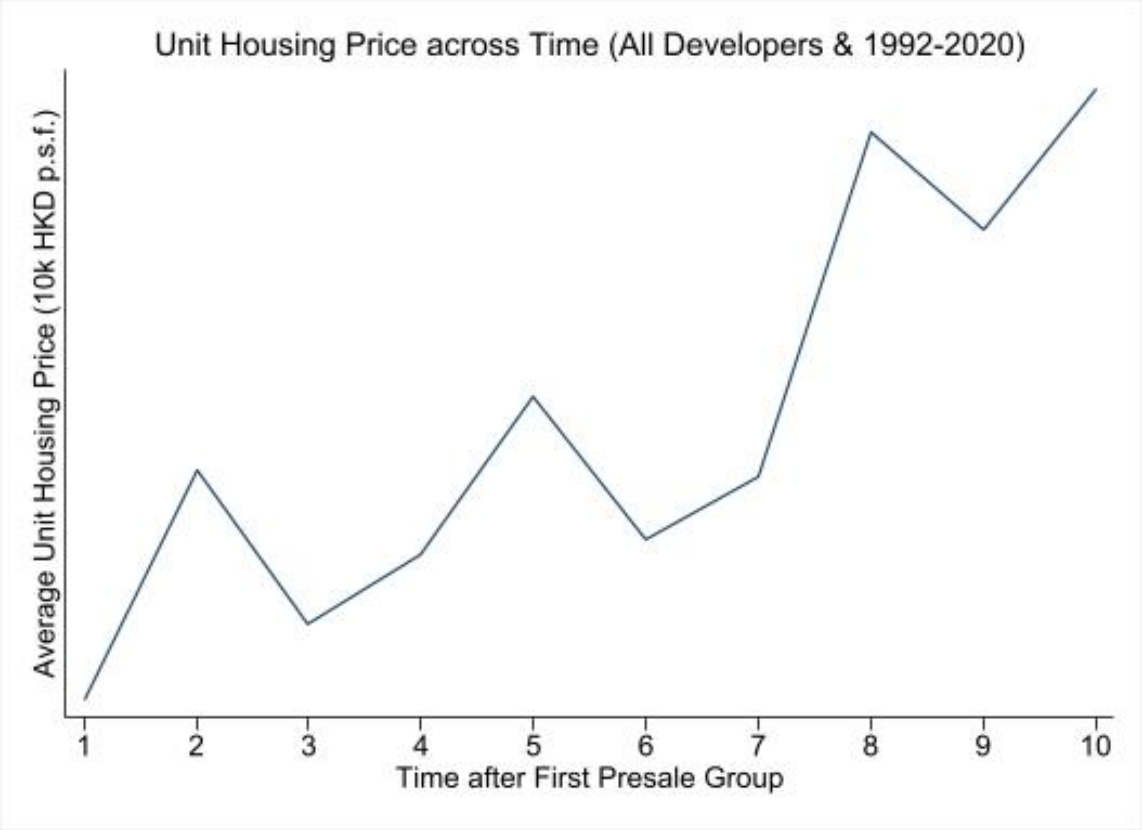
  - An upward-sloping presale price-time relationship, i.e. developers tend to offer more discounts for earlier presales than the following ones, which is consistent with our theoretical model predictions.



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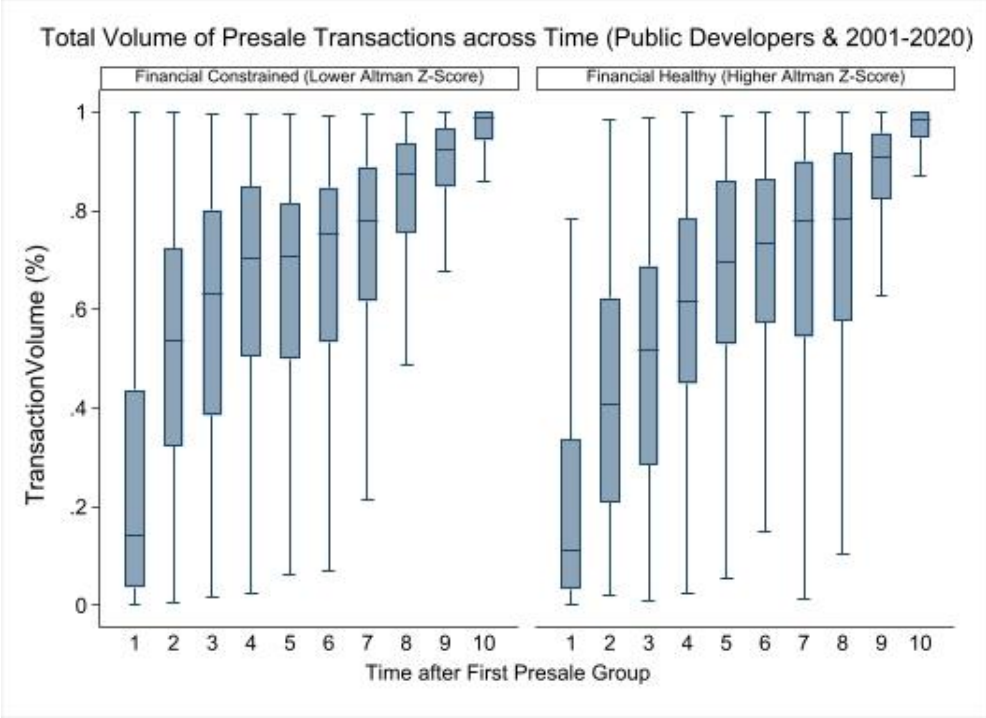
- ❑ When developers face more financial constraints, they tend to offer more presale discounts and sell faster.



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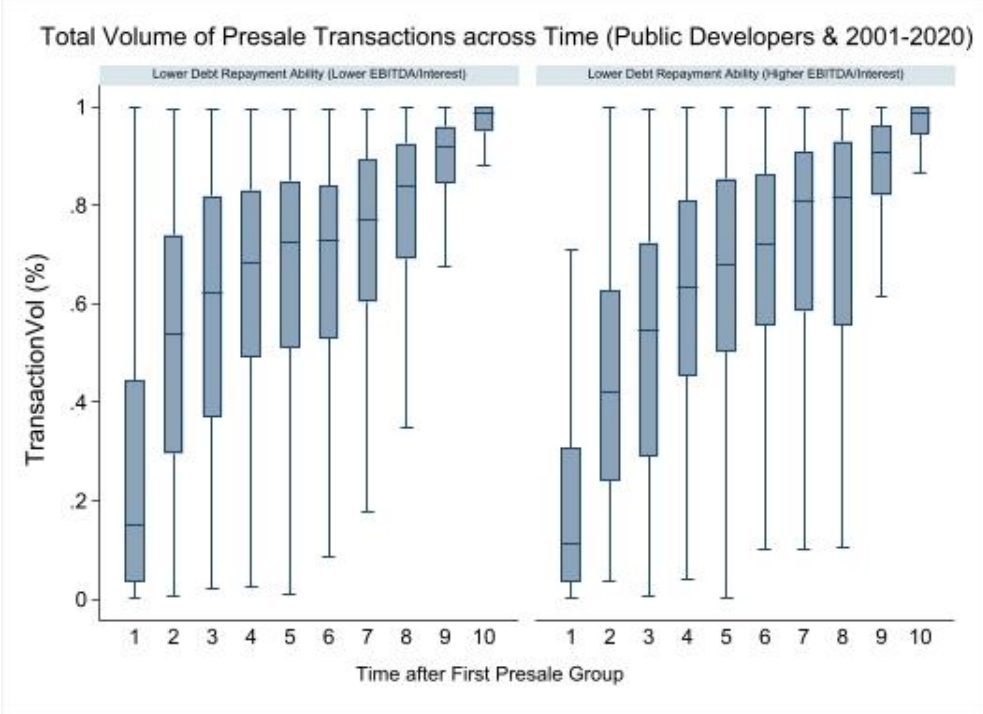

This Paper – Contributions

- **Literature on presale mechanisms in the real estate market**
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  - Lai et al. (2004), Choi et al. (2012), Chen et al. (2014)
  - Our paper, to our knowledge, is the first in the literature that explicitly establishes the link between risk averse developers' financing costs and their presale price-time sensitivity.

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- **Literature on financial constraints and fire sales**
  - Pulvino (1998), Eckbo and Thorburn (2008), Coval and Stafford (2007), Andersen and Nielsen (2017)
  - Our paper shows presale discounts are different from fire-sale discounts as fire sales and fire-sale discounts are usually associated with the existing, real assets, and only happen when firms default or are about to default, while presales and presale discounts are associated with to-be-built assets, and are used when developers operate.

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- **Implications for both academic researchers and policymakers**
  - The potential impact of policies on developers and homebuyers, especially in the presale market.

Empirical Analyses

Data and Sample

- **Complete Property Transaction Data for Hong Kong Land Registry (EPRC)**
  - Sample period: Jan 1992 - Dec 2020
  - Sample size: 324,025 presales sold by both listed and private developers
    - Keep only presale records where the actual transaction date is earlier than the building completion date and the time difference between the two is no longer than three years
    - Exclude presale records where the settlement date is the same the contract signing date
    - Exclude special building types such as Home Ownership Scheme (HOS), village, Tenants Purchases Scheme (TPS), and special transaction types identified and assigned “Y”
  - Key Variables: contract sign date, contract price, building settlement date, building completion date, estate name, building name, floor level, unit number, number of bedrooms, number of living rooms, housing area, bay window area, facilities (swimming pools and gyms), etc.

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- **Capital IQ**
  - Sample period: Q1 2001 - Q4 2020
  - Sample size: 50,498 presales sold by 22 unique listed developers
    - Drop observations without sufficient financial ratios we used in the following analyses
    - Delete observations with negative ROA
  - Key Variables: Altman's Z-score, interest coverage ratio (EBITDA/Interest Expense), return on equity (ROE), revenue in Hong Kong, revenue in Mainland China, total revenue, etc.

Key Measures

- **Time after First Presale**

$$Time\ after\ First\ Presale = \frac{Transaction\ Date\ - First\ Presale\ Date}{Last\ Presale\ Date\ - First\ Presale\ Date},$$

where for each building, $Time\ after\ First\ Presale = 0$ for the first presale record and $Time\ after\ First\ Presale = 1$ for the last presale record in our sample.

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- **Unit Price (10K HKD/PSF)**

The average transaction price of each house and the unit is 10 thousand HKD/square feet.

- **% Dollar Presold**

$$\%\ Dollar\ Presold = \frac{\sum_{First\ presold\ time}^{Current\ presold\ time} value\ of\ presold\ property}{\sum_{First\ presold\ time}^{Last\ presold\ time} value\ of\ presold\ property} * 100,$$

for each building.

Summary Statistics

◆ **All Developers (1992-2020)**

Variable	N	mean	sd	min	P25	P50	p75	max
Time after First Presale	324,025	0.114	0.213	0	0.002	0.013	0.106	1
Days after Presale		68.7				11		
% Dollar Presold	324,025	0.536	0.282	0.001	0.298	0.543	0.779	1
Unit Price (10k HKD/PSF)	324,025	0.764	0.546	0.151	0.393	0.569	0.967	3.161
Unit Price (10k USD/PSM)		1.053				0.784		
Listed Developer (0 or 1)	324,025	0.364	0.481	0	0	0	1	1

◆ **Listed Developers only (2001-2020)**

Variable	N	mean	sd	min	P25	P50	p75	max
Time after First Presale	50,498	0.148	0.223	0	0.003	0.025	0.220	1
Days after Presale		99.9				11		
% Dollar Presold	50,498	0.554	0.279	0.002	0.330	0.556	0.790	1.000
Unit Price (10k HKD/PSF)	50,498	1.260	0.580	0.190	0.818	1.198	1.651	3.161
Unit Price (10k USD/PSM)		1.736				1.651		

Summary Statistics

◆ **Distribution of Presales**

	Percent (%)	Cumulative Percent (%)	Percent (%)	Cumulative Percent (%)
	All Developers		Listed Developers	
Variable	N	mean	N	mean
First Day [0, 1]	49,894	15.40	8,439	16.71
First Week (1, 7]	83,554	41.18	14,477	45.38
First Month (7, 30]	81,822	66.44	9,918	65.02
First Quarter (30, 90]	41,409	79.22	4,810	74.55
First Half Year (90, 180]	25,556	87.10	3,222	80.93
First Year (180, 365]	27,032	95.45	5,176	91.18

Presale Price-Time Tradeoff (All Developers)

	(1)	(2)	(3)
Dependent Variable	Log_Unit Price (10k HKD/PSF)		
	Sample: All Developers & 1992-2020		
Time after First Presale	0.037***	0.020***	0.024***
	(0.002)	(0.002)	(0.002)
House Attributes	NO	YES	YES
Building FE	YES	YES	YES
Year FE	NO	NO	YES
Number of Obs.	323,915	323,915	323,915
Adjusted R-squared	0.979	0.984	0.985

- **Finding #1A:**
  - We find an upward presale price-time relationship, after controlling housing attributes and various combination of fixed effects, which confirms a price discount for earlier sales than later sales.
  - Quantitatively, when the time after first presale increases 100%, the unit price increases 2.4% (i.e. on average, when the presale pasts around 2 months, the unit transaction price increases around 253 USD/PSM).

Presale Price-Time Tradeoff (Listed Developers)

	(1)	(2)	(3)
Dependent Variable	Log_Unit Price (10k HKD/PSF)		
	Sample: 1992-2020		
	Listed Developers	Private Developers	All Developers
Listed Developer*Time after First Presale			0.025***
			(0.003)
Time after First Presale	0.055***	0.012***	0.016***
	(0.003)	(0.002)	(0.002)
House Attributes	YES	YES	YES
Building FE	YES	YES	YES
Year FE	YES	YES	YES
Number of Obs.	117,990	205,925	323,915
Adjusted R-squared	0.983	0.984	0.985

- **Finding #1B:**
  - The upward presale price-time relationship is higher for listed developers than private developers.

Impact of Z-Score (Financial Distress / Bankruptcy Probability)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Log_Unit Price (10k HKD/PSF)			% Dollar Presold		
	Sample: Listed Developers & 2001-2020					
Z-Score*Time after First Presale	-0.045***	-0.029***	-0.018***	-0.029***	-0.027***	-0.013*
	(0.003)	(0.003)	(0.003)	(0.007)	(0.007)	(0.008)
Time after First Presale	0.213***	0.152***	0.099***	1.022***	1.012***	0.952***
	(0.009)	(0.008)	(0.008)	(0.022)	(0.022)	(0.024)
Z-Score	-0.046***	-0.052***	-0.024***	-0.027*	-0.029**	-0.028
	(0.007)	(0.006)	(0.007)	(0.014)	(0.014)	(0.018)
House Attributes	NO	YES	YES	NO	YES	YES
Building FE	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	YES	NO	NO	YES
Number of Obs.	50,489	50,489	50,489	50,489	50,489	50,489
Adjusted R-squared	0.969	0.979	0.979	0.579	0.580	0.588

- **Finding #2A:** when a developer suffers high financial distress measured by a lower Altman's Z-Score, a higher presale discount will be offered to buyers to presale more quickly, as presale proceeds can help developers mitigate temporary financial distress such as avoiding a to-be-missed debt payment.

Impact of Interest Coverage (Debt Repayment Ability)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Log_Unit Price (10k HKD/PSF)			% Dollar Presold		
	Sample: Listed Developers & 2001-2020					
EBITDA/Interest*Time after First Presale	-0.110***	-0.071***	-0.054***	-0.081***	-0.076***	-0.049***
	(0.015)	(0.013)	(0.011)	(0.017)	(0.017)	(0.017)
Time after First Presale	0.125***	0.095***	0.066***	0.966***	0.961***	0.933***
	(0.005)	(0.004)	(0.005)	(0.011)	(0.011)	(0.014)
EBITDA/Interest	0.027***	0.004	0.006	0.028**	0.024*	-0.158***
	(0.009)	(0.007)	(0.008)	(0.014)	(0.014)	(0.023)
House Attributes	NO	YES	YES	NO	YES	YES
Building FE	YES	YES	NO	YES	YES	YES
Year FE	NO	NO	NO	NO	NO	YES
Number of Obs.	50,489	50,489	50,489	50,489	50,489	50,489
Adjusted R-squared	0.969	0.979	0.979	0.579	0.580	0.589

- **Finding #2B:** as cash inflow of presale helps developers with higher debt burden to pay back debt, developers with lower interest coverage ratios tend to have higher presale discounts and presale more quickly.

Impact of Return on Equity (Profitability)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Log_Unit Price (10k HKD/PSF)			% Dollar Presold		
	Sample: Listed Developers & 2001-2020					
ROE*Time after First Presale	-0.551***	-0.346***	-0.287***	-0.880***	-0.847***	-0.755***
	(0.075)	(0.049)	(0.049)	(0.102)	(0.101)	(0.101)
Time after First Presale	0.155***	0.113***	0.083***	1.038***	1.032***	0.997***
	(0.008)	(0.006)	(0.007)	(0.017)	(0.017)	(0.020)
ROE	0.285***	0.198***	0.036	0.109***	0.093**	0.444***
	(0.030)	(0.025)	(0.043)	(0.042)	(0.042)	(0.076)
House Attributes	NO	YES	YES	NO	YES	YES
Building FE	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	YES	NO	NO	YES
Number of Obs.	50,489	50,489	50,489	50,489	50,489	50,489
Adjusted R-squared	0.969	0.979	0.979	0.579	0.581	0.589

- **Finding #2C:** when a developer has a more comfortable financial condition measured by a higher ROE, a lower presale discount will be offered to buyers to presale more quickly.

Impact of HK Revenue / Total Revenue (Business Concentration)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Log_Unit Price (10k HKD/PSF)			% Dollar Presold		
	Sample: Listed Developers & 2001-2020					
Revenue in HK to All Counties*Time after First Presale	0.037**	-0.014	0.029**	0.300***	0.293***	0.231***
	(0.015)	(0.013)	(0.013)	(0.034)	(0.033)	(0.035)
Time after First Presale	0.073***	0.084***	0.035***	0.754***	0.755***	0.780***
	(0.010)	(0.009)	(0.008)	(0.020)	(0.020)	(0.020)
Revenue in HK to All Counties	-0.159***	-0.095***	0.000	-0.303***	-0.301***	0.004
	(0.017)	(0.015)	(0.018)	(0.024)	(0.024)	(0.030)
House Attributes	NO	YES	YES	NO	YES	YES
Building FE	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	YES	NO	NO	YES
Number of Obs.	50,489	50,489	50,489	50,489	50,489	50,489
Adjusted R-squared	0.969	0.979	0.979	0.581	0.582	0.589

- **Finding #2D:** developers with high business concentration are prone to local market downturns, financial shocks and thus larger presale discounts and faster presales.

Identification Strategy: Government Interventions

- On 26 March 2005, the Chinese mainland government proposed 8 rules to cool down the housing market.

- To improve the land supply efficiency, developers are required to start construction in a shorter period and are not required to hoard the residential construction lands. Meanwhile, government has the rights to reclaim the land use rights if developers do not complete the construction on time.

- These cooling measures impose exogenous restrictions on developers with business in the mainland China (i.e. treated group) and to some extent can impact these developers' financial constraints, compared to other developers without business in the mainland China (i.e. control group).

- Many developers have responded to the policy by immediately reducing the price to sell their inventory. (http://house.people.com.cn/n/2015/0330/c164220-26773202.html, https://baike.baidu.com/item/%E5%9B%BD%E5%85%AB%E6%9D%A1/7484994, etc.)

	(1)	(2)
Dependent Variable	Log_Unit Price (10k HKD/PSF)	% Dollar Presold
	Sample: Public Developers & 2001-2020	
	Time Window: [-3y, +3y]	
Post_26mar2005*Revenue in Mainland China*Time after First Presale	1.068***	3.884***
	(0.359)	(0.707)
Post_26mar2005*Revenue in Mainland China	-0.068	-0.973***
	(0.060)	(0.123)
Post_26mar2005*Time after First Presale	-0.204	1.580***
	(0.135)	(0.298)
Revenue in Mainland China*Time after First Presale	-0.320**	2.375***
	(0.150)	(0.126)
Post_26mar2005 (0 or 1)	0.018	-0.170***
	(0.028)	(0.044)
Time after First Presale	0.089***	1.144***
	(0.022)	(0.050)
House Attributes	YES	YES
Building FE	YES	YES
Year FE	YES	YES
Number of Obs.	6,151	6,151
Adjusted R-squared	0.957	0.508

- **Finding #3:** developers tend to offer more discounts for earlier presales than the following ones. This confirms that a presale contract is a risk sharing instrument helping developers to mitigate uncertainty in property sales and improve their financial position.

Robustness Checks

- **Alternative Sample**
  - All developers & 2001-2020

- **Alternative Measures**
  - Focal variables: days after presale, time to completion
  - Dependent variable: transaction price (million HKD), % Unit Presold

- **Alternative Specifications**
  - Different time windows for the DDD regressions of the identification strategy
  - High dimension fixed effects: Building*Year FE

Conclusions

- **Research Questions**
  - How real estate developers utilize presale contracts to manage risks and shift them to buyers?
  - What factors drive the variations in behavior among real estate developers regarding the use of presale contracts?
- **Methodologies**
  - Theoretically: propose a closed-form model to analyze the tradeoff between the developers' risk shifting motive and the presale price.
  - Empirically: use a comprehensive dataset on presale contracts in the Hong Kong real estate market from 2001 to 2020.
- **Main Findings**
  - An upward-sloping presale price-time relationship, i.e. developers tend to offer more discounts for earlier presales than the following ones, which is consistent with our theoretical model predictions.
  - When developers face more financial constraints, they tend to offer more presale discounts and sell faster.
  - We confirm a causal evidence using the mainland China government's policy.
- **Contributions**
  - Literature on presale mechanisms in the real estate market, the micro foundations of presale pricing implications, and financial constraints and fire sales
  - Implications for both academic researchers and policymakers

Thank you!