LIMA, Peru—In an elegant, slightly dilapidated plaza, presidential candidate Ollanta Humala promises pensions for the elderly, higher minimum wages, lower prices for cooking gas and to throw corrupt politicians in jail, as his followers sporting "Ollanta" headbands thrust their fists in the air.

Such populist promises have catapulted the 48-year-old former military officer into first place in opinion polls, with a little more than 25% of the vote, among 10 contenders heading into the first-round election Sunday.

But they also unnerve investors, evoke comparisons by his opponents and political analysts to Venezuelan President Hugo Chávez and raise concerns that Peru could waver from the disciplined policies that have made it one of the world's fastest-growing economies.

Mr. Humala is also seen potentially moving Peru from being a stalwart U.S. ally to a country keeping its distance from Washington, in the style of the populist governments in Bolivia, Nicaragua and Venezuela.

Peru has been an economic success story in the past decade thanks to sound market-oriented policies and high prices for commodities such as fishmeal, gold, silver and copper. Since 2001, Peru's gross domestic product has tripled and the poverty rate has halved.

But Mr. Humala has staked out positions that appeal to the millions of Peruvians, many from the high Andes Mountain areas, who haven't benefitted from the economic boom.

Polls show Mr. Humala leading a fragmented field with more than a quarter of the expected vote, but falling short of a majority, suggesting a likely runoff vote on June 5. Analysts said his chances of winning a runoff were in doubt if supporters of moderate candidates closed ranks behind a single standard-bearer.

Four other candidates have a shot at passing into the second round with Mr. Humala. They are Keiko Fujimori, the daughter of imprisoned ex-President Alberto Fujimori, who polled at 20.5%, according to a Ipsos-Apoyo poll published April 3; Alejandro Toledo, a Stanford University-trained ex-president with a 18.5% backing; ex-Prime Minister Pedro Pablo Kuczynski, who said he would renounce his U.S. citizenship if elected, with 18.1%; and Luis Castañeda, ex-mayor of Lima, with 12.8%.

Mr. Toledo, who relinquished an early lead amid a lackluster campaign, would have the best chance of beating Mr. Humala in a one-on-one race, said political scientist Julio Carrión of the University of Delaware. Mr. Toledo, 65, led Peru to a period of strong economic growth from 2001 to 2006. But many Peruvians have never warmed to him, partly because of personal issues, such as his reluctance to recognize a daughter born to a woman who wasn't his wife.

Ms. Fujimori, 35, has pledged to maintain Peru's current economic policies. Some analysts fear her election might reawaken the kind of corruption and authoritarianism that marred her father's government. She counters that any government she leads will respect democratic norms.

Mr. Kuczynski, 72, wants to boost investment in education, infrastructure and security. Mr. Castañeda, 65, is touting his administrative experience and promising good government.
Peruvian voters are notoriously unpredictable and some 30% are still undecided, pollsters say.

Mr. Humala, his hoarse voice reverberating in the cool evening air at the recent campaign event, said his party would bring about a "grand transformation" in which the nation's wealth would be more widely distributed.

"Ollanta is for the people," said Victor Uuihui, a 49-year-old laborer who joined fellow nationalist party supporters in the downtown Lima plaza. "The other politicians just want to trick us."

Mr. Humala has toned down the radical image he presented in the 2006 election, when he narrowly lost to Peru's current leader, Alan García, who is constitutionally barred from serving consecutive terms. Mr. Humala brought in Brazilian campaign advisers and has followed the playbook of ex-Brazilian President Luiz Inácio Lula da Silva. Mr. da Silva lost three presidential elections because voters thought him too radical, but reinvented himself as a centrist and then won two elections.

In attempting a similar metamorphosis, Mr. Humala has ditched the red T-shirt he wore in 2006 in favor of business suits. In a policy switch, he now says he would welcome investments from Chile, a regional economic power that is Peru's historical rival. He also vowed not to meddle with the independence of Peru's central bank. "The Peru of 2006 has changed and so have I," Mr. Humala recently said, adding that any transformation of the economy would be gradual.

Critics say Mr. Humala's transformation to a moderate is merely cosmetic.

"It would be a catastrophe if Humala were elected," said Fernando Rospigliosi, a former interior minister in the Toledo administration, now an independent political analyst. "It would mean a delay in investments that would have an immediate effect on economy."

President García recently alluded to Mr. Humala indirectly as "a candidate who proposes a radical change in the system." Analysts note that Mr. Humala has issued seemingly contradictory statements on whether he would or wouldn't seek changes in a free-trade agreement Peru signed with the U.S. in 2006, although he isn't explicitly anti-American. Mr. Humala has promised to overhaul Peru's constitution in order to give the state more control over resources. He harshly criticizes exports of natural gas from Peru and wants to place a windfall tax on mining company profits.

During the current campaign, Mr. Humala has nimbly tried to distance himself from Mr. Chávez, himself a former military man. Last week, when Mr. Chávez referred to Mr. Humala as "a good Peruvian soldier," Mr. Humala pointedly asked Mr. Chávez to stay out of the election. Mr. Humala's critics fear he would rewrite the constitution and entrench himself in power, in the manner of Mr. Chávez, who has led Venezuela since 1999. Mr. Humala denies such ambitions, saying he would serve "five years and not one day more."

He says his opponents are running campaigns aimed at spreading fear. "Who are the ones who are afraid," Mr. Humala yelled out in his closing speech. "The corrupt," his followers responded.